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THE NORWEGIAN STATE'S RELATIONSHIP TO
THE INTERNATIONAL OIL COMPANIES OVER
NORTH SEA OIL, 1965-75

by

Petter Nore

Thesis submitted for the degree of
Doctor of Philosophy of the
Council for National Academic Awards

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ABSTRACT

The thesis examines the relationship between the Norwegian state and the international oil companies from 1965 when the first oil concessions were granted on the Norwegian Continental Shelf to the beginning of 1975. It singles out three variables which were the objects of bargaining between the state and the companies during this period; oil-rent, volume control and Norwegian share of spinoffs from oil. To study in more detail the division of oil-rent over time we have constructed a cash-flow model which incorporates different participation schemes which were negotiated between the state and the companies and which also takes account of different exploration success rates. This framework of analysis makes use of a historical methodology. It attempts to recreate what the likely division of rent would have been at the time when new concessions were granted to the companies in 1965, 1969, 1973, 1974. It is only based on what the state and the companies expected the costs, revenues and tax conditions to be that it is possible to understand the historical development of Norway's oil policies. We have also carried out a number of sensitivity tests to see how changes in the variables which influence costs and revenues would have affected the division of rent and the Internal Rate of Return (IRR) of the companies. The most important of these factors was the shape of the production profile.

To understand the development of the three chosen bargaining variables over time, and in particular the constantly increasing role of the Norwegian state with respect to all three variables, we have relied on three explanatory factors. First exogenous changes in the expected Present Value from the oilfields in the North Sea; secondly the situation in the international oil industry; and thirdly the special characteristics of the Norwegian state. While development of the first two factors opened up the way for a strengthening of the role of the Norwegian state in the industry and made them easier to achieve, the particular form and manner in which these changes were grasped by Norwegian policy-makers can only be understood with reference to the historical and political peculiarities of the Norwegian state, in particular the weakness of the national Norwegian capitalist class. Norwegian oil policies also operated within a set of ultimate policy constraints. This meant that the Norwegian policies tried to increase the state's share of the total rent by a process of participation and by the creation of a state oil corporation, Statoil, which did not imply any fundamental confrontation with the private companies and which left the IRR of these virtually intact. There are thus no 'unicausal' explanations of the increase in the role of the Norwegian state in the oil industry. Any satisfactory explanation must rely on an interdisciplinary perspective. No purely economic, sociological or political approach to state intervention in a modern society is possible.

PREFACE

I would like to thank the following people for invaluable help and inspiration in the writing of this thesis: my supervisors Dr. Thanos Skouras and Dr. Greg Koolman; all members of the CSE's oil-group but in particular Dr. Teri Turner and Mr. Warwick Richards; and finally Mr. Chris Rowland without whose help this thesis would never have appeared. In addition I must give praise to all people who gave their time as interviewing objects, whether they are mentioned by name or not, and the long list of friends, students and colleagues who through continued and patient discussion helped me to sort out my own thoughts.

The following libraries have very efficiently helped my efforts: the British Library of Political and Economic Science, the Thames Polytechnic Library, the Shell Library, the archives of the Financial Times and Aftenposten, and finally the library of the Institute of Petroleum.

I am particularly indebted to the Economics Division of Thames Polytechnic which funded me first as a Research Assistant and later as a lecturer, and the Economics Department of the University of Surrey which generously let me use their computer facilities and their programs as the basis for my own work. I will also mention the many universities and polytechnics where I either have attended seminars which have been related to my own work or where I have had the privilege of giving lectures and seminars.

I should point out that I have resisted the temptation to change any of my arguments in the light of new (and confidential) information that I have gained access to as a result of my present work in the Norwegian Ministry of Petroleum and Energy. This thesis is solely the result of my work while I was attached to Thames Polytechnic.

Throughout the thesis I have made use of a number of self-translated passages, in particular from official Norwegian publications. When I have occasionally made use of passages from official English translations I have put the letter (E) by the end of the reference.

A final thanks to Jo Foster for expertly typing the manuscript.

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INTRODUCTION

The period 1965 to 1974 saw a number of fundamental changes in Norwegian oil policies. From being exclusively a 'passive' tax collector when the search for oil first started, the Norwegian state was by 1975 extensively involved as a potential producer of oil through its own state oil corporation and was also rapidly expanding its downstream activities.

This thesis will concentrate on the reasons, limitations, and perspectives for this increased importance of the Norwegian state in the oil industry and puts particular emphasis on what this has meant for the state's relationship to the international oil companies.

In order to analyse the changing role of the Norwegian state it is necessary to develop a general framework of analysis of the oil industry. Oil production is characterized by the existence of oil-rents. These rents are then divided between the landlord owning the oil-producing territory (the nation-state) and the capitalist extracting the oil (normally a private oil company). Therefore an important part of the analysis of the role of the state is (by necessity) made by examining the relationship between oil companies and producer-states, the two protagonists in the battle for the oil-rents.

The second antagonistic relationship between the companies and the state, the control over the volume of production, is related to the first area of conflict. A change in the optimum production schedule for a field will (in a number of well-defined circumstances) change the discounted value of the oil-rent accruing to each protagonist.

Finally, the producer-state will want to maximize the spinoff effects from oil. Because this aim may involve less of a direct conflict with the companies, it is of a somewhat different nature than the two others.

We will examine the 1965-74 period, analyzing the relationship between the Norwegian state and the companies, and the increasing importance of the Norwegian state in the light of the three variables listed above.

In doing so, the thesis breaks new ground in several ways. It develops, for the first time, a model to describe the division of oil-rents which incorporates the concept of 'participation'. In addition, the underlying cash flow model also incorporates a number of more specific novel features. It incorporates a notion of 'risk'. It also measures the rent in discounted terms; while a number of models have done the same, we try for the first time to trace the development of

discounted variables over time. Finally, our model uses an historical methodology. This means that the development of the relationship between the Norwegian state and the companies at any one time is seen in relation to what was known and believed to be the case at that time. I.e. the 1969 round of negotiations between the Norwegian state and the oil companies can only be understood in relationship to the cost and revenue conditions and the situation in the international oil industry in 1969. We have thus tried to recreate a number of bargaining situations throughout the 1965 to 1974 period.

It should be noted that there is at the moment no satisfactory treatment of Norwegian oil policies which in a systematic manner analyses the state's overall relationship with the companies through time; or which tries to relate the outcome of the relationship between the Norwegian state and the companies to existing bargaining theories in the oil industry.¹

What exists is mostly partial accounts dealing with the impact of oil on the political system (Naustdalslid (1974) (1975a,b), Noreng (1974) (1978), Ausland (1978), Mathiesen (1976), Wyller (1973) (1975) and Owe (1974). Similarly, there exist a number of more narrowly defined economic studies: Eckbo (1976), Bjerkdal (1975), Dam (1976) (1965) (1975), of which Dam is the most illuminating. But because Dam's whole approach is methodologically completely different from ours (see Chapter 2, p.65), and the others are very narrowly 'economic' in their approach, none of these treatments are in our view comprehensive or satisfactory. Finally, there exist a number of Government white papers and studies which both deal with the structural consequences of oil and outline the relationship to the companies. While these white papers are excellent from a factual point of view, they tend, not surprisingly, to leave out the more contentious issues from their analysis. An overall feature of all these efforts is furthermore that none of them concentrates in a comprehensive way on the increased importance of the Norwegian state.

Based on this state of the literature, our efforts to provide an overall and systematic investigation into the relationship between the Norwegian state and the companies, and in particular to analyze the increased importance of the Norwegian state in this process, can be classified as a step forward. Furthermore, most case studies of company/state relationships have been related to third world countries, while Norway will be the first industrialized capitalist country where the oil export industry will become of primary importance. Thus our analysis

will help to broaden the scope of the study of the oil industry and make available material for possible future cross-country studies.

Orthodox economic theory in general, and oil-economics in particular, has been notoriously weak in analyzing the state and the basic motives for state intervention. This thesis attempts to integrate an analysis of the state into a basically economic framework, concentrating on the division of oil-rent, in the tradition of political economy. It is impossible to understand the origins of state action by the Norwegian state in a purely restricted 'economic' sense. Also oil is not like any other commodity due to its strategic characteristics (see Chapter 8), which tends to influence state action when dealing with the oil industry. In order to understand state involvement in the oil industry a thorough analysis of the relevant historical and political peculiarities of the Norwegian state is provided.

The basic conclusion of this thesis will be that no single existing theory is able to account for the increase in the Norwegian state's stake in the oil industry. Any understanding of what happened must rely on a complex set of economic and political factors where the nature of the Norwegian state becomes of paramount importance. The thesis must in short be 'interdisciplinary', a methodological approach which has perhaps been most strongly advocated by Myrdal when he argues:

"The isolation of one part of social reality by demarcating it as 'economic' is logically not feasible. In reality, there are no 'economic', 'sociological', or 'psychological' problems, but just problems, and they are all complex.... Logically, the only distinction that is scientifically valid is the one between more relevant factors and less relevant ones."²

This attitude led Myrdal to argue for a return to a historical and institutional mode of analysis.³ A similar methodology has recently been advocated in a Norwegian context by Hernes.⁴

Such a methodological approach stands in contrast to the positivist approach of most studies in economics which present a 'hypothesis', and which then a number of observations are meant to falsify. We are more interested in establishing the dynamics of state action over time, a field of study which theoretically has largely been ignored by modern Western economists of the neo-classical school.

The thesis is organised in the following way: Chapter 1 describes the historical setting within which the bargaining between the Norwegian state and the companies first took place. Special attention is given to

the peculiar nature of the Norwegian state, and the situation of the oil industry in the mid 1960s. When read together with Appendix A the latter description also provides a historical overview of the state/company relationship in the industry this century. Chapter 2 discusses in depth the three main objectives of bargaining between the Norwegian state and the companies, the choice of which are intimately related to the analysis carried out in Chapter 1. The second part of this chapter examines the literature which deals with the relative bargaining strength of the state and the companies in a raw-material producing industry like oil. It is then supplemented by our own discussion of the factors which influence the relative bargaining strength between the Norwegian state and the companies over time. The final part of Chapter 2 outlines the different policy options open to the state.

Chapter 3 opens with an operationalisation of our bargaining variables. Then follows a detailed description of a computer cash flow model we have constructed to evaluate the division of rent between the companies and the Norwegian state over time. It also highlights the special features of our approach in analysing the problem at hand. Chapters 4 to 7 are a step-by-step analysis of what happened to Norwegian policies between 1965 and 1974. Each chapter deals with the granting of a new round of concessions on the Norwegian Continental Shelf (1965, 1969, 1973 and 1974), and we analyse what the new conditions of exploration (both with respect to taxes and participation agreements) would have meant for the division of rent; for control over the volume of production; and for the spinoff effects of the oil production. Parallel to this we examine the form in which the steadily increasing importance of the Norwegian state made itself felt; and in particular how the creation of the Norwegian state oil corporation Statoil influenced the variables under scrutiny. Chapter 8 then carries out an overview of the period as a whole and relates the development of the sharing of rent, of volume control, and of spinoff effects, to the development of the factors that in Chapter 2 were postulated to influence this outcome. In explaining the nature of the Norwegian state's intervention in the oil industry we put particular emphasis on the constraints under which Norwegian policies were de facto forced to operate. Then in Chapter 9 follow the conclusions and some further perspectives that arise from the emergence of a strong and dominant state capitalist sector in the Norwegian economy in the wake of the oil activities.

CHAPTER 1THE HISTORICAL SETTING: The oil industry and the Norwegian state

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CHAPTER 1

THE HISTORICAL SETTING: The oil industry and the Norwegian state

1.1 INTRODUCTION (1962-65)

It is commonly assumed that the interest in the North Sea as a possible oil-producing area started with the 1959 gas find in Groningen, Holland, of one of the biggest natural gas fields in the world. But interest had already been shown at an earlier date by the major oil companies. According to Shell: "Interest in the North Sea as a prospective zone of exploration became marked in the late 1950s after the first Suez crisis of 1956-57."¹ The initial interest therefore stemmed from a political event (a threatened supply boycott), and the Groningen find merely reinforced this existing interest. Shell made contact with the UK government about exploration as early as 1959² and by 1962 three of the majors (BP, Shell and Esso) were conducting seismic surveys off the UK East Coast.³ Phillips was the first firm to approach the Norwegian government about oil exploration in the North Sea. The initial contacts were established by the somewhat unusual route of officials at the Norwegian Embassy in Bonn.⁴ In the words of one Phillips' executive:

"At this time (1962 - PN) the primary interest was centred in the southern part of the North Sea. However, it was in this initial period that Phillips exploration people, in evaluating the entire area, became curious as to the possibilities of the northern portion of the North Sea.... It was thought that this Northern part could also be attractive and that the competition for acreage might be less than in the shallower southern part, where there was a more general knowledge of the geology and where operations would be closer to shore."⁵

If Phillips was the first company to apply for acreage, others were not far behind. Between autumn 1962 and June 1963 at least six foreign oil companies made provisional enquiries about the possibility of obtaining search concessions in the North Sea.⁶ By July 1963 the Norwegian government had given permission to three groups to carry out surveys. The first consisted of Shell, Esso and BP, the second of two French state entities, BRP and RAP, and the third was Phillips on its own. At the same time ten companies decided

to jointly finance an airborne magnetometer study over 144,000 square miles of the North Sea.⁷

Phillips' application for exploring and producing oil was rejected in 1962, according to one Norwegian civil servant, because "at that time there were no regulations, neither in Decree nor in Law form, concerning how Norway should behave with regard to such applications".⁸ One reason for this lack of regulations was that there had never been any hope of finding oil on the Norwegian mainland. The first necessary step for Norway to produce oil was to declare its sovereignty over the North Sea Continental Shelf as regards exploration for and exploitation of natural resources. This was done in a Royal Decree of 31 May 1963. The Decree was followed by an Act on 21 June 1963, which stated that the rights to submarine natural resources were vested in the State.⁹ Norway could then, if it wished, grant Norwegian or foreign corporations the right to explore such underwater resources. The Act finally empowered the State to issue rules and regulations concerning such exploration. A special Continental Shelf Commission was subsequently created to work out these regulations. While the more legal questions were being studied in detail, the companies were allowed to start seismic work on the Shelf.

Several factors should be noted about the way Norway solved the initial legal problems connected with oil exploration.

Norway could, first, have ratified the Geneva Continental Shelf Convention drawn up in 1958 to assert individual countries' sovereignty over the Continental Shelf. But Norway chose its own solution, because "on one interpretation (of the Geneva Convention - PN) Norway would not be entitled to any significant share of the open sea".¹⁰ Norway's refusal to accept the Geneva Convention, but its insistence on the median-line principle, was later confirmed in a legal agreement with the UK signed in April 1965. One of the reasons for this not obvious but extremely important outcome, was the UK interest in a speedy solution. Any attempt by the UK to challenge the Norwegian interpretation in an international court would have taken many years to settle, if the normal speed of such cases is anything to go by. And the UK was in a greater hurry to extract oil from the North Sea than was Norway. All of Norway's present oil and gas-fields are today situated in what would have been disputed waters had Britain persevered against the Norwegian interpretation.

Secondly, the clarification of formal ownership of the Continental Shelf was thought by the Norwegian government to be a prerequisite for an all-out involvement by the companies in the North Sea. It is however doubtful whether such a clarification was an absolute requirement for the entry of the companies (even though it undoubtedly helped).¹¹ And even in the Norwegian case a number of oil companies were prepared to spend a considerable amount of money on seismic surveys even before the legal questions had been definitely settled. It can, however, be argued that these companies may simply have wanted to establish their presence on the Shelf as a fait accompli before Norway had time to impose any strict regulations. On the other hand the major companies did not like the prospect of a 'free for all'. According to one executive this would lead to 'anarchy' as well as encourage 'parasites' - i.e. competitors that would idly stand by while one company drilled, merely to start exploring once a find had been made.¹²

By claiming sovereignty over the Continental Shelf, a number of questions were however left unanswered. Some of these may have meant relatively little in 1963, but they could in the long run have a profound influence on future developments. The most important was the ambiguity of the definition of the Continental Shelf and whether this should be interpreted according to a fixed depth criterion (200 m) or whether the criterion should be one of technological possibility of exploration.¹³ This had an important bearing on the question of exploration north of the 62nd parallel. No acreage was initially offered in this territory, because the median line criterion of division could not be applied, and because there was no unambiguous definition of the Continental Shelf.¹⁴

The general situation in the North Sea in 1963 was summed up in these words:

"Nearly 20 companies are competing for a glittering prize - the chance of an oil and gas bonanza right on the doorstep of the world's second biggest consuming area."¹⁵

The companies' access to the Norwegian Continental Shelf was formalized in a Decree form on 15 May 1964, and 8 groups could formally apply for permission to explore for oil (but not to drill or produce). BP split off from Shell and applied as a single group, while Gulf for the first time became interested. Norwegian interests were represented by one fully owned Norwegian consortium¹⁶ and through Hydro at that

time, the second largest industrial firm in Norway, and with a minority government share. Hydro had in February formed PetroNord together with the two French state oil companies. This was hardly surprising seeing that 30% of Hydro's shares were French-owned.

The detailed regulations for drilling and production on the Norwegian Continental Shelf were published in a Royal Decree of 9 April 1965 - regulations which were to be the basis of Norwegian oil policies until 1972. Applications for the production licences were closed on 15 June. The results were announced in September 1965. Norway had truly entered the oil age.

It is our aim to understand the relationship between the Norwegian state and the international companies which was formally initiated at the same time. As a first step towards such a task, we must analyse the historical situation of the two protagonists in the battle for oil-rent from the Norwegian Continental Shelf, the international oil companies and the Norwegian state.

1.2 THE HISTORICAL SETTING

1.2.1 The international oil industry

There were several reasons why the companies should have been extremely interested in the North Sea. Even if there was an excess supply of oil in the mid 1960s, the demand for oil on a world-wide scale was expected to increase, and it was clear that an increasing proportion of this demand would have to be satisfied from offshore areas. The five years up to 1964 had seen an increase in world oil consumption of no less than 64.5%¹⁷ - and there was no indication that the rate of growth in demand for oil would abate.

According to one optimistic oil executive:

"Energy demand is expected to double by 1985, and the petroleum industry is intensifying its search for oil and gas in underwater areas... (therefore) ... there appear to be very few coastal areas any place in the world which will not be explored in some manner or other within the next 10 years."¹⁸

The prediction that an increasing amount of this oil would come from off-shore areas was based on the worldwide distribution of sedimentary rocks, a great proportion of which are situated offshore.¹⁹ The oil

industry was in 1964 already involved offshore in 19 different countries, while actual production was taking place in five. But these were scattered in such different areas as the Persian Gulf and the Cook Inlet, Alaska. In the latter area the general weather conditions were just as bad as in the North Sea even if the depth of water was shallower.

This general interest in finding oil must also be seen in relation to the companies' world-wide strategies. It is here useful to distinguish between different kinds of firms.

The independents were at the time especially eager to gain access to new sources of oil outside the US. When seen against this background, the very aggressive and enterprising attitude of the 'independent' Phillips in the North Sea from the early 1960s becomes much more understandable.

The majors were equally interested in the North Sea, but partly for other reasons. Their short-run requirements would be satisfied from their own deposits, especially in the Middle East, even if we should make a distinction between crude-long and crude-short majors. But they also knew that they needed access to new fields in the medium to long run, and that the North Sea was one of the more attractive future areas which they did not want other companies such as the independents and the state oil corporations to monopolize. Finally, as Gaskell observes, there almost seems to be a psychological law among companies that nobody wants to be left out of a new productive area.²⁰

In addition to the more general factors explaining the companies' need for oil, the North Sea as a producing area enjoyed a number of other advantages. Oil and Gas International listed in 1964 a number of these. For our analysis two are especially relevant: first, a stable political climate and second, closeness to markets.²¹

At that time transport costs constituted around 30% of the import cost of one barrel of oil to Europe.²² This would in the case of finds in the North Sea be drastically reduced. The political stability of the countries around the North Sea was at that time also unquestioned.²³ The oil companies were in principle willing to pay a substantial premium for operating in such a political climate, where the danger of nationalization was minimal. The companies were therefore willing to pay what amounted to a 'political rent' for operating in the North Sea

compared with other parts of the world. But it was up to the Norwegian negotiators to try to find out how large this rent was. The companies were not likely to tell them.

The companies' interest in the North Sea and their initial strategy can only be understood on the background of the situation in the international oil industry in the mid 1960s. Norwegian policy-makers were in 1965 faced with an oil industry which for decades had exhibited a remarkable degree of stability. This chapter and Appendix A show how the world's oil industry came to be dominated by a small number of vertically integrated oil companies which operated internationally and which in an explicit or implicit manner were colluding with each other. Any threats to this structure, whether from the entry of new firms, or from producer-states trying to exert more control, had historically been incorporated or neutralised by existing firms without much difficulty. While we will later outline in more detail the reasons for this unusual industrial structure, our historical introduction shows that the corresponding traditional company/nation state relationship remained one of extreme 'inequality' for much of this century. This inequality of the traditional concession patterns were largely the result of the colonial circumstances under which most of these agreements had been signed.

Towards the early 1960s this structure of the industry was coming under some pressure as 'independents' and state oil corporations for the first time appeared as producers. Both groups of companies were later to have an important influence in Norway.

The period 1959 to 1965 can be best understood in the light of the decision to impose quotas on import of oil to the US. This move upset the whole pricing and profitability structure of the industry and led to a much more unstable market situation, which again had an adverse influence on the 'majors' and their control. The chain of reactions was the following. A number of US firms wanted to produce from the low-cost Middle-East fields so that crude could be shipped back to the US, refined and sold at the generally higher prices that applied to petroleum products in the US. This process started as early as the mid-1950s and by 1960 a number of these companies, normally called the 'independents',²⁴ had found oil outside the US. But because of the import-quota system the amount of oil which each of them could ship back to the US was restricted. Any additional output from their overseas fields therefore had to be disposed of elsewhere. In effect, this meant selling it to the small, but increasing

number of independent refiners that existed in Western Europe at the time. But there was only one way of ensuring access to this market, namely to undercut the price offered by the majors.

But this was still not a bad commercial proposition for the 'independents', because the majors had traditionally charged a relatively high price for the crude it sold to these refiners. This was to take advantage of the specific taxation rules in the West, which induced the majors to declare most of their profit in the upstream end of the production cycle. This strategy suffered no set-backs as long as the majors completely dominated the supply of crude. But when the independents offered the independent refiners cheaper crude, there was no lack of takers. Final product-prices fell as a consequence, and the majors had no choice but to follow suit. But with a price of crude to the subsidiaries of the majors which stayed constant at posted price levels, and falling product prices, profitability was squeezed. (The saying 'only fools and subsidiaries pay posted prices' originates from this period.)

The majors consequently wanted to bring down the posted price of crude closer to the real market level. This was for them in any case quite natural, as there had never been any thoughts that there should be a difference between posted and market prices when the system was first introduced. But in doing so they would hurt the 'fiscal take' of the producer countries, as this 'take' was linked to posted prices. It was somewhat ironic that cutting the posted price of crude helped the creation of OPEC in 1960.

The first aim which OPEC pledged to carry through was to restore the cuts in the posted price. This they did not manage to do, but on the other hand OPEC successfully fought any further cuts in the posted price all through the 1960s even if the difference between 'posted price' and the 'spot price' continuously widened until discounts up to 40¢/bbl were to be found in the late 1960s. The weakening of the price of crude was further brought about by the increase of Soviet exports to Western Europe, which by 1961 provided 7.5% of all oil consumed by the Western European NATO countries.²⁵ Even if the Russians tried to undercut the majors' prices to gain access to the market, there was no reason to analyze the Soviet move as being primarily 'political'. The Soviet Union had historically sold oil to Western Europe (as an example it provided 19% of total oil imports to Western Europe between 1930 and 1933), and felt it had a claim to part of

the market. Also, given the production costs of oil in the Soviet Union at this time, the Soviet economy's comparative advantage may well have been greater for oil than for any other major commodity it could sell in the West.

The consequence of this extra amount of cheap oil on the Western European market was a further decline in prices, and a further instability of the oil products market.

The import quotas also had a number of consequences in the US itself. The effect of separating the US market from the rest of the world and guaranteeing a higher than world average price for oil produced in the US helped to maintain US production much higher than it would otherwise have been (and again contributed to the general excess supply which prevailed in the rest of the world). But it made the US consumer pay more than necessary for oil and it also encouraged a large percentage of all the majors' exploration expenditure to be spent in the US.²⁶ The discovery of the Alaskan North slope fields in the late 1960s can be seen as a result of this policy.

There was another group of companies apart from the 'independents' which made their entry into the industry at this time and which further complicated the former 'orderly' picture of the industry. Their presence was only indirectly related to the US quotas. They were the state oil corporations of the consumer countries, of which the Italian ENI became of particular fame.²⁷ ENI was encouraged to grow in response to what Italian policy-makers saw as the monopolization of the oil industry by the Anglo-Saxon majors. Once the Italian state realized that it was paying an artificially high price for imported crude because it was dependent upon the majors' network and therefore paid full posted prices for the crude, it encouraged ENI to look for oil abroad, as well as letting it import oil from the Soviet Union.

We have seen that between the late 1950s and 1965 there was a general weakening of the monopolistic structure of the industry as new firms entered. But this was not automatically the same as a corresponding strengthening of the producer-states. For example, a similar challenge in the late 1920s did not lead to any increase in the relative bargaining strength of the producer-states. Other factors, like the political sophistication and consciousness of the producer states, are therefore of great importance in explaining the developments to come. While there was no way the producer states could have improved their situation in the 1920s and 1930s, this was not so in the beginning of the 1960s. The states did start to take advantage of this new

situation, as their bargaining strength was slowly improving.

This change in relative bargaining strength was expressed in a number of new agreements that were concluded from the late 1950s onwards. In particular the 'joint venture' agreements along Iranian lines were later to be the basis for the Norwegian concession systems. But these were initially all concluded with the newcomers to the industry, so the attitude of the majors towards the producer-states remained, in general, as implacable as ever. The first joint venture agreement in the industry was entered into between INOC and ENI in 1957. In contrast to the normal agreements of the industry, a 'joint venture' gave the Iranians a 50% share of the profits corresponding to its 50% share in the investments in addition to the normal 50% corporation tax on ENI's earnings, giving a rough 75/25 division of profits in INOC's favour. INOC was not to invest any money until a commercial find had been made, while INOC was to be an active partner throughout the life of the project. A similar agreement was made between INOC and the US independents Pan American Oil Company and Sapphire in April and June 1958.

The Saudi Arabians made a joint-venture agreement with a Japanese company, Japan Petroleum Trading company, which was agreed in 1957. While Saudi participation was a mere 10%, the interesting aspect of the agreement was that the new joint company was to be fully integrated. The first stumbling moves had been made towards producer-participation in downstream activities.

Kuwait made a 20% joint-venture agreement with Shell in 1961. This was in retrospect an important event. It was the first time one of the majors agreed to state participation. But it remained the only joint-venture agreement concluded with any major during the period until 1965. Another kind of agreement, service-contracts, which also could give an increased say to the nation-state, was attempted and introduced for the first time in 1960 by Venezuela. In such agreements the companies have no rights as legal holders of concessions, which are retained solely by the state, but are hired as suppliers of technology and knowhow. All decisions concerning output etc. rest with the nation-state. On paper such an agreement looks extremely favourable for the producer-states, but in order to properly assess its economic significance one has to know the details of the payment to the companies, especially the amounts and price of oil promised as payment, as well

as the amount of de facto control that the majors exert on the basic decisions of production. This agreement was advocated in Venezuela by Romulo Betancourt, the leader of Accion Democratica, who in 1960 was elected President on a left-wing platform that included the promise to nationalize the oil companies. The threatened confrontation between the government and the companies was only defused after considerable pressure from the US government which at that time had a paramount interest in not further upsetting the situation in the Caribbean. (It had enough difficulties with Cuba.) The US also saw the importance of continuing the steady flow of oil from Venezuela to the US. The outcome of the confrontation was that the basic relationship between the US and Venezuela continued, but that Venezuela set up a state oil corporation, CVP (Compania Venezuelana de Petroleo), and it was decided that all future agreements were to be on the basis of 'service-contracts'.²⁸

Indonesia was the other country which implemented service-contracts during this period. An agreement was reached in 1963 with Esso, Shell and Caltex not only with respect to new contracts but also covering older and already existing contracts. The division of profit between the Indonesian government and the companies was stipulated to be 60/40. While the companies had to renounced their temporary property rights over the concessions, they retained their rights to all over-ground assets used in the production of oil. The Indonesian state oil corporation Pertamina was to take over all downstream activities in the Indonesian market.

We can now summarize the changing roles of the oil producing states during the period 1959-1965, developments which in the long run were going to have profound influences on Norwegian oil policies. First, a number of new agreements were introduced, some of which for the first time actively involved state oil corporations of the producing countries. However, these companies were initially nothing but paper organisations. Only in exceptional circumstances did any of the majors accept the new kinds of agreements. It was therefore up to the 'independents' and the consumer-states' oil corporations like ENI to offer new and better conditions. Effectively the overwhelming majority of all oil continued to be lifted by the majors under agreements that involved neither state participation nor service contracts.

Secondly, there were some feeble attempts to think in terms of the wider spinoff and industrialization aims of the producer-states. This

expressed itself by the producer-states' wish to integrate downstream as well as by acts like trying to discriminate in favour of national shipping companies in the transport of crude.²⁹

While the period saw the creation of OPEC, the new organization remained basically ineffective. In addition to OPEC's unsuccessful fight against a drop in posted prices in the early 1960s, the very first OPEC conference stated as an aim: "That members shall study and formulate a system of ensuring the stabilization of prices by among other means, the regulation of production".³⁰ The only problem with this aim was that OPEC had no way of implementing it. The producing-states had no say over the volume of production, which was still the decision of the companies. There was also a contradictory element in the creation of OPEC. The stability (and high prices) in the market for oil products was very much a result of the majors' marketing strategies. But inasmuch as OPEC was created to undermine the power of the majors, to this extent there was a contradictory element buried in the very functions of OPEC. This dilemma was never to disappear.

But despite the emerging instability within the oil industry referred to above, the majors remained in 1965 dominant. By relying on their vertically integrated structures, they still controlled the overwhelming part of the world's production of crude and continued to earn a healthy (albeit falling) rate of profit. And there was no indication that they were lightly accepting as a permanent feature of their relationship to producer countries the principle of state participation or service contracts. Only in instances where they knew that, for political reasons, it was this or nothing (as in Indonesia under President Sukarno), were the companies willing to enter into such contracts. The bargaining strength of the companies as a whole was further enhanced by the fact that where they existed, the producer states' oil corporations were in no position to take over the running of the oilfields. In addition, most present or future producer states, including Norway, were as consumer countries still solidly dominated by the majors. The situation was therefore bleak for any Norwegian policymaker who was nurturing plans of 'getting tough' with the companies as Norway for the first time was planning to allocate acreage in the North Sea.

1.2.2 Norwegian peculiarities

Norway had also been acquainted with the international oil industry in its capacity as an importing country before the first concessions were formally awarded in 1965. In particular, the general controversy about transfer-pricing referred to above had also affected Norway. Because Norway was charged full prices on all crude imported by the majors during the period, the Norwegian balance of payments suffered accordingly. It is a good indication of the lack of power of the Norwegian state in the face of the international companies that nothing was done to remedy this situation in the period until 1965. The virtual absence of any company (whether in the field of refining or distribution) to challenge the hegemony of the 'majors' underlined the state's relative bargaining weakness. As a result of the manipulation of transfer prices whereby imports were invoiced at full posted prices, Seierstad³¹ estimated that the total accumulated loss to the Norwegian balance of payments during the 1960s was Kr. 340 mill. The head of the Norwegian Central Bank in 1968 pointed to the activities of the oil companies as the prime example of how transfer prices could be used to shift profits out of countries with a high taxation rate.³²

The transfer price controversy was the first direct indication about the difficult situation the Norwegian state faced when it tried to deal with some of the largest multinational firms in the world. In the short run there was never any talk of remedying this situation by creating a Norwegian state oil corporation. This contrasted with the experience in other parts of Europe. The French had, in their tradition of 'dirigisme', already in the 1920s built up a state oil sector. This was put to the same tasks as ENI from 1958 onwards, especially with the advent of de Gaulle's nationalism. But any understanding of how Norway was likely to act in the long run in dealing with the oil companies can only be built on a more thorough understanding of the special features of the Norwegian state. As will be argued below, Norway at the time was no 'ordinary' Western European state. Its peculiar economic, social and political characteristics had great influence on the formation of Norway's oil policies. We must therefore examine these characteristics in detail. We must however stress from the start that there will be no direct and mechanistic one-to-one correspondence between these policies and the Norwegian state structure. We rather want to understand

how these characteristics established the overall direction and broader limits of the Norwegian policies with respect to oil.

To provide a better background to an understanding of Norwegian oil policies we will highlight two features of the Norwegian state. We will first describe the special characteristics of Norwegian economic policy and in particular Norway's historical relationship to foreign investment. Secondly, we will look in more detail at the political conditions in Norway. We will then see that the Norwegian state in the post-war period acted as an active, strong and interventionist entity, which operated within an unusually stable and (for Western Europe) nationalistic political environment.

The theoretical basis for our subsequent analysis is provided by a neo-marxist/institutionalist view of the state, where the state is not a neutral entity and instrument at the disposal of whichever party wins a parliamentary election, but is viewed as an institution which is intimately linked to the capitalist mode of production and its preservation. For an outline of the theoretical basis of such a position see the author's contribution in Nore and Green (1977), which gives the broad framework which structures our thinking on the Norwegian state.³³ According to this, our following description of the special features of the Norwegian state can best be understood within a framework which postulates that the modern state in its actions primarily attempts to take care of two functions. It seeks to guarantee the accumulation of capital and in different ways tries to legitimate the existing political structures within Norway.³⁴

We must strongly stress that the choice of a theory of the state cannot only be related to some a priori and abstract notion of the role of the state. It must also be based on the concrete ways that the state has intervened in the Norwegian economy. It must in short be historical instead of simply being deducible from some abstract theories of the state.³⁵

(i) Foreign investment and economic policies

The control over foreign investment is immediately relevant if we want to understand a state's relationship to the process of capital accumulation. History is filled with examples of how the economic surplus, especially of less developed countries, has been remitted overseas rather than being reinvested in the host country. A policy that controls foreign investment can potentially prevent such a development, while at the same time it fulfils a number of more

direct political functions by trying to take advantage of popular nationalist sentiments.

One of the striking features of many developed industrialized countries was the absence, until the early 1960s, of any explicit policy towards direct foreign investment. Norway in this respect has been an extreme exception, as the country implemented a law as early as 1906 which sought to control foreign investment. Of the industrialized capitalist countries only Japan has pursued a similar policy for any period of time. (The fluctuating role of foreign investment in the Norwegian economy, and the various attempts to control such investment, is schematically set out in Appendix E.)

By the time the search for oil in the North Sea got under way there had been a significant shift in the Norwegian state's policies in relation to foreign investment. While the original concession laws of 1906 and 1917 were still in operation, it was becoming clear that their effectiveness crucially depended on the way they were interpreted by the state. And since there was a significant amount of discretion in their interpretation, these laws seemed to be interpreted in ways which favoured the companies concerned. Nevertheless, Norway remained very much a 'special case' in Western Europe with regard to control of foreign investments. For foreign investments to be accepted they still had to conform to a number of strictly defined criteria. The most interesting of these from our point of view were:

"The foreign-owned industries shall not compete with existing Norwegian firms, especially against those who mainly produce for the domestic market"...

"As a rule it will be required that at least 50 per cent of the capital stock shall be Norwegian-owned. If the required capital is not forthcoming this rule may be relaxed." ³⁶

It is now more easy to delineate the policies of the Norwegian state in relation to the oil sector. Foreign capital was to be accepted as long as national capital was not hurt (a negative definition and criterion), while the Norwegians tried to achieve parity with foreign investors whenever possible. This policy was undertaken to try to control the process of capital accumulation in Norway.

The state's preoccupation in the post-war period with the conditions of accumulation also showed itself in regional and industrial policies. Such micro-policies were aimed at increasing the overall efficiency of the economy, and were particularly called for because Norway has

historically been characterized by an extremely uneven economic development. This has been most clearly expressed in the dichotomy between Northern Norway and Southern Norway, where the South has been by far the richer region. This imbalance has also been reproduced, although less dramatically, in the relation between town and country as a whole. This situation continues today, despite attempts by the government to pursue regional policies to a much greater extent than, for example, in Sweden. Government policies can also go some way towards explaining why Norway has managed to maintain a fairly decentralised industrial structure (again in contrast to Sweden).³⁷

As regards the industrial structure itself, one noteworthy aspect of the Norwegian state's policies in the post-war period was the lack of public ownership as an instrument of industrial policy. The number of industries taken over was small compared with other European countries. As late as the early 1970s, only 12 industrial firms had a majority state share.³⁸

It seems that the Norwegian state has historically relied on manpower policies as an alternative to other kinds of micro-intervention to safeguard accumulation. The Norwegian state spent Kr. 1.2 bill. in 1976 on different items destined to increase the mobility and retraining of labour. This amounted to 2.6% of the total state budget.³⁹

Despite the importance of the micro-economic policies outlined above, it was the macro-policies instituted in the wake of the Second World War which constituted the most important way that the Norwegian state intervened to maintain the process of capital accumulation. The development of national accounting and the conscious use of the national budget, first introduced in 1946, constituted a definite breakthrough for the Keynesian aggregate demand approach to macro-economic planning. While the ideas of demand-management had been aired in the inter-war period, especially following the *Kriseforliket* (The Crisis Solution) in 1935 between the Labour Party (DNA) and the Agrarian Party, it was primarily after the war that such a policy was put into practice. But even in the post-war period, macro-policies were accompanied by the most stringent rationing and regulatory system that Norway had ever experienced. This system was adopted to avoid the potentially disastrous inflationary effects of letting the excess liquidity in the monetary system (a result of the occupation) work its way through the economy. But such a regulation was also necessary to raise the investment rate and

thereby rebuild the economy after the war. Finally, but related to the last point, such direct regulations were introduced to conserve scarce foreign reserves. The new macro-policies were put into effect at a time when, according to Sejersted, "Norway was probably the most closely regulated economy in Western Europe".⁴⁰

It was only after 1952, when 'Lex Thagaard' (a number of policy recommendations seeking to extend the already existing economic regulations) was defeated and Norway again became fully integrated into the international economic system, that indicative macro-economic intervention in its own right came to dominate the policy scene. For Norway's return to the international economy, through its emphasis on non-discrimination and competitiveness on the world market, made the breakdown of the strict post-war regulations virtually inevitable. This return was effectively anticipated when the Norwegian government in exile accepted the decisions taken at the Bretton Woods Conference in 1944 to work for the freest possible international economic order in the post-war period. So it was mainly a question of when Norway was to give up its autarchic policies, not if.⁴¹

The final illustration of the importance of state policies for the question of accumulation is seen by examining investment-rates in the Norwegian economy. The importance of this example lies in the fact that this policy also has a clear and unambiguous relevance for the process of political legitimation in Norway.

From 1945 to 1958, Norway had the highest investment rate of any OECD country. Gross fixed investment reached 32% of GDP in 1958. The period 1967-71 shows Norway with an average investment rate of 28.2% of GDP, second only to Japan with 37.8%.⁴² Another, and equally important, feature of the investment situation was that a much higher percentage of total savings in Norway originated from the government than in other countries. In the period 1958-61, government saving as a percentage of total saving ranged between 48% and 50%.⁴³ Because the government's share of total investments was much lower, there was therefore an important transfer of investment funds from the government to the private sector, which in the end controlled the allocation of such funds.

(ii) Political stability and legitimacy

There is at any time a close relationship between the state's role as guarantor of the accumulation process and its role as legitimator of the political system. The success of each of these roles depends crucially on the success of the other. Nowhere in the Norwegian case study is this more clearly seen than in the immediate post-war period. One of the reasons why the Norwegian population was prepared to accept high investment rates and corresponding cuts in their immediate standard of living in the post-war period was the high degree of legitimacy that the Norwegian government enjoyed. Most people at the time accepted the then Prime Minister's subsequent description of the situation: "In 1945 it was clear for everyone that the 'cake' was too small. If living standards were to rise, the 'cake' had to grow. This meant that production had to grow to lay the basis for an increasing affluence."⁴⁴ The 'consensus' was not, however, total. Sections of the working class, in many cases led by the Norwegian Communist Party, which in the 1945 elections had obtained almost 12% of the votes, campaigned against the introduction of the semi-corporate political institutions which accompanied these policies, and voiced their opposition to cuts in living standards which followed the high investment rate. These challenges to social-democratic policies were politically defeated both with the advent of the cold war and as the first tangible results of the policy of 'sacrifice' were seen in the early 1950s.

The period between the late 1940s and the EEC referendum in 1972 was characterized by an unusual consensus in Norwegian political life. This is well expressed in the almost total absence of strikes during the period. The average annual number of strikes in Norway during the period 1945-62 was 23, with a total loss of 136,000 working days,⁴⁵ among the lowest averages in the whole world. The reason why the majority of the population accepted these policies and politically supported DNA was far removed from any explanation which relies on ideological 'blindfolding' or treachery from leaders in the labour movement; two explanations often used by the left to 'explain' this period. People felt they were getting something concrete in return for adherence to the policies, whether it was a continuous increase in their standard of living or regional and industrial policies. The

continued economic growth in the post-war period and the Norwegian distribution of income and wealth which remained extremely even compared with other Western European countries were the key factors in understanding the high degree of legitimacy enjoyed by successive Labour Party governments. We will not in this thesis go further into the very complex problems related to this legitimization process, and will therefore disregard what Offe (1973) calls the 'normative' or 'legitimizing' system,⁴⁶ or what Habermas (1968) calls the 'socio-cultural system'. But it should be pointed out that the successful post-war capital accumulation process in Norway led to a general depoliticization.⁴⁷ From now on, we will only bring the ideological/legitimizing factors into the open when they are immediately relevant for our analysis. In the main we will stick to an analysis of the relationship between what Slagstad labels the economic and the political-administrative system.⁴⁸

It is against this background that the EEC referendum in 1972 assumes a great importance, an importance which, as we shall see, also had repercussions on oil policies. The outcome of the referendum represented a dramatic end of the 'consensus' period of Norwegian politics. The referendum, which led to a direct cooperation between the Labour Party and the Conservatives in favour of entry, and an unprecedented popular mobilization against entry, shattered, at least temporarily, the political stability of the Norwegian post-war era.

(iii) A more general view

We have above briefly outlined two special historical features of the Norwegian state which will be of use in understanding Norwegian oil policies. It is clear that such a selective description is of limited value unless we also understand the more general features of Norwegian society. For reasons of space this has mainly been done in footnote form below. We will here only schematically point to a number of crucial structural features which suggest that Norway, at least until the early 1970s, did not conform to a standard description of an advanced country in the imperialist centre. A number of factors suggest that Norway during this period enjoyed a "semi-peripheral" status in the world economy:

- A large part of Norwegian exports were primary or semi-processed goods.⁴⁹
- The Norwegian industrial sector consisted of small and generally weak firms.⁵⁰

- Foreign investment played an important part in the Norwegian economy, despite consistent attempts to control its influence.⁵¹

But it is not only the economic structure of Norway which in some sense can be described as 'atypical' within a Western European country. The political institutions also show distinct characteristics. Because there tends to be a close relationship between the political and the economic characteristics of any society, this is of course not surprising. But, independently of any such economic determinism for the characterization of 'the political', the political history of Norway also reveals a number of very special features. In particular the weak position of the Norwegian bourgeoisie, the strong anti-centralist and anti-bureaucratic political tradition, and finally a strong nationalistic sentiment, are all factors which will be important in explaining the course of Norwegian oil policies.⁵² The special position of the Norwegian state and in particular its close relationship to the Norwegian Labour Party is also part of this special Norwegian political tradition.⁵³

1.3 TOWARDS A MODEL OF BARGAINING

The above overview indicates that there was a situation of mutual dependence between the Norwegian state and the oil companies. On the one hand the Norwegian state exercised the legal sovereignty over a geographically promising area of the Continental Shelf in the North Sea, but thought it needed the companies to find and produce the oil. On the other hand the companies possessed the necessary expertise to carry out a search. They also controlled markets, but needed the consent of the Norwegian state to gain access to the promising area which was outside their own jurisdiction.

This mutual dependence was similar to what had traditionally been observed in the oil industry from the beginning of this century. When in Chapter 2 we want to put forward a more formal framework of analysis to understand the relationship between the Norwegian state and the oil companies, this must therefore partly be based on the historical experience of company/state relationships worldwide. These have been described above and in Appendix A. But because the Norwegian state differed fundamentally from traditional oil-producing states (and indeed from other Western European states), our framework will also have to take

account of the special features of the Norwegian state highlighted above. So when the next chapter identifies three objectives of bargaining as rent, volume, and spinoffs, the choice of these is based on a combination of general insights derived from the history of the oil industry, and the more particular features of the Norwegian state.

Such a starting point is indispensable for a satisfactory historical approach to the problem at hand. In our view no meaningful framework of analysis can ever be constructed in an 'historical vacuum'. One's choice of key variables of analysis is inevitably influenced by one's perception of history.

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CHAPTER 2

THE BARGAINING: OBJECTIVES, OUTCOMES AND POLICIES

Having completed an overview of the oil industry and looked in some depth at the special features of the Norwegian state, it is easier to construct a framework of analysis which examines in detail the objectives of bargaining between producer states and the companies. This framework which for brevity's sake we will call a 'model' is set out in Part I of this chapter. Part II deals with the outcome of the bargaining process, while Part III looks at the different policies that a producer-state can implement and their effectiveness. Our model has initially been constructed at a relatively high level of abstraction. There will therefore be some methodological 'victims' along the road towards clarification. We are for instance faced with at least three actors in our analysis (the third being the Norwegian non-state industries). But for the moment we assume that the Norwegian state also represents the interests of this third actor. On the other hand, the model as it is being presented conforms to the methodological principle of seeing how useful a model which contains a minimum number of variables can be before any extension is made to its basic structure. It is also important to proceed in this way for the purpose of exposition. We will first examine each object of bargaining in turn and will start with rent.

Part I: Objectives

2.1 RENT

The main feature of the oil industry compared with most other industries is that it permanently gives rise to rent. The division of this rent is then the subject of a conflict between the landlord who owns the land where oil is produced (normally the nation-state)¹ and the capitalist who exploits the oil-field (the oil company). Oil-rent originates upstream in extraction, downstream in refining and petrochemical production, and retailing. While it has historically been relatively meaningless to separate the three activities due to the existence and dominance of the integrated firms, such a separation is conceptually quite possible and has lately been made more meaningful due to the loss of upstream activities by the companies and the introduction of 'federalism' within the present-day oil industry whereby each sub-

sidiary of a vertically integrated company, whether up- or downstream, has to make a profit on its own.

Our task is to find a meaningful definition of rent that will be useful for the analysis of the oil industry as well as being theoretically coherent. This is no easy task. The question of rent is an extremely vexed one. Bye refers to the 'anarchic conditions prevailing in this field of study'.²

An examination of the theory of rent and its historical development will be necessary before we can present our definition of oil-rent.

The first part of our concept of rent, differential rent, is based on the classical theory of rent. The analysis of differential rent from natural resources has changed little since the writings of Marx and Ricardo. But because the classical theorists had great difficulties in handling rent which existed at the margin (labelled absolute or monopoly rent), our attempts to deal with this aspect of rent absorbs important elements of the Marshallian concept of rent. This is hardly surprising, as rent theory can still be seen as a battleground between Marshall and the classical writers. The nature of this confrontation and its relevance to the oil industry is set out in Appendix B.

2.1.1 An inquiry into the nature of monopoly rent in the oil industry

The classical notion of absolute rent is of little use in determining the price and therefore the amount of rent to be earned in the oil industry, except when it focuses on the political element of absolute rent (see Appendix B). Our alternative is to focus both on the possible monopoly elements, as well as on more explicitly political elements, in determining the price of oil and oil products. This choice follows from what we regard as a strong tendency towards monopolization within the industry which was described in Appendix A. We will argue that in the very nature of oil production itself there are powerful forces which prevent the normal market mechanism from operating. Monopoly and restrictive practices therefore become the rule rather than the exception in the industry. Such a view is not uncontroversial. It clashes with a very influential school of thought, most clearly articulated by Adelman and Bradley, which tries to analyze the operations of the world oil market and consequently of oil prices from a competitive market-equilibrium point of view.

We will first present Adelman's work as representative of the school of thinking that relies on pure market analysis. We will then present another school of thought represented by Rafal, which argues that prices (and hence rent) are fundamentally politically determined. Finally, we will put forward our own analysis.

2.1.11 Adelman's analysis

Adelman sees costs and oil prices as moving together in the long run.³ Based on this theoretical starting point it is not surprising that he has been the most-quoted predictor of the demise of OPEC and the collapse of oil prices which in 1978 is close to 50 times the price of an incremental barrel in the Middle East.

Adelman's theory of price⁴ is complex and must be seen in relation to the peculiarities of the oil industry. His concept of cost has two elements: development costs and discovery cost, both of which it is (at least in principle) possible to determine for existing fields. The problem arises for new discoveries because, according to Adelman, no-one can say anything about the relationship between the amount of money spent on exploration and the ensuing increase in recoverable reserves. Therefore future discovery costs per barrel are unknown. But it is possible to postulate an upper limit to future oil prices which is the price of extraction if no further exploration should take place. If the existing oil deposits were all to be depleted (and no new deposits found), then production costs for future oil would be slowly climbing. This is because existing techniques and financial factors tend to 'skim the cream' of the wells - more oil can almost invariably be extracted from existing deposits if one is willing to spend more money on the undertaking. (Average recovery rates of existing fields are still only around 30 per cent.) Thus total world demand for oil could be satisfied for a long time from existing fields, but with a higher production cost per barrel. If therefore no new fields were found we could establish a maximum long-run price for one barrel of oil - what Adelman labels maximum economic finding cost (MEFC). To the extent that new and richer deposits, and better technology both in exploration and production become available, so the long-run price of oil will fall short of the MEFC.

If companies or governments are willing to invest more per barrel in total exploration and finding costs than MEFC, this can, according

to Adelman, only be due to 'imperfections' in the system such as governments' wish to protect indigenous energy resources.⁵

Based on such a theory Adelman predicted the MEFC for 1985 (some 15 years after he wrote his major work) to be around 20 cents per barrel (real terms).⁶ This is the level towards which oil prices, according to Adelman, will tend to gravitate in a perfectly competitive world in the absence of new discoveries and technological progress in oil extraction.

A number of questions immediately present themselves in regard to the use of this methodological framework, which relies heavily on the market for an explanation of developments in the oil industry.

The first is the obvious question of how can one then explain the drastic actual increase in price in recent years. Adelman's answer would be that 'non-market' forces are to blame. He states that the degree of monopoly is a variable (apart from demand and supply) which decides the development of the oil prices over time. But when do the exceptions become the rule? There is relatively little use in saying that X is the long-run tendency if this tendency never asserts itself in any forceful manner. It has anyway been almost impossible to talk about the existence of a "petroleum market" for large parts of this century, given that almost all oil has passed through the vertically integrated companies.

Secondly, why does Adelman only analyse the MEFC in the Persian Gulf? It may not be optimal for the Gulf states to satisfy the whole world demand for oil because of absorption problems in their economies even if such behaviour would be the most 'rational' from a private point of view. In short, Adelman seriously underestimates the absolutely crucial political forces that may push a country towards limiting the output of oil. (For a further discussion of this see Section 7.7.)

2.1.12 The political perspective

The methodological antithesis to Adelman is represented by an analytical tradition where we find writers like Rafał and Chalabi, and with some reservations Noreng. These writers claim that the determination of the price of oil is primarily political.

According to Chalabi a close examination of the history of the oil industry confirms what he labels the administrative nature of oil-pricing.

He categorically states, "Never in that history were prices set in accordance with so-called market-forces".⁷ As an example of his way of thinking consider the companies' decision in the post-war period to undertake price-cuts of Middle East oil in relation to US oil. Chalabi sees this decision as political and not (as is normally claimed) motivated by changes in market forces. The basic reason was the concern of Western economic planners and oil companies to reduce the cost of the oil to the developed oil-importing countries. His article is a step-by-step argument that similar political forces have been (and in the post-nationalization world of today continue to be) the prime 'mover' in setting the oil price.

A similar position is taken by Rafał when he writes: "crude oil prices do not seem to derive from an economic concept relating them to the economics of production or from a commercial concept governed by the dynamics of supply and demand, but rather from a strategic concept that aims to insulate prices from the continuous fluctuation and evolution of the industry.... the only way out of the dilemma (of determining oil prices - PN) was to proceed through the strategic and political approach outlined above".⁸

Noreng's position is somewhat closer to our 'compromise solution' outlined below. While he claims that different factors are important in explaining the formation of the oil price at different stages in the development of the oil industry, he states, "the oil-price has been influenced under quite different circumstances by factors other than marginal costs".⁹ As an indication of his approach, one of several key factors which he sees will influence the price of oil in the future is "the political relations between OPEC and OECD countries, and their own internal cohesion".¹⁰

Different reasons are put forward why the pricing process in the oil industry is so influenced by political considerations. The main reason Rafał gives for this state of affairs is that all traditional economic market models assume that the oil industry is a competitive industry, an assumption which "is in contradiction to the integrated and oligopolistic structure of the oil industry".¹¹

This does not preclude Rafał from advocating an understanding of what he labels the 'technocratic' approach to the pricing of oil by which he means an understanding of the more limited 'economic' elements in the pricing process. But according to the thrust of his work such an

insight is mainly important in setting the relative prices of different crudes (relative in relation to the 34° Arabian Light), while here we have preoccupied ourselves with the general price level of oil.

For Chalabi the basic reason why the oil price has always been 'administrable' is because producers are limited in number and any barrel of oil which is not produced is stored in the ground without any cost. As a consequence the major producers can set the price of oil and sell in as great quantities as the 'market' can take.

The main problem with the 'political' approach to oil pricing is that it leaves the whole outcome of the pricing process 'suspended in the air'. Literally anything can happen. As a minimum such an analysis has to be linked more closely to an analysis which seeks to identify the crucial variables why there has been a high degree of concentration in the industry. It is not enough (as Chalabi does above) to ascribe this to the few producers in the industry. The world has seen many other industries, especially raw material industries, where the same has been the case, and where 'market forces' have influenced the pricing process.

2.1.13 A compromise view

(i) Barriers to entry

The continued tendency towards high prices in relation to production costs, and consequently large rents in the oil industry, during the period under study, is in our own analysis due to a number of reasons which cannot be adequately understood by either of the approaches outlined above. The first element in our explanation centres on the relationship between a highly concentrated market structure and high prices, a connection also mentioned by the FTC Report (see Appendix A, p.302). We will start our analysis with one key element in determining market structures: barriers to entry.

The most important of the barriers to entry in the oil industry is the substantial need for capital required both to enter and to operate continuously in the industry. In exploration there may be a need to finance an unsuccessful venture over a considerable period of time. In production, especially in areas like the North Sea, the capital requirements have been so vast that only a handful of companies have been able to raise the necessary capital on their own. While in downstream activities the cost of building and putting on stream a refinery

constructed to attain most economies of scale in the early 1970s were upward of \$250 million.¹²

Furthermore, the companies often exercise a monopolistic control over the necessary technology to produce oil, a monopoly which is partly a reflection of the high research and development costs in the industry.

The necessity to spread production internationally so that each company refinery has access to crude of different qualities from its own sources in order to satisfy a particular 'blend' of crudes, also tends to limit the number of potential entrants to the industry, even if 'swap arrangements' between firms can limit such a disadvantage.

(ii) 'Natural monopoly'

While there is relatively little disagreement that the oil industry is characterized by important barriers to entry, a much more controversial issue is the extent to which the industry could be said to be a 'natural monopoly', which could then readily explain the existence of rents in the industry. Since the marginal cost of production in the oil industry is much lower than the average cost, there has been a natural tendency towards oversupply in the industry. Historically it has been possible to produce additional output, or in a relatively short time find new reserves, at a price which was below the average cost of the existing industry. This tendency can be attributed to heavy fixed investment¹³ which has encouraged companies to push additional crude onto the market at a price which, being in excess of the modest marginal cost (and therefore contributing to a positive cash flow), was not high enough to cover average cost. The only way to avoid such a disastrous development (for existing companies) has historically been to tightly control supply through a monopolistic market structure.

The potential instability of the industry, and the ensuing structural consequences, can also be formulated in a slightly different way. As long as there are economies of scale in the production of crude, the expansion of output can threaten the market equilibrium because the incremental barrel can be sold at a price which is lower than the going price. Monopolization of the industry is again seen as a way of preventing this from happening.

The history of the oil industry can be interpreted in the light of the above theoretical insights. In particular the unusually strong tendency towards monopolization and vertical integration can be seen

to be a result of the necessity of controlling supply. No-one has put this point of view more coherently than Blair. While attributing some of the concentration of the oil industry to phenomena like geographical concentration of large reserves, and large capital requirements both for production and marketing through vertically integrated channels, he nevertheless continues:

"The degree of concentration inherent in the nature of things has been insufficient to provide effective control of markets. The nature of the industry is such that stability of price requires almost complete control of the markets."¹⁴

The way such a control historically has been maintained is then set out by Blair.

"By means of a web of cartel agreements set up in most of the world's consuming countries, they (the majors - PN) secured control over most of the world's markets. Through boycotts, intimidation, and the active support of government bodies, particularly the US State Department, they have been remarkably successful in keeping outsiders out."¹⁵

A largely similar position was taken by Frankel when as early as in 1946 he wrote:

"Because of the uncertain results of exploration, the high overhead costs at all stages of the industry, and a high inelasticity of demand in the short run, the industry is not 'self-adjusting' in the sense that a fall in prices chokes off supply significantly or strengthens demand. Therefore the industry is subject to continuous crises in the absence of reasonably strong control over supply."¹⁶

Finally, Stork also supports such an analysis when he states:

"Indeed, the historic dilemma of the US oil industry has been to restrict production in order to bolster prices."¹⁷

The numerous ways that even the US governments, whether federal or state, have intervened in the oil industry is a constant reminder of the potential problems of output control in the industry. The Texas Railroad Commission, which today continues to administer a pro-rata system for oil production, was set up in the wake of the collapse of the cartel system in the US in the early 1930s which had led to a 90 per cent drop in the price of a barrel of oil from the newly found East Texan fields. The 'as is' arrangement (see Appendix A, p.298) was similarly set up in the wake of a market collapse in Europe in the late 1920s.

The relationship between vertical integration and monopolization is controversial. While it is possible to argue that vertical integration is partly a product of special tax concessions that historically made it advantageous for firms to be vertically integrated, and hence is no way is an "inherent" feature of the industry,¹⁸ it is equally plausible to argue that this industrial feature, which has dominated the oil industry since the formation of Standard Oil in the last century, is an integral and inevitable aspect of the oil industry. Frankel puts it bluntly when he says:

"The strength of the international companies lies in the degree of their integration.... The real power that these companies have is the Power of Disposal ... if the international oil companies would not provide what I like to call this 'internal grid' somebody else would have to find a similar structure."¹⁹ ²⁰

It should be pointed out that our view that the oil industry is a 'natural monopoly' is strongly opposed by Adelman.²¹

(iii) Political influence

In addition to 'barriers to entry' and 'natural monopoly', there is a third reason why there has been a tendency towards monopolization in the industry. The reason is related to the characteristic of oil as a 'strategic good'. The UK's purchase of the Anglo-Persian Oil Corporation is but the clearest example of this. More recently, as long as the oil companies were able to reliably supply at a low cost the ever-increasing demand of the Western world for oil, there was a tendency by the governments to tolerate the continued existence of the oil-company cartel. The large influx of foreign earnings from the companies' overseas operations which contributed to the balance of payments in the mother countries²² also made the companies more immune to government interference in their affairs while at the same time it gave the companies a disproportionate political influence in their home countries.

Only one more task remains to be undertaken before we can put forward our own definition of oil-rents. We have to decide whether there are any limits to the amount of rent that can be collected at the margin, i.e. what is the upward limit to the price of oil?

There is the immediate limit that oil must not be made uncompetitive in relation to other sources of energy (a fact which is today keenly appreciated by the OPEC countries).²³ While this may seem an obvious

point, it nevertheless has important methodological repercussions, by focusing the attention on oil not as a good in itself, but oil as one among many sources of energy. This approach is most clearly put forward by Masserat, who claims that final oil prices per energy-unit to the consumer will tend to gravitate towards the price of US coal. This is because the production of US coal gives the average rate of profit for the production of energy from a global point of view.²⁴

2.1.2 Definition of rent in the oil industry

This concludes our discussion of the factors which determine the absolute level of the price of oil, and hence oil-rents. As key explanatory factors we have chosen a combination of political variables and the high level of monopolization in the industry. At the same time there are clear upper limits to the price of oil determined by oil's relation to other forms of energy. Thus long-run trends in the price of oil, like the gradual decline in the 1950s and 1960s, only reflected market developments in a very slow and hesitating way. The only instance where the market mechanism today operates in anywhere like a 'normal' manner within the oil industry is in determining the relative prices of the 52 kinds of OPEC crudes once the reference-price of the Saudi 34° 'marker' crude has been set.

The theory of rent as it has been presented so far can give rise to a number of definitions of rent which are appropriate with respect to the oil industry. We will choose a definition that combines the classical notion of differential rent with 'excess profits' that are being made at the margin as a result of the monopolistic features of the industry. There are Marshallian overtones in the definition because we claim that rent does not only originate from land.

Broadly similar definitions have been put forward by other writers. Van Meurs refers to rent as profit which is in excess of 'normal profits' defined as "that profit which is just sufficient to induce the entrepreneur to stay in the industry".²⁵ He also allows for a notion of quasi-rent which is somewhat different from the one employed in the traditional Marshallian context. Included in quasi-rents are earnings that are necessary for the continued existence of an oil company in exploration but not in other activities. Mikesell has a slightly wider concept of rent, as "any surplus above the current expenditures necessary to produce the output".²⁶

The only difficulty with these definitions as they stand is that they give no more specific insight into the origin of this rent in the oil industry. The only writer who has tried to do that in any systematic way is Chevalier (1974) and (1976). Our own definition of rent which will now be presented is in broad terms inspired by his writings.

Oil-rents consist of two elements, differential and monopoly rent.

(i) Differential rent is due to the heterogeneity of different crudes and production processes. It accrues to those who produce, transport, refine and market oil in the best conditions.

Differential rent is made up of various components:

Quality rent:

Gravity, measured in degrees API, is a characteristic of crude oil. The lighter the oil, the higher price it will fetch.²⁷ Sulphur content is important due to the substantial pollution to which this component in oil can lead. It is expensive to 'desulphurize' crude. Normally it is mixed with 'non-sulphurized' crude. But high sulphur content still represents a negative rent differential.²⁸ Due to special local conditions, the quality differential may be different in different markets (depending upon tastes etc).

Position rent:

Production close to major markets is obviously of importance as there can be savings in transport costs. Such a position rent should in theory be possible to evaluate from the world-scale quoting and the corresponding AFRA rate for tanker transport. But unfortunately there are difficulties in using these rates for our purpose. Chevalier supports this by stating, "Most of the oil traffic is a steady one. A company which controls a steady traffic optimizes its fleet and the average cost incurred does not depend on AFRA rates variation."²⁹ A similar critical attitude is expressed by Tanzer.³⁰

Mining rent:

This is an expression of the different production costs which reign in different oil-fields. The average cost of extracting oil in the Middle East is a maximum of around 30 cents per barrel compared with a production cost close to \$4 per barrel in the North Sea (1976).

Technological rent:

Technological rent is due to one firm's greater efficiency in production, refining or marketing. It can be due to economies of scale in these different activities, or one firm's control over technology.

The above four are all differential rents that are internal to the oil industry. The differential rent of the last barrel of oil needed to supply a market is zero.

(ii) Monopoly rent reflects the abnormal rates of profit which are earned in the oil industry as a whole and are mainly due to monopolistic features of the industry.

Monopoly rent results from the high concentration of the industry which, at the level of production, is due to natural monopoly, vertical integration and high barriers to entry. At the level of circulation monopoly rent is due to collusion and restrictive practices which in some instances are aided by government policies.³¹

The total amount of rent is then divided between the producer-state and the oil corporation. Total oil-rents are therefore the sum of:

- (i) taxes from oil-producing countries, in the form of royalties, income taxes, bonuses etc;
- (ii) after-tax return on capital to the oil corporation in excess of the normal rate of profit. (We will later return to a definition of this.)

Taxes charged by importing countries on energy (like sales taxes on petrol) are sometimes included as part of monopoly rent. Such an extension of the definition will at the present stage not bring any further clarification to the problem of the distribution of oil-rent between the Norwegian state and the companies. It will consequently be ignored.³²

Our concept of oil-rent can as a first approximation be presented graphically.³³ The weakness with such an approach is that the rent is presented as undiscounted. We will in Chapter 3 operationalise our concept of rent in discounted terms.

2.2 CONTROL OVER VOLUME

While there is an antagonistic bargaining relationship between the nation state and the oil companies over the relative share of oil-rent, the bargaining between the two 'actors' also takes place with regard to other issues. The most important of these is control over volume of production. Such control affects the overall size of the PV from an oil province and is therefore an aim which is separate from maximizing the relative shares of the two actors.

Historically there have been at least four separate reasons advanced as to why there should be a conflict over volume of production.

Until recently the OPEC countries worried about control of production because less output from any of the fields implied less revenue for the state in question. When payments to the state mainly consisted of royalties, this relationship was even more direct than when income also started to flow from profits taxes. As one high OPEC official has said: "Most confrontations between single countries and the international oil industry have been over rates of production."³⁴ The conflict was clear in its origin (and still is for countries that don't control their own output). An oil company operated a vast production network which meant that the only criterion for output decision was maximization of the cash flow of the totally integrated firm, irrespective of the wishes of the individual producer countries.

Lately the question of volume control has been posed in a slightly different manner and also with a somewhat longer time horizon for the producer states. It is clear that to maintain OPEC (and thus for the producer countries to earn high amounts of future rent by charging high prices), the cartel, by formal or informal means, needs to control the quantity of production by its members.

A third level of argument in favour of volume control has been put forward in countries like Norway and Saudi Arabia, especially since 1973. Their arguments are based on the assumption that there is no automatic correspondence between the optimum private and social rates of extraction of a natural resource. So in order to maximize oil-rents in social terms, there may be a case for state intervention to control the volume of production. (For a further discussion, see Section 2.2.1.)

The state may finally want to control output for reasons of 'conservation'. This can mean refusal to let the companies flare gas, or (less used) forcing them to invest in 'uneconomic' secondary and tertiary recovery methods in order to increase the exploitable reserves of a field. Whether such an investment is "worthwhile" clearly depends upon the different discount rates of the state and the companies.

Control over volume is normally classified as part of a wider government aim of 'control' over the industry.³⁵ This is however a very inexact and unclear concept as it is normally presented. We first want to show that it is difficult to separate the state's aims of 'control' and 'rent maximization'. The former is a prerequisite for the latter. To do this we have to distinguish between the micro- and the macro-aspect of the level of production and speed of output. Government interference in the rate of exploration in existing fields is different from those guiding state interference on the macro-level, e.g. for the Norwegian North-Sea sector as a whole. Most theory addresses

itself to the exploration of a given amount of a natural resource, in effect the micro-case. Micro-control rearranges the private optimal depletion path and will affect the present value of an oil-field. (But if the same total amount of oil is extracted the undiscounted figures will remain the same.) This is the case where the private companies are most opposed to government policy, as such regulations can upset their existing production plans which are carefully constructed according to private micro-economic criteria. As noted above, control over the physical production from one oil-field (e.g. by stretching production from 15 to 25 years) will change the present value of that one field. The direction of the change will however be more difficult to ascertain if the change in production-profile stems from a change in discount-rates. This is because two variables (the decrease in discount-rate and the increase in the life-time of the project) pull the PV of the field in different directions. Therefore, while regulating the volume at the micro-level still means that the state seeks to maximize its share of the oil-rent, the new aspect of micro-control is that the overall size of the discounted rent will have changed in response to the state's action.

Before we examine the theoretical underpinnings of the case for micro-regulation, let us briefly turn to macro-regulation. Macro-control will affect the total present value from the oil province such as the North Sea as a whole, but will have no effect on the present value of our individual hypothetical fields once their production goes ahead. The total output from one oil province can be controlled by not issuing new licences, a procedure that has been prevalent in Norway. While such a control is perceived by the companies as much less of a threat than micro-regulation, the companies are not uninterested in the aggregate level of output from one region. Leaving aside the historically specific conditions of the North Sea case (which makes the companies extremely interested in production from the area because of the security of supply of high quality, high profit oil in a politically stable region close to the major markets), there are other reasons why the oil companies will be interested in the aggregate level of output. Quantity produced affects the economies of scale the companies can achieve in manpower training in technologically 'new' areas and standardization of production gear.

In the following case study we must therefore distinguish between 'micro' and 'macro' control of volume. But once we have arrived at an

adequate definition of 'rent', no other and new theoretical concepts will be needed to describe the quantitative consequences of volume control.

2.2.1 The theory of depletion

The theory of exploitation of a non-renewable resource tells us that a profit-maximizing private owner of a natural resource will exploit that resource at a speed that will maximize his expected present value of the investment. The crucial future variables that the individual capitalist has to assess are costs, prices, and future demand. Any assessment concerning speed of extraction will be based on private costs and benefits as well as the private discount rate. Broadly speaking, an expectation of a sinking real price of oil will induce a faster rate of exploration from existing finds, as will an increase in the private discount rate.

To determine the exact conditions for an equilibrium path of exploration of a natural resource the best starting point is the work of Hotelling,³⁶ who showed how a micro-economic market equilibrium with respect to depletion rates could come about through the operation of the market. For a given reserve of a homogenous non-renewable good, the optimum rate of depletion is established when the increase of the profit margin from extracting oil, and therefore the increase in the price of oil (if the margin and costs of extraction remains constant) equals the rate of interest. This is because the extra future income a producer would get from leaving the natural resource in the ground is equal to the extra income that can be generated from extracting the oil and investing the proceeds at the going interest rate; i.e. the Marginal Revenue of following both courses of action is equal.

According to Hotelling there is a natural tendency towards an equilibrium in this situation. If the rate of extraction is less than the equilibrium rate, supply will decrease and prices will rise, encouraging a higher level of extraction. If the rate of extraction is greater than the equilibrium rate, the reverse will hold.³⁷

The price of the resource will slowly tend to increase over time, because the rent (see footnote 37) increases. But this increase is only related to the increasing scarcity of the good and within this model has nothing to do with rising costs of production. The key insight when we

deal with production from an existing find is that "A higher rate of discount means that T (the time-span of exploitation - PN) becomes shorter and the initial production becomes higher..."³⁸

There are no fundamental difficulties in extending the above framework to the case of monopoly. Hotelling shows that the standard result that a monopoly will tend to increase prices and restrict output (and hence act in a 'conservationist' manner) also holds for non-renewable resources.³⁹ But it should be noted that the analysis is more complicated than the standard textbook comparison between 'perfect competition' and 'monopoly'.⁴⁰

One problem when we extend this optimal depletion theory to the case of monopoly arises because a monopolist might use a higher rate of interest with which to determine the equilibrium path of extraction and subsequently increase the current rate of extraction compared with a competitive 'path'. This higher rate of interest may result from the higher rate of return that a monopolist can earn elsewhere, and thus would tend to counteract a monopolist's tendency to restrict output.

Note that the depletion analysis as it stands has disregarded new production, says nothing of intergenerational equity,⁴¹ assumes no uncertainty about future markets and technical progress, and says nothing about the elasticity of substitution between the resource in question and other factors of production.⁴² Neither does the analysis as it stands examine the stability conditions of a market for raw materials.⁴³ But all of these problems have been subject to theoretical analysis. Based on these discussions (the details of which are found in the footnotes above), and our previous discussion, there are at least five reasons why the state could want to intervene in private depletion decisions.

(i) There may be externalities in production of oil, coupled with a situation where the individuals who suffer the consequences of these externalities do not have any way to organise as a collective group and thus be in a position to 'bribe' the originator of the externality to stop his activity. (The latter is a standard condition for a private market equilibrium with respect to externalities.)

(ii) There may be joint production from any field (as when a field straddles a national boundary, or in the US a private boundary). In that case one individual producer has no incentive to recognize that 'less' production today implies 'more' production in the future.

(iii) There may exist what Strøm labels "society's conservation-motive",⁴⁴ when a state attributes a positive value to have in its possession a certain stock of a raw material. A private rate of depletion may exhaust these stocks because its rate of discount is higher than the social rate of discount. In addition to the reasons already given for such a situation, where structural dislocations in the economy, as a result of oil production are of prime importance, arguments of a more distributional character are also important.

The ones who benefit from the production of a raw material are invariably different from those who pay the costs of extraction. In the Norwegian case (during the period of study) this difference was very important in pushing the Norwegian state to decrease the rate of extraction. Therefore the distribution effects between private individuals of any particular output profile of oil should be considered.⁴⁵ Pigou's more general point that "... there is wide agreement that the state should protect the interests of the future in some degree against the effects of our irrational discounting and of our preference for ourselves over our descendants"⁴⁶ is also important to the argument about 'society's conservation-motive', and if accepted would lower the social rate of discount.

(iv) So far all our examples have implied that the state should try to conserve existing stocks of raw materials. However, to the extent that the state believes it is faced with a monopolistic situation where the expected rate of extraction is below the market rate (see above), there can be a rationale for intervention to accelerate the private rate of production. This may also be the case where the state, for whatever reason, has a 'shadow price' of oil which is higher than the market price.⁴⁷

(v) The possibility of dynamic instability in private natural resources markets presented in connection with Stiglitz's work (see footnote 43 above) may also give a rationale for state control over volume of production.

Note that our conclusions above will be modified when we analyse production from new finds. A lower discount rate will then make new finds 'commercial' and then increase production instead of decreasing it.

This theoretical discussion suggests that there are a number of reasons why the state should regulate the volume of production, even if some economists⁴⁸ are very sceptical as to the effectiveness and ability of the state to do so in the real world.

2.3 SPINOFFS

Our historical review of the industry suggests that the producer states, in addition to maximizing their control over the oil-rent, also have aimed to use the oil industry to create employment and stimulate economic activity within their national boundaries. The producer states with in short to maximize the spinoff effects from oil. This aim was particularly important for the Norwegian state which was actively trying to develop its industrial base (see Section 1.2.2, (i)).

Spinoffs from oil can analytically be divided into two separate categories. Forward spinoffs are related to the possible uses of crude oil in refining and petrochemical production. In this case maximization of spinoffs is related to the aim of maximizing oil-rent, because of the high value added and the potential profitability in processes like petrochemical production. Such spinoffs are not maximized for their employment effects mainly because these industries are extremely capital-intensive. But in the second category of spinoffs, backward spinoffs, which include production of equipment to find and extract the oil, like drilling rigs, production platforms and supply ships, the wish to maximize employment constitutes an important driving-force for state action.

Both kinds of spinoff can lay the foundation for an industrialization process in an oil-producing country. In addition, a producer-state can use the general oil revenues to start industrial projects totally unrelated to either backward or forward spinoffs. Historically a combination of low rents and corrupt ruling classes more bent on personal gain than on the industrialization of their countries can explain why no such developments have taken place in the oil-producing states.⁴⁹ An additional factor for this was the wish of the companies (particularly after the Mossadeq affair) to move their downstream activities to politically more secure areas. We shall however disregard the general industrializing effect of the oil activity and in the Norwegian case study only concentrate on the more specific effects which relate to both backward and forward spinoffs.

Part II: The outcome of the bargaining process

Having established that the objectives of bargaining between the oil companies and the Norwegian state are oil-rent, volume control, and spinoffs, we want to examine which factors are likely to determine both the outcome of this bargaining over time, as well as the form which state intervention will take.

Within a traditional framework of analysis there are two broad ways of explaining and understanding this development, neither of which is satisfactory. The first approach is to attempt to situate an explanation within the confines of traditional neo-classical theories of state intervention in the economy. Our critique of this approach, set out in Appendix D, is very important from a methodological point of view because a rejection of the traditional neo-classical paradigm with regard to the understanding of the actions of the state opens the way to an alternative theoretical framework for analysing the state's role in the oil industry.

Having rejected a traditional micro-economic analysis of state intervention, we must also show why a second and more specific bargaining approach to the development of raw material concessions is also unsatisfactory. This will briefly be done in section 2.4 of this chapter before we present our own theoretical framework in section 2.5.

2.4 TRADITIONAL THEORIES

Traditional bargaining theory can deal with the question of the division of oil-rent in two different ways: First, the analysis can be based on an abstract (and general) theoretical model of bargaining. Alternatively, the outcome can be analysed from a 'historicist' perspective on the assumption that once it is decided which are the key variables that determine each actor's bargaining strength, each case is then treated as being basically different, so nothing in general can be predicted about the outcome. We will present and criticize these two approaches before we outline our own solution to the problem of bargaining.

2.4.1 Bilateral monopoly and game theory

On the assumption that the oil industry is monopolistic we can examine the traditional bilateral-monopoly case of bargaining. Both in the Norwegian and in the UK case the oil companies have organized themselves into Offshore Operators Committees, which essentially present a 'united front' to the two producer-states.⁵⁰ Unfortunately such a general approach is of only limited value, because the outcome of the bargaining process under these circumstances is theoretically indeterminate. All we can predict from such a theoretical framework is a range of likely outcomes, which in our case is no help in establishing a determinate solution. It is also questionable to what extent even to establish such a range would help our analysis, since from the outset we know the total amount of rent at issue (the present value of the field) and by a minimum of a priori historical analysis also can establish within what likely range this rent will be divided. If for instance there is a worldwide trend towards a 50/50 split of this rent, it is very unlikely that any new agreements would deviate significantly from such a division. As Ferguson writes about bargaining within this market structure, "The precise result is determined by factors beyond the purview of economic analysis".⁵¹

Bilateral monopoly as a general model of bargaining is therefore of little use on its own, even if the approach may still give limited insight into the question of 'collusion'.⁵² It is only when this approach is linked to a more historical view of bargaining that it can be more useful.

On a more general level of abstraction one can look for a solution to the problem of the division of rent according to game theory. But this branch of analysis has not lived up to original expectations in solving applied studies. Game theory has in particular difficulties in handling non-zero sum games,⁵³ it is restrictive in its behaviour assumptions,⁵⁴ and in conditions of uncertainty gives rise to additional problems unless we also specify a risk indifference curve for the actors.⁵⁵ The approach has finally been accused of being 'non-dynamic'. We can only agree with Young:

"The game-theorists' conception of bargaining has yielded a number of elegant models, but it abstracts away all the dynamic aspects of bargaining and severely limits the applicability of the concept even in the analysis of static relationships.

By contrast the economic conception of bargaining as an interaction process involving offers and counteroffers permits the introduction of dynamic elements into the analysis of bargaining.... But the models that have so far been derived from this conception are heavily restricted in terms of applicability and they exhibit a mechanistic quality which stems from the fact that they abstract away all the manipulative activities commonly associated with bargaining. Moreover neither of these conceptions has yielded predictions about bargaining which correspond at all well with the actual processes and outcomes of bargaining in analogous real world situations." ⁵⁶

But all is not lost.

"... the principal value of these models [of bargaining - PN] lies in the insights and conceptual stimulation which they unquestionably generate rather than in the specific predictions and explanations that can be derived from them." ⁵⁷

For our own specific case study, the main insight from game-theory stems from the importance of interdependency and 'dynamic behaviour' in bargaining. But the main conclusion still remains that there is no simple game-theoretic 'answer' to our bargaining problem even if the particular problems listed above could be solved.

2.4.2 Historicism, an alternative static model

If we settle for an 'explanatory model' on a lower level of abstraction as a result of the failures of any general bargaining model, we must consider more specifically the problem of bargaining as related to oil. The most important representatives of this approach are Hartshorn (1967), Vernon (1967, 1973), Penrose (1968, 1971), and Mikesell (1970). But the way this approach is presented in the literature has the disadvantage that only seldom are any formal models of bargaining explicitly spelt out. (To the extent that Hartshorn⁵⁸ and Penrose⁵⁹ use any theoretical framework it is the indeterminate bilateral monopoly case.) Consequently, this approach tends to neglect the overall view of different factors' interrelationship and the consistency of their aims. Instead we generally find scattered references to factors that have contributed towards the 'strength' of one or the other of the two

actors in question, which are then used to give a 'solution' to the bilateral monopoly case. An understanding of the key in any bargaining situation between oil companies and nation states therefore tends to become implicit rather than explicit, and the approach becomes descriptive rather than analytical. But on the other hand the strength of this half-historical, half-analytical approach should not be underestimated. Based on an intimate knowledge and insight of the oil industry, the practitioners of this approach identify key variables in the bargaining game, and inasmuch as the approach is preoccupied with historical developments, it can give insights to a dynamic approach to bargaining.

We will now situate the insights of the historical approach within our own theoretical framework outlined in Part I above, mainly in order to facilitate their presentation, but also to show that our framework can 'absorb' the insights of existing work in this field.

We will not analyse the strength of either of the two actors to increase the total amount of rent. Problems such as prerequisites for the existence of cartels like OPEC which can push up the price and thus increase rents without a corresponding change in the share going to the nation-state will therefore not be analysed. At this stage we are only interested in factors which influence the division of a given amount of oil-rents.

As a first step we will analyse factors which historically have served to maintain the monopoly power of the companies so that they have been able to expropriate a large amount of the oil-rent. The ability to earn monopoly rent is crucially dependent upon lack of competition between the major companies as well as on the exclusion of new entrants to the industry (among the latter the state oil companies which could replace the majors). We therefore have to analyse bargaining strength in the light of barriers to entry in the oil industry. Such an approach will also further help to clarify why the oil industry historically has exhibited a high degree of monopoly, a discussion started above.

Control over technology stands out as the most important barrier to entry. This is in the last analysis the main objective basis for a company's claim of being the only entity that can carry out the production of oil. It is also an extremely strong bargaining card in the hands of the companies because it is possible to view control over technology as being much more 'inevitable' (and hence politically

acceptable) than the control over property the companies enjoy in the normal concession agreements.

Such a view is supported by a number of writers. A company's bargaining position ultimately depends upon the inability of a producer state to run the industry itself. The faster a producer state builds up an independent oil expertise, the stronger is that state's bargaining position. The ultimate bargaining threat of any company (withdrawal or non-entry) can therefore be undermined or shown to be a hollow claim once the state acquires such expertise.⁶⁰ It is therefore hardly surprising that at the highest level of abstraction, Vernon identifies a nation state's bargaining strength as being inversely proportional to the scale and the technological complexity of the investment in question.⁶¹ Penrose similarly describes the existence of technological requirements of investments in the oil industry as being one of the crucial factors as to why oil companies historically have earned a rate of return that is higher than the average.⁶² The dynamics of negotiations between the companies and the producer-states can, as a first approximation, be seen as the battle between one actor's control over technology, and the other's attempts to catch up in this field.

Even if the nation-state is capable of running the oil exploration itself, it will still get the company to undertake the task if it thinks that the return of this line of action outweighs the possible costs (in whatever form) of acting on its own accord. Such an assessment from the state's point of view therefore represents a kind of crude 'cost-benefit' analysis. In deciding whether to grant a concession or not, the state weighs up on the one hand, how badly it needs the oil, and on the other how much it thinks it can get out of the oil company.⁶³ According to this line of thought, the nation-state will go ahead with a concession if the former outweighs the latter.⁶⁴ But the nation-state may, for instance, not want to commit all its scarce resources (both skilled labour and capital) to investments in one industry. If this attitude is strong enough the state may simply refuse to commit any state capital to what it regards as a risky project, especially if the state is a risk-averter. We consequently at one point will have to inquire more closely into the future producer-state's attitude to risk.

A third reason why one of the 'actors' may be in a superior bargaining situation is its potential access to finance. The importance of this point is related to the cost of the investment. The larger the

cost, the more important such access becomes. It should be noted that the World Bank up until 1973 refused to finance oil exploration in third world countries, its reason being that finance was already available from the major companies.⁶⁵

A fourth factor that historically has contributed towards the barriers to entry into the industry was the companies' control over marketing outlets, a control which is intimately related to the tendency towards vertical integration in the industry discussed above. Vernon⁶⁶ concludes that the companies' control over marketing (together with their superior access to capital) have been the key reasons for the superior bargaining position of the companies, a factor also emphasised by Penrose.⁶⁷

Fifthly the international situation in the oil industry at any one time will also influence the bargaining relationship between any particular company and state. It constitutes the constraints within which everything on the more particular level must operate. In Appendix A we saw how the relationship between companies and producer-states on several occasions changed in response to developments on the macro oil level. The spread of the Venezuela 50/50 principle is only one of many examples. Such a process works mainly through a mechanism whereby a specific oil company's demand for acreage will be influenced by the world situation of demand and supply for oil and other forms of energy. Whether the nation-state is dealing with a crude-short or a crude-long company also influences the bargaining strength of the company in the same way as the number of alternative sources of supply they control. Lack of diversified sources has at various times had serious effects for oil companies, the most important example being Occidental's confrontation with Libya in 1970 (see Chapter 7).

The final factor which affects the bargaining is a producer-state's economic situation; in particular its overall energy requirements, its balance of payments position, and its need to gain additional revenues. But even the relative strength of these factors must be related to the international situation of the oil industry. A producer-state will always tend to look at the terms obtained by other producer-states before it sets its own terms of exploration.⁶⁸

We have so far highlighted a number of specific factors that in the view of the historical approach have influenced the division of rent between a nation-state and an oil company. But there is one factor which has an effect on all the above-mentioned factors and which can be seen as a 'common denominator' in the bargaining game. This is access to information. In particular, the initial bargaining between the two actors very often takes place when the state is nearly 'blind-folded' with respect to information. The companies tend to be in possession of all information concerning geological structures, expected market developments, costs etc, and can choose which facts to present to the nation-state. To what extent this information gap closes as time goes by will help to determine the long-run division of rent between the two 'actors'.

2.4.21 The political dimension

Apart from the more 'objective' reasons already outlined, a number of writers have emphasized 'political' factors in determining the division of rent between the companies and the producer-states. Appendix A strongly suggests that the history of the industry abounds with instances where political influences and pressures rather than any objective comparative advantage have given a company access to oil-producing fields. This was particularly and blatantly so in the pre-1945 era. Tanzer considers the strong position that the companies historically have enjoyed primarily to be a reflection of the political support that companies have received from their home governments,⁶⁹ as well as from the political allies that companies invariably have managed to build up within the producer-states themselves. Evensen, while not being so general, clearly interprets the early part of the history of the industry as a reflection of inter-imperialist rivalries.⁷⁰ But the position of the companies has also recently been defended by general political back-ups within the 'mother-countries' in the form of general legal provisions like the US Hickenlooper Amendment. This was intended to discourage any third world country from taking steps which interfered with US business interests abroad. However, too close an identification between companies and the ruling class within individual countries (or indeed with individual governments) may have unacceptable long-run political consequences for the companies. This is particularly the case in the event of a fundamental political change where the companies'

close cooperation with an 'old' regime may seriously prejudice their credibility and hence the possibility of working within any 'new' order. The role of Gulf Oil in Angola represents a recent example.

It is therefore only in exceptional circumstances that the oil companies explicitly will challenge the existing political order (as in Iran 1953). On the whole it is in their interests to maintain a 'low profile', and continuously to stress their 'comparative advantages' from a technical and marketing point of view. To 'corner' a government by making belligerent noises and by threatening blackmail can be counter-productive, especially if it leads to an over-reaction by the government in question.

There exists an extensive literature covering this more explicit 'political' aspect of the oil industry (see especially O'Connor (1955, 1963), Stork (1975), Tanzer (1969, 1974), Sampson (1975)). Because of their historical specificity, little purpose will be served by examining each case study in detail. It suffices to note that political pressure from the 'mother-countries' of the major companies is a factor which any concrete analysis will have to take into account. But separating the 'political' element in the bargaining process⁷¹ is not totally satisfactory, because there are strong interrelationships between the political and technical aspects of a country's bargaining strength. For instance, the decision to build up national expertise to run the oil industry is basically a political decision with technological consequences. Such a political decision may have been taken for no other reason than a deep-seated feeling that foreign corporations should be kept out of certain industries at all costs. Alternatively, such a 'political approach' may spur the nation-state simply to buy the services of certain companies for a fixed fee (a trend which started with the service contracts of the 1960s). This is a way for the nation-state both to play off different companies against one another and also to ensure that its political interests (often of a distinctly nationalist character) are protected through its retention of full legal sovereignty over a producing area.

2.4.22 Static bargaining models: summing up

We have now used our conceptual framework to classify factors which according to the 'historical school' at any moment in time have influenced the bargaining strength of our two actors. In addition to purely

political elements, these include factors which, in one way or another, influence the actors' monopoly situation, such as the overall world situation in oil; control over technology; access to capital and downstream activities; and access to information. In addition the individual company's position may depend upon whether it is crude-short or crude-long, as well as on the number of alternative sources of production upon which it can draw.

Within this framework, the companies' bargaining strength is nothing but a mirror-image of the strength of the nation-state which they happen to confront. In other words, their strength is mainly a reflection of how badly the state in question needs the oil (or the oil revenues). This depends upon the balance of payments situation, the internal political situation, and the country's overall energy situation.

The problem with such a static approach is not that it is wrong per se. On the contrary, it is useful in identifying the importance of specific factors such as technology, which influence the bargaining relationship. It is rather that this approach does not go far enough in its analysis and seems mainly to consist of a fairly arbitrary list of factors which affect one actor's 'strength'. Apart from this general tendency towards a methodological 'looseness', there are also a number of more specific objections with respect to the 'historical' approach.

First, the 'weight' of each of these factors is not known. Unless such an evaluation is made, this approach cannot say anything about developments of bargaining strength over time. Neither can it say anything about the exact 'weight' of one factor on the bargaining position at any moment of time.

Secondly, if we are interested in how bargaining strength changes over time, such a list of factors is of limited use since it provides us with a comparative static rather than a dynamic approach to the problem.

Thirdly, such an approach tends to obscure the fact that one of the main decisions a producer-state must make is how fast it wants oil extracted. This decision almost inevitably leads to a choice between letting a major international company undertake the production, or choosing a state oil corporation to undertake the task.

Fourthly, the approach does not discuss the problem of limits to state actions, because it assumes that there are no such limits. This (implicit) assumption is especially apparent in the discussion of the 'cost-benefit' analysis (cf. p.49). This can lead to quite unrealistic and thoroughly ahistorical predictions that a producer-state may

nationalize the oil industry (even without compensation) if only the perceived costs are less than the perceived revenues. Without going into any detail about the process of nationalizations in raw-material industries,⁷² in our view it is clear that such a decision is in no way the outcome of a rational assessment on behalf of society as a whole,⁷³ but instead is intimately related to the different class-forces that are brought to bear on the state at any particular period of time. Our alternative approach will try to link different kinds of state action to these internal class forces and in this way attempt to establish what limits exist for state action in the industry.

Finally, and possibly most importantly, there is little systematic discussion by those adopting the historical approach about what form state involvement in the industry will take. There is in particular no adequate framework for analysing the emergence of state oil corporations by linking such a discussion to the fourth point discussed above.

2.4.3 A dynamic view

Orthodox bargaining theory within the context of oil and raw materials has only tried seriously to deal with one of these objections: the lack of dynamic perspective represented by a simple listing of factors influencing bargaining strength. Indeed it is possible to argue that the main insight to be found in the literature concerning the process of bargaining in the oil industry has been related to such dynamic aspects of the bargaining process. Although there is no complete theory which can be applied, the writings of several authors provide enough material to give a broad indication in which direction to focus our analysis. In this area our task will be to synthesize and extend already existing insights.

The most illuminating contribution comes from Mikesell.⁷⁴ He claims that companies must initially be given an inducement to enter a 'virgin' area by being offered a rate of return which is higher than the 'average' rate of return. This is partly because the 'risk' is perceived to be higher, but also because the nation-state is in a relatively weak bargaining position in the initial period. (After all, the decision that an international company and not a state oil corporation is given the exploration right, is normally an indication of the inability or unwillingness of the nation-state to carry out this task

itself.) Once oil is struck and substantial profits start to be made, the 'pre-strike' claim to resources will be questioned; the state will feel cheated, given the normally generous conditions that originally were given to the companies. (If no oil is found, however, the state quickly forgets about the expenses that the companies have gone to in order to carry out such a project.) There will therefore inevitably be pressures towards a renegotiation of existing contracts, something which is also clearly brought out by Smith and Wells.⁷⁵ The claims by the government and the companies for the oil-rent exhibit what Mikesell calls 'a dynamic logic'. If the dice were originally loaded in favour of the companies when they committed large amounts of fixed investment, then subsequently the relative strengths of the two actors change.

"Thus some few years after investments have been made, the pressure to increase the government's share will grow - and be met by the company."⁷⁶

Vernon also talks about this pressure towards a renegotiation once production is under way,⁷⁷ and lists three factors that may bring about such a change: First, a national realization of the dependency on, and vulnerability to, outside forces brought about by the foreign investment; secondly, changing national policy objectives; thirdly, the need for increased total revenues on behalf of the government.

Even if this suffices as a first 'check-list', it says little about the underlying forces, which is perhaps most clearly visible in relation to the third factor.⁷⁸ However, come the day when the company has to take a decision on whether to reinvest profits in the initial venture, or to extend its existing operations in the country, the balance of forces is again weighted in favour of the company. The original state must compete with all other possible areas for the investment. Again in the words of Mikesell: "The moment of a new investment is the moment of greatest bargaining strength for the company."⁷⁹

The most important precondition for an outcome to follow the above description of the "dynamic path" is that the nation-state does not itself become capable of efficiently carrying out the tasks of oil production, i.e. that the companies manage to maintain their technological monopoly. This may not be the case if Vernon is right and there is a long-run tendency towards an erosion of technological supremacy.⁸⁰ This means that the technological competitive edge that the companies originally held and to which they partly owe their strong initial bargaining position, will break down as the host country's knowledge of the oil industry steadily increases and as the learning period for using advanced technology

decreases. Only a continuous technological development, so that a nation-state is continuously trying to catch up with yesterday's technology, can prevent such a trend from manifesting itself. Mikesell does not, however, rule out a joint maximizing strategy by the two actors in such a situation. This can only be dealt with by open or tacit recognition by both of certain 'rules of the game'; the most important consequence of which is that the size of the 'pie' is not reduced by what he labels "the scramble over the portions".⁸¹ But it then becomes important which 'pie' to consider; the static one with no new investment, or one that assumes continuous development of resources. Both the proper inducement to offer the company and the joint maximization strategy will differ in each instance. Therefore in the broadest sense Penrose characterizes the bargaining situation as a continuous assessment by both actors as to the costs of 'giving in' to the bargaining opponent compared with the cost of resisting his demands.⁸²

We have so far developed a dynamic view of bargaining that to a large extent has relied on generalisations based on concrete case studies. It is in response to the shortcomings of such a mode of analysis that Chevalier has developed his own more general model to deal with the general trends in the oil industry.⁸³ But unfortunately there are also serious problems associated with his work,⁸⁴ so it follows that we will have to rely on our own framework of analysis to understand the Norwegian case study.

We have now examined, both from a theoretical and historical perspective, the existing dynamic models which can be used to analyse the bargaining relationship between the companies and the producer-states. These models differ dramatically with respect to both the level of generality and how well they are worked out. And while they give a general indication in which direction to continue the search for clarification, for each question these models answer, a new question emerges. For instance, what form will the increased government 'toughness' take? Are there any limits to this process? How do the different factors interact? Will the renegotiation be retroactive or will it only relate to new agreements? So even if especially Mikesell's work can yield important insights which will make use of when we develop our own approach to the dynamics of bargaining, these models can only be viewed as a starting point of an applied analysis. We must also remember that almost all thinking about company/state relationships has

been carried out with reference to third world countries. This has inevitably influenced the traditional way of thinking about the issues. Analysing a relatively sophisticated industrial country like Norway will impose its own 'demands' on our thinking, especially with respect to defining the behaviour of a nation-state.

2.5 A NEW MODEL

Our approach to bargaining argues that there are three main factors which will influence the outcome and form of bargaining over time: first, the change in total expected rent from an oil province; secondly, the international context, and thirdly, the particular nature of the nation-state involved in this confrontation.

We will analyse each factor in turn.

2.5.1 Exogenous changes in rent

Within a dynamic bargaining model, inspired by Mikesell, we predict that an expected increase in rent from an oil province will lead to a response from the state in the form of pressure for changed conditions of production. This constitutes our first influence on the bargaining outcome. The increased expected rent can arise if there are exogenous changes in the operating conditions, for example an increase in the price of oil and/or a change in the technological conditions under which oil is produced.⁸⁵ Alternatively, the total expected amount of rent from a field will increase if the success rate of finding new fields increases or if a field is found under more favourable conditions, with better quality oil and/or in larger quantities (if there are economies of scale) than originally anticipated. Either way we would expect the producer-state's terms to harden. There is nothing particularly 'radical' or 'socialist' in such a 'tightening'. It is rather that any producer-state which does not follow such a course can be described as basically incompetent, although it is generally the case that left-wing governments on the whole tend to be quicker in renegotiating existing contracts. Such 'tightening' behaviour is even expected. As put by an editorial in The Times: "To old hands in the oil industry a changing government attitude ... comes as no surprise.... As oil is found and the area is no longer a purely speculative venture, the terms for exploration and production inevitably become tougher."⁸⁶

But as it stands this theoretical framework cannot tell whether a tightening of terms will be retroactive or not. The question of retroactivity in concessions is important because the concept itself has clear ideological overtones. That a producer-state slavishly sticks to a principle of no renegotiation of existing contracts is often a result of adherence to a legal principle that bears no relation to the best interests of that state, something that is increasingly being recognized worldwide. If the principle is nevertheless accepted, then it can be because it is in accordance with, or thought to be part of, normal behaviour in western law; because, in short, it is part of the ruling ideology. Smith and Wells, while stressing the same factors as Mikesell in their dynamic analysis, argue on the basis of studying a number of mineral agreements in the third world: "Although most agreements are written to cover periods varying from 15 to 99 years, an agreement rarely remains unmodified for more than a few years,"⁸⁷ and they continue: "... the practise is clear: concession contracts have been constantly altered. Economic, political, and social factors have become more potent than legal factors in determining the viability and shape of concession arrangements."⁸⁸ Historical data from the oil industry tend to give the same conclusion. When the objective conditions underlying a concession agreement change, there is every reason to expect a renegotiation of the initial terms. The recently negotiated nationalization agreements in the oil industry for example could have been expected once the overall bargaining strength of the producer-states changed from 1970 onwards. Odell writes about the inevitability of such renegotiations once the objective conditions change. The companies objected strongly to the announced plans of an excess profit tax both in Norway and the UK following the quadrupling of oil prices. But according to Odell, there were large elements of bluff in the companies' attitude because the announced plans were in fact acceptable tax proposals, "about which there never ought to have been any doubt given the size of the rent involved".⁸⁹ Adelman shares the same view, even if it is stated in a less direct manner.⁹⁰

But the principle of renegotiation is not exclusively confined to raw material concessions. It also applies to high technology industries in industrialized countries. The US government in its dealings with the defence industry is constitutionally obliged to initiate rewriting of existing contracts if it can be shown that the industry is earning 'excess profits'.⁹¹ It was the existence of such agreements in the

West at the same time as the international companies and their home governments vigorously condemned any rewriting of existing oil contracts, which leads one to draw the conclusion that insisting on the inviolability of existing contracts was partly 'ideological' in nature.⁹² We can accordingly use the fact of whether a producer-state adheres to the principle of non-retroactive legislation to indicate how closely such a state adheres to the 'rules of the game' as commonly interpreted by the West (here to mean the OECD countries). This could help to determine, at least in an ideological sense, a country's adherence to the 'Western camp'. (A genuine break with this principle by the Norwegian state in the field of oil concessions could have been important as an indication that Norway's political adherence to the West was weakening.)

Our first approach to the question of bargaining relies on the size of the expected change in oil-rents. While we have postulated that terms are likely to tighten as the size of the oil-rent increases, the discussion of 'retroactivity' makes it clear that there is much less predictability as to whether such tightening will be retroactive. It should also be noted that if the key variable is the size of the expected rent, it follows that all information about this expected rent becomes of prime importance. We have already postulated that 'information' is a commodity which is part of the bargaining process. We can now see how this factor fits into our own theoretical framework.

2.5.11 A synthesis⁹³

Based on our discussion of 'exogenous change', we can use a diagram which describes the undiscounted rent (footnote 33, above) to analyse further the dynamic of bargaining.⁹⁴

The initial bargaining between the oil companies and a producer-state about the future claim to the oil-rent can only take place on the basis of a hypothetical or 'as if' supply curve. The reason is simply that no certain knowledge exists about the size of the future rent. The key negotiating point is therefore to establish the exact position of the supply curve which (given the price for oil) will determine the potential (undiscounted) amount of rent. If the companies' negotiating teams can locate this supply curve as far to the left and as price-elastic as possible, the teams can then claim that very little oil-rent will accrue from the geographic area in question. Consequently, the companies could argue that there is no reason why the producer-state should

impose any strict terms and conditions on the exploitation, as such terms would achieve little in terms of capture of rent (99 per cent of a total rent of zero is still zero), and should the state's policy be formed in an awkward enough way it might actually be a hindrance towards development (e.g. if the policy were to consist of pre-cash-flow area fees).

The way the companies would argue their case can also be established by a certain amount of a priori reasoning. They will as pointed out claim the supply-curve is located a maximum distance towards the left (S_2 in Figure 2.1). And the higher the expected necessary rate of return on an investment in order to induce a company to enter a geographic area, the further the supply-curve will be located towards the left. The standard justification for such an attitude is invariably one arising from 'risk'. The important factor then becomes whether such a claim is accepted by the producer-state's negotiators. The higher figure the state accepts as being absolutely necessary to compensate for 'risk', the less oil-rent there is to share between the two bargaining protagonists. Thus conceptually the first part of the negotiating battle is to establish the exact value of the rate of return necessary to induce the companies to enter in the first place.

The second element in the initial bargaining game is to determine how much potential monopoly and differential rent there is to be earned from the area. Again the companies' bargaining position would be to minimize the total amount of rent that potentially exists by consistently giving pessimistic estimates of the variables that determine the total amount of rent. Once this is recognized, the vital importance of information becomes self-explanatory. The actor that can define the terms of the bargaining situation has already won half the battle. One way of minimizing the actual amount of expected rent is for the companies always to argue with reference to the marginal fields. This is a bargaining strategy which, if accepted, will minimize the expected amount of differential rent. In Figure 2.2, by establishing an artificially located point of reference, X_1 , the companies can give the impression that the supply-curve resembles S_1 , whereas it may be more like S_2 . This is a strategy that may carry less weight as finds of different characteristics are made, but it can have some importance in the initial stages of the negotiations, when the state's level of ignorance is substantial.

Figure 2.1

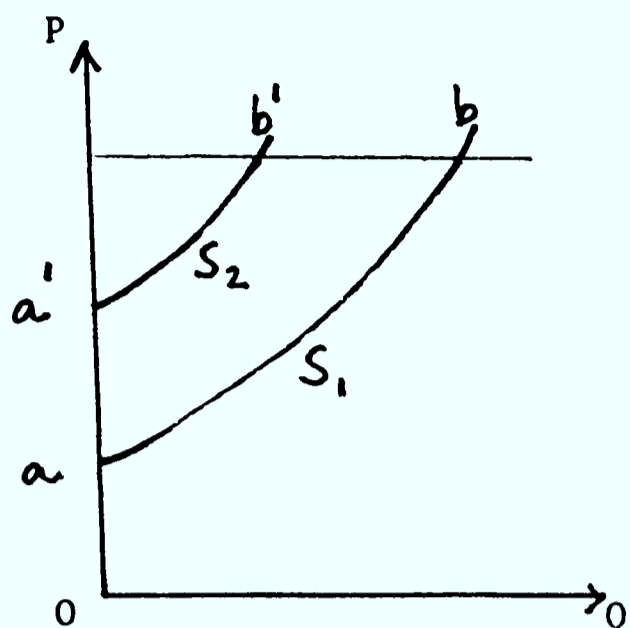
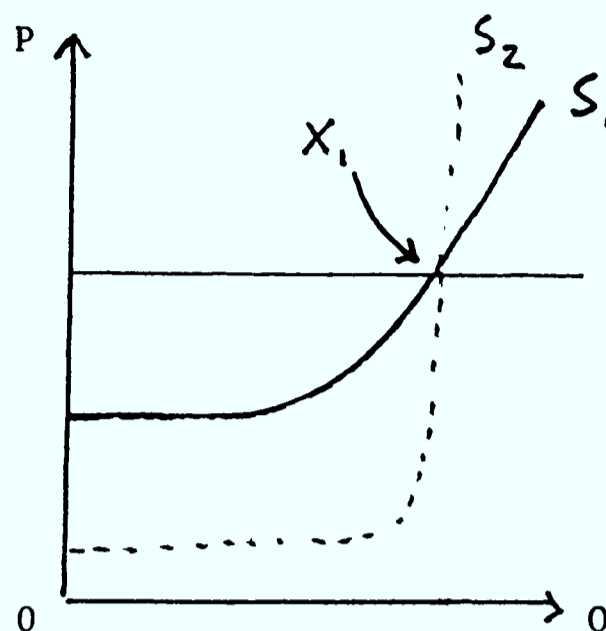


Figure 2.2

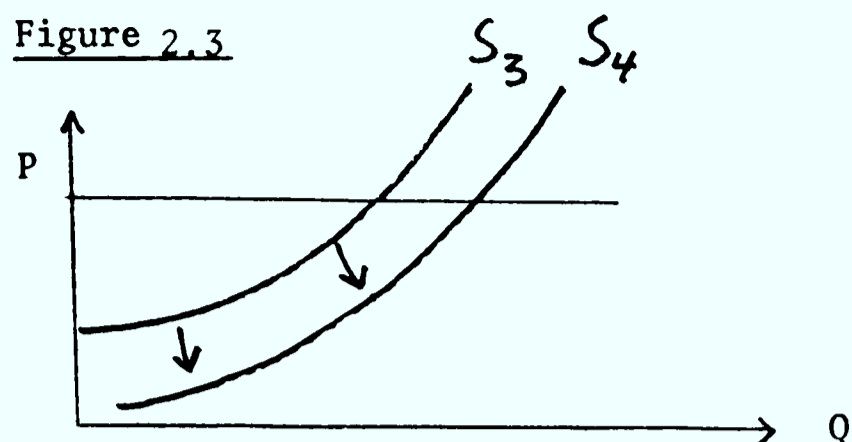


Historically the 'normal' outcome of such negotiations has therefore been, not surprisingly, that the companies have managed to acquire a high a priori prior claim to future oil-rent.

Once a find of oil (almost of whatever kind) is made, one element of risk (that there are no hydrocarbons at all in the area) disappears. Accepting the companies' own way of looking at the world, risk decreases as the total average costs of finding a field decrease. Consequently the supply curve shifts downwards towards the right, and the potential oil-rent increases.

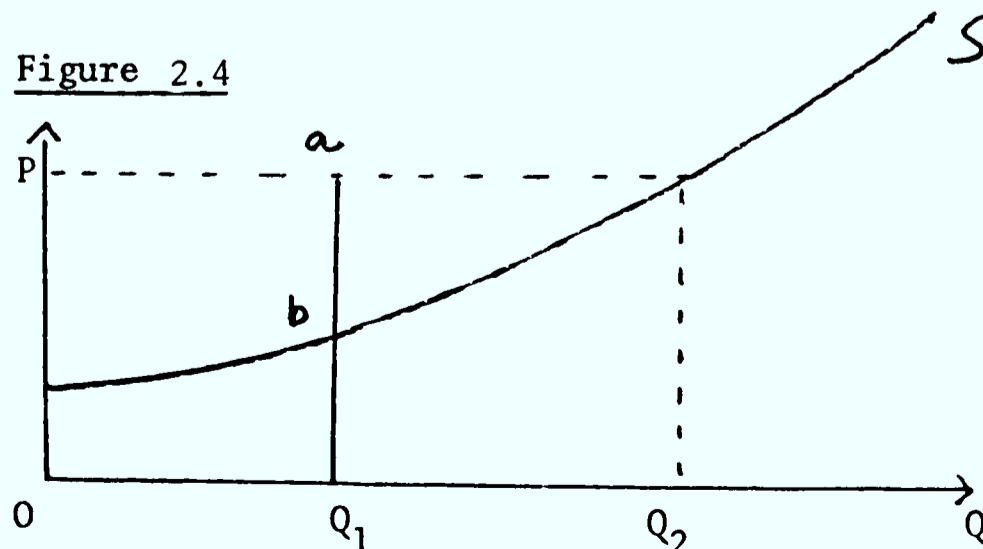
If the field found is larger (and/or with more favourable technical characteristics) than was originally thought likely, then total oil-rent would again increase as a result of shifts in the supply-curve from S_3 to S_4 (Figure 2.3). The 'as if' supply-curve (which now of course has a much less hypothetical flavour) shifts down and to the right over time. But not only does the supply-curve move according to the companies' 'objective' point of view. This shift is also likely to be perceived by the producer-state if the government has increased its access to information and expertise.

Assuming then that the situation for both the state and the companies changes in the way outlined above, there will be pressure for the government to change the terms on which it lets the companies operate. This reformulates the essence of Mikesell's 'dynamic behaviour' described above. The state will claim that since there is evidently a new situation (once it has perceived this itself!), the terms of exploration ought to change. In new concessions, terms ought to be tougher, while there will be a pressure on the state to renegotiate existing agreements.



The basic ideas about the development of bargaining over time have thus been given a graphic expression. However, in the above observations we have gone further than Mikesell. He tends to relate the tightening of terms only to the post-investment period, whereas we have seen that it is necessary to say something about the terms laid down in the pre-investment period; terms which are based only on perceived information. Within this framework a sudden increase in the price of oil, ceteris paribus, will lead to an increase in the total amount of oil-rent in the same way as the dynamic of the 'normal' company/state relationship outlined above. Hence it is likely to produce a similar policy reaction from the state as in the case outlined above.

Any producer-state which has no immediate need for oil, and hence does not want to maximize its output, is immediately in a much better bargaining situation with respect to the oil companies. In Figure 3.4, this is shown by comparing an output of OQ_1 (volume restriction) with OQ_2 (maximum output). By not having to go for the high-cost ventures a volume-restricting state could press for a higher percentage of rent per unit of output at the margin (ab).⁹⁵ This conclusion has important consequences for assessing the Norwegian state's bargaining situation in the period when a policy of volume restriction was in force.



2.5.2 Peculiarities of the Norwegian state

The special nature of the Norwegian state, which we have discussed at length in Chapter 1, is the second variable which can give insight into the development of Norway's oil policies throughout the period under discussion. An analysis along these lines is particularly called for in the wake of the failures of traditional orthodox theory to furnish satisfactory answers to the question of state intervention (see Appendix D). It is only by examining in more depth the historical peculiarities of the Norwegian state that we can hope to arrive at an explanation which does not suffer from the failures of orthodox theory. Since the ahistorical properties of the orthodoxy arise out of its methodological principle of individualism, our explanation proceeds in a different way. As an example, in arguing for an historical, non-individualistic examination of the state within the context of Norwegian oil policies, let us consider the problem of technological independence. The ability of a producer-state to be technologically independent from the companies is important in determining the relative bargaining strength between companies and producer-states. But the development of technological independence is not a natural process, but to a large extent one which springs from political decisions. To understand the reasons for such political decisions, a more in-depth understanding of the state in question is absolutely necessary. This approach is similarly a criticism of those who try to draw conclusions from very abstract and general theories of the modern state (see p.18). Our insight is partly based on an analysis of the peculiar nature of the Norwegian state.

Apart from its neo-marxist overtones, the above approach to oil policies forms part of a renewed interest of the approach of the 'institutional school' of economic analysis referred to in the Introduction.

2.5.3 The international context

The third factor which influences the outcome of the bargaining between companies and producer-states is the international context of the bargaining situation. This factor has tended to be overlooked in attempts to analyse the Norwegian policies. Only Evensen (1971) has given it major attention, but even in that case there was little

systematic reference to the influence that the developments in the industry could have on Norwegian policies. Odell has also briefly touched on the issue.⁹⁶

We have already, in Chapter 1 and Appendix A, seen the importance of adopting an international perspective to understand a country's oil policy. The way the 50/50 principle of profit division spread throughout the industry is only one of many examples. On an analytical level, the international context has an importance on three different levels for our case study.

First, the international context in part comprised solutions attempted by other oil-producing states which the Norwegians could try to imitate. We shall see that the Iranian concept of participation was especially influential with regard to Norwegian policies.

Secondly, and more importantly, the international contexts set the limits of what the companies were willing to accept in the short run as Norwegian policies. For example the companies were at least in the short run extremely reluctant to grant a participation share to the Norwegian state when they were at the same time rejecting the principle of participation in other parts of the world.

Thirdly, an international analysis can indicate the degree of interest which the companies are likely to exhibit in the exploration of potential new producing areas.

It is our task to show in this case study how the international framework, understood along the above lines, constantly moulded the outcomes of the state/company relationship in the Norwegian sector of the North Sea.

2.5.4 Summary

We have thus arrived at a preliminary list of three factors which influenced the development of bargaining between the Norwegian state and the international companies in the period 1965-74. These in our view represent the three key elements in any explanation which tries to come to grips from a historical perspective with the form and extent of state intervention in the Norwegian oil industry during this period. It is only by combining an analysis of the three factors that we can satisfactorily understand the development of Norwegian oil policies in this period. To analyse any one of Factor 1: Exogenous changes in rent, or Factor 2: The peculiarities of the Norwegian state, or Factor 3: The

international context, in isolation from the other two is worthless. For example, we may determine that there is an objective tendency towards a greater state involvement based on Factors 1 and 3. But there is no way we can say anything about the form such a tendency will take, or the speed at which it will be implemented (if at all), without knowing something about the actual historical peculiarities of the state in question. It is clear that Factors 1 and 3 provide the overall framework for our analysis, but the actual outcome will obviously depend upon Factor 2. However, it is only by carrying out our case study that we can make a final decision about how useful these three factors are.

Part III: The policy options

So far we have said little about how the rent can be appropriated by the producer-state. We have in short neglected the different forms of state action and their effectiveness. An analysis of the different policy instruments may give us a theoretical presumption in favour of one policy outcome in the North Sea, before we examine the Norwegian case in more detail.⁹⁷

The different policy instruments can be classified in two ways. First, they can be considered according to whether they do or do not imply government ownership. At one extreme we can have 100 per cent government ownership exercised by a state oil corporation; at the other we can have the government's use of purely fiscal measures.

The second distinction which runs between automatic and discretionary instruments will be the basis for our initial analysis.

2.6 AUTOMATIC VS. DISCRETIONARY POLICIES

A choice between an automatic rent-appropriating system, the 'auction system', as advocated by Dam (1976) and Crommelin (1974), and a discretionary system, can be made both on political and theoretical grounds. But before we carry out such an evaluation between the two approaches, one general point should be made. It is on methodological grounds possible to group together the proponents of the automatic system of rent-collection together with the thinking that Adelman represents (see Section 2.1.11). Both represent an attempt to apply a stringent neo-classical paradigm to the question of oil. There is in

both approaches an implicit belief in the smoothness and efficiency of market adjustments, a deep mistrust of state intervention, and a tendency to regard political factors as merely 'exogenous' to the whole analysis.

According to an automatic system rent is transferred from the companies by the state by lump-sum cash payments that the companies offer the state in advance for the right to explore an acreage.⁹⁸ The size of the bids would, according to this view, reflect the expected rent that a company anticipated it could earn. If the bids are secret, competition among the companies would ensure that the winning bid would fully reflect the expected rent to be earned by that company. There would be pressure for the companies to maximize their bids; if not they would simply not get the right to explore the area, which would be taken up by somebody else. Such a system would, according to one of its warmest proponents, "by utilizing the price system, allocate resources better within the economy".⁹⁹ The companies would not earn rent, while the most efficient firm (being able to offer the largest sum of money at any one time), would get the right to extract the oil.

Proponents of the auction system often compare it with the discretionary allocation system, which they (rightly) criticize as being unable to collect the full amount of rent. The difference is often described in terms of two fundamentally different methodological approaches. The auction system relies on the market, while, according to Dam, "The argument for the discretionary system boils down to the assertion that economic inefficiency is sometimes convenient, that, for example, it is useful to a government for political reasons to favor local over foreign companies."¹⁰⁰ The implication of his view is that state intervention in the economy, as in the discretionary system, will lead to inefficiency.

But there are a number of reasons why the auction system is inefficient in extracting the rent and, given the objectives of the North Sea states in 1965, could be said to be considerably worse than a discretionary system. First, its efficiency depends upon a number of crucial assumptions. There must be no collusion among the major oil companies. If there is, the whole bidding process becomes meaningless as an expression of future expected rent. The chance of such collusion is particularly great in a highly concentrated industry like the oil industry. Secondly, and equally seriously, the auction approach argues that if the oil-province in question turns out to be a bonanza this will be balanced out by other cases where no oil is found despite a huge

amount of money having been spent on the bids. While this may turn out to be the case on a world-wide scale, it is scant consolation for a government that accepts this system. A bonanza would, in almost all countries of the world, immediately lead to the charge of 'having given the oil away', with subsequent demands for the rewriting of contracts, nationalization, etc. Knowing this to be the case, the companies would be reluctant to bid the full amount of expected oil-rent, thus undermining the whole theoretical rationale of the auction system. It is therefore not surprising that the quantitative importance of the auction system has been relatively unimportant.¹⁰¹ Thus, whereas the auction system claims to represent the 'painless' way forward for company/state relationships, it may in fact turn out that the opposite is the case. Finally, the auction system implicitly dismisses any arguments based on the 'infant industry' case, by labelling as economically 'inefficient' a system that allows for protective measures in favour of national involvement in the oil industry. This is especially doubtful in an industry like oil, which requires a relatively long period of time for the infant to grow into adulthood, particularly with respect to the mastery of technology and the high barriers to entry. Apart from the above arguments, the auction system also exclusively concentrates on the state's aim of rent-maximisation and disregards the relationship between the other aims of the state and different policies it can pursue.

On the part of the companies, the auction system is not viewed with much enthusiasm. Paying out a relatively large amount of money at the beginning of a period can become a considerable burden on the cashflow of a company. It also means in practice that only the largest firms have a possibility of bidding. As was observed about the situation of one offshore field: "The capital necessary to bid on tracts in the Gulf of Mexico has eliminated most independent oil operators..."¹⁰² This scepticism was echoed by PPS, which argued that the auction system was only feasible in relatively proven areas; that there were no guarantees that the highest bidder was really competent to undertake the work; that it gives the state little control over subsequent operations; that there was no assurance that the less attractive areas would be explored; and finally that it would mop up funds which should be used for exploration.¹⁰³

The one positive thing to be said for an auction system is that it can alert the public at large as to the amount of rent that is being transferred to the companies.¹⁰⁴

2.7 STATE PARTICIPATION VS. TAXATION

Given the unacceptability of the auction system, the main choice for Norwegian policy makers was whether to attempt a pure 'tax solution' or whether to try to capture the rent by means of state participation. This section will first examine whether there are any a priori theoretical reasons for choosing one as opposed to the other. We do this by studying the effects of the two policy instruments on the NPV of a hypothetical oil-field. The evaluation is initially made on the restrictive assumption that the state wants to raise a fixed amount of money and that state participation is like our Scenario 3, outlined in Section 3.5.1. Based on a hypothetical case study, it is possible to arrive at a relative evaluation of the different policy instruments.¹⁰⁵ Not surprisingly, the 'worst' policies for a company with respect to a discounted variable are those that involve considerable outlays at the very beginning of the life of a project. Hence, as indicated by van Meurs, the relative rating between different policies would be as follows: "Initial bonus; bonus at the discovery-date; then a group of elements comprising: fixed royalties, income tax with and without depletion allowance, and state participation; and finally rising surface duties."¹⁰⁶ Broadly speaking ex ante payments with respect to discovery are rated lowest and ex post payments highest, with combinations of the two somewhere in the middle.

We now turn to a comparison between state participation and taxation, when the company initially foots all the costs, but when the state has to pay back to the company its share of all costs after discovery. Then the effects of state participation depend firstly upon the interest rate which is used to calculate the compensation that the firm receives from the state for its initial outlays. If this interest rate is less than the internal rate of return that the project initially yielded, then the act of state participation is a clear short-run economic loss for the companies.¹⁰⁷ Otherwise the state simply pays a fixed share of capital costs and receives the same share of the returns.

A comparison between the two broad sets of policies also depends upon the discount rate. A 10 per cent rate of discount will in our example bring about a drop in the NPV of a project if state participation is introduced. But if all income and expenditure is discounted at 15% with the compensation rate of return fixed at 12%, we have the surprising result that even if the necessary capital-base for the

companies has shrunk, the NPV to be earned with state participation is higher for the company (has a smaller negative NPV) than the case with no state participation at all.¹⁰⁸ So at a discount rate greater than the IRR it will pay the companies to accept state participation. The reason for this is that the compensation paid by the state is assumed to be reinvested at the higher rate.

If state participation is compared with taxation, the depreciation condition stipulated in the 'taxation package' takes on a special significance. The nature of the depreciation schedule is perhaps the single most important factor in determining the companies' NPV.

According to Lovemore:

"... if depreciation continues throughout the life of a particular oilfield, each year's depreciation being equal to the percentage of the total oil reserves produced in that year, then on a market price for the oil of \$12 per barrel, in order to obtain a DCF return of 25% the net profit per barrel would have to be in the order of \$3.20+, which is in the Government's view, unacceptably high.

On the other end of the scale, if the oil companies are permitted to depreciate their development costs as early as possible in the production life of the field, thereby ensuring that during the bulk of the life of the field the total cash inflow will be limited to the net profit per barrel, then to obtain a DCF of 25% a very much lower net profit per barrel is required."¹⁰⁹

The changes in the Norwegian depreciation conditions are therefore crucial variables to analyse.

The relative advantage of state participation compared with a taxation package thus depends upon depreciation conditions, interest rates for compensation and rates of discount.

All conclusions so far have been made on the assumption that all outcomes are known with certainty. When we allow for uncertainty the tax solution initially comes out as marginally more favourable to the oil company than a participation solution. But when a full appreciation is made of state participation under uncertainty, there seems to be very little difference between the instruments of state participation and taxation.¹¹⁰

So far we have only discussed the effect of one policy instrument at a time. But the influence of a policy package which includes more than one policy instrument may be greater than the sum of the effects

of the individual policies that make up such a package, because the different instruments influence one another. The clearest example of such an interrelationship is when fixed royalty payments can stop a project towards the end of its life, which as a consequence will lead to a drop in total government take. But generally this effect can be ignored.¹¹¹

Thus when we assess the relative virtues of taxation vs. participation as an instrument for capturing the rent for a producer-state, the theoretical framework, as it stands, gives no definitive a priori reasons for preferring one policy as opposed to the other. This choice, both under conditions of certainty and of uncertainty, depends upon a combination of the rate of interest used for repayment, the discount rate, the IRR and whether the state has to pay for exploration costs. However, a company which chooses between different taxation instruments would obviously prefer a tax burden which is levied as late as possible and a depreciation policy that allows it to write off its investments as fast as possible.

2.7.1 Effectiveness

Unfortunately it is seldom that policy makers are faced with the choice of how to obtain \$X million more from an oil company using whatever method seems most appropriate. Therefore, while the former preliminary discussion was useful to establish the companies' most preferred policies, (ceteris paribus) we have to take the analysis one step further. We must determine the likely effectiveness of the different policy instruments. And, as we will see, there are plenty of reasons for the state to prefer one policy instrument to another once we enter the real world.

(i) Taxation

Taxation has been and still remains the most commonly used method for collecting rent from the oil companies. But the method suffers from at least four potential weaknesses.

The normal way of taxing natural resources is to stipulate a rate of tax in advance which is then difficult for the producer-state to change. The tax rate initially tends to be low either in order that the state can attract foreign investment, or if the investing firms can convince the state that their expected return is uncertain. But under such circumstances it is widely recognised in the literature that, to quote Garnaut and Ross:

"the conventional means of taxing natural resource projects
... give governments that control the use of the resources

an unnecessarily small share of the benefits of successful projects."¹¹²

If an oil strike economically proves unexpectedly successful, then the producer-state will immediately be under pressure to change the original contracts because the total amount of rent will be higher than anticipated. This in turn can lead to instability and possibly to reduced investment. Alternatively, if there is a lagged or even no adjustment in the government's tax rate, often because of the government's adherence to the principle of 'sanctity of contracts', then there will be a loss of rent to the state.

Secondly there are extreme difficulties in implementing a 'tax regime' of 'fine tuning', by which we mean a system that is so flexible that it captures all rents as these arise. Even such a well-planned and advanced tax regime as the UK North Sea taxation of 1974 has been unable to leave the companies with the 'normal' rate of return, but has instead turned out to encourage the very opposite of what it was meant to accomplish.¹¹³ Such difficulties arise particularly in industries like the oil industry where there are continuously changing circumstances.

Thirdly, the 'taxation solution' implies by definition that the producer-states rely on the services of international oil firms to produce their oil. The nation-state will lose potential rent to the extent that a firm withdraws its services when the rate of return on its investments falls below what it considers its normal return. If, on the other hand, a national state oil company was established to produce oil, it would possibly be content with a rate of return equal to the social discount rate, which is lower than the rate required by the company and which would leave more of the rent to the state.

The fourth reason for the 'suboptimality' of a taxation solution is related to the many possibilities of tax evasion by the companies. To the extent that this loss can be avoided by increased information and learning by the state (and is therefore conceptually different from the three reasons given above), it can be questioned whether it should be included in this list at all. On the other hand, the industry has historically turned out to be one of the most difficult to control. Whenever the producer-states have considered themselves to be in full control with respect to the tax situation, they have invariably been faced with new tax-evasive tax management solutions by the companies. This does not constitute any definitive proof that this will always be the case. On the other hand it is an indication of the difficulty which any taxation solution will have to solve.

Agreements in the past contained not only weak clauses in the form of low tax percentages, but the producer-states were often also 'short-changed' in the computation of these percentages. Most of the companies' opportunities for 'tax management' have been due to the international and vertically integrated nature of the oil industry and the subsequent possibility of manipulating intra-firm financial transfers. Such actions have not been confined to less developed countries with a weak administrative structure like Iran in the 1950s.¹¹⁴ During the 1960s such practices also led to drains on the balances of payments and shortfalls in corporation taxes paid to the importing countries, including Norway (see p.17). The major companies, according to Tudgendhat,¹¹⁵ even went to the point of setting up new subsidiaries for reasons of 'tax management'.

For a producer-state it is also necessary for tax purposes to monitor the production costs of the companies. But this is no easy task, especially if there is an historically strong corporate link between the suppliers of the investment goods to the oil industry and the producing company. To deal with such a situation, the producer state will have to train an experienced staff which must have ready access to comparative cost data to check the data received by the companies. This interestingly almost requires that there is a state oil corporation through which the tax authorities can obtain such information. An effective tax regime from the state's point of view may therefore presuppose the existence of the state-participation solution, which we initially saw as an alternative to a 'tax solution'.

Garnaut and Ross have advocated what amounts to a progressive tax on raw material extraction in order to devise a type of taxation that is immune to the objections presented above. The tax rate is meant to increase when certain threshold internal rates of return have been reached so that the 'tax holiday' which every firm enjoys after the end of its investment period would be inversely proportional to the profitability of the project at hand. Such a solution would also make unnecessary the ad hoc negotiations which take place between investors and host governments and would decrease the bureaucratic and administrative burden of implementing such a scheme.

Even if such a scheme would go some way towards making the 'taxation option' more attractive and in part solve some of the problems outlined above, it still leaves open a number of questions. First of all, what determines the specified interest rate under which

"the value of net assessible receipts from the beginning of the project"¹¹⁶ is to be computed? This is equivalent to answering the almost impossible question of which rate a producer-state should set as 'normal' or 'acceptable' before the resource tax comes into operation. Secondly, while such a tax system has on one occasion been implemented (the Bougainville copper mine in Papua New Guinea), it is still too early to evaluate how it has turned out in practice. And thirdly, the tax system still relies on the company's "revealed profitability",¹¹⁷ which does not solve all the problems connected with a producer-state's monitoring of costs.

(ii) State participation¹¹⁸

We will now examine the effectiveness of state participation as a policy option. The historic trend towards state participation has in most cases been paralleled by the development of state oil corporations which control part of the oil-rent through their equity holdings. We will assume that the equity share of Statoil is part of the state's share of rent and that there is a correspondence between Statoil's equity income and the benefits to 'society as a whole', here represented by the central government. As we shall see later, the functioning of Statoil led to strong disagreements within Norwegian political life where one of the main points of disagreement was precisely whether such a correspondence could be assumed. The effectiveness of the state's pursuit of this policy will therefore firstly depend on how much of the rent collected by the state oil corporation is passed on to the central state qua state. If there is a tendency for a state oil corporation to develop corporate aims of its own, which implies that there is no automatic congruence between the interests of the state oil corporation and the state, then the policy option of state participation may be less advantageous for the producer-state than originally thought. The pure financial strength of a state oil corporation may give it substantial financial 'muscle' in its bargaining position within a nation-state, so that it may try to pursue aims that conflict with the overall aims of the state.¹¹⁹ On a relatively trivial level it may try to give its own personnel a number of 'perks' normally unavailable to state employees. More importantly, such a company may unilaterally want to pursue a policy of expansion, whether internationally within the oil business or through diversification into other areas. This tendency

for state oil corporations to become 'states within states' is a frequently observed phenomenon within the industry, which has assumed serious dimensions in as politically and geographically diverse cases as SONATRACH in Algeria,¹²⁰ Pertamina in Indonesia,¹²¹ and the French state oil sector.¹²² This tendency is perhaps not so surprising because the state corporations are often staffed with personnel who have been trained within a 'traditional' industry, and whose behaviour thus to some extent reflects the normal practice and ideological attitudes of that background. In particular the urge to expand seems almost irresistible in the oil industry, irrespective of whether the capital that finances a particular firm originates from the state or from private sources.

The second reason why state participation may be 'non-optimal' as a way of extracting rent is related to the potential loss that such a policy can entail. To the extent that state participation means higher costs of extraction or lower efficiency than an alternative solution, it is legitimate to talk about a 'sub-optimal' policy in a restricted sense of the word. There is, for example, often considerable political pressure that any joint venture shall buy or rent goods and services from the producer-state's national suppliers, often at higher cost than the international going price.

But even when we take the above very real problems associated with state participation into account, this policy instrument still has one clear advantage over taxation as a way of extracting rent. By taking up a set percentage participation, the state will, due to its equity ownership, automatically and without any further ado receive at least a corresponding percentage of the rent from an oil-field. (In addition it will of course also receive normal taxes from the companies' share of profits.) Such a policy will tend to increase a producer-state's control over the oil-rent.

Apart from the greater assuredness that state participation gives the state to control the rent from an oil-field, a state's preference for a participation rather than a pure fiscal solution may be related to the importance that state participation has for the producer-state in the pursuit of other aims than rent-maximization. Without anticipating in detail our later analysis, we can briefly give some general reasons for this.

One likely explanation can be found in the importance which state participation has for volume control. A joint venture agreement which involves a state oil corporation as a member of the producing consortium puts the state in a much better position to influence the production profile from individual fields than either a taxation or an auction solution. (On the other hand, as long as private oil firms are involved, there will always be pressure for the joint venture to conform to the most profitable production profile from a private point of view. And private firms will always be able to argue that they entered such an agreement on the understanding that no such interference was to take place.)

The second reason why nation-states may want to opt for state participation is related to the maximization of spinoff and balance of payments effects of the oil industry. State participation can aid a process of spinoffs because the scope for discrimination in favour of national suppliers increases with the expansion of the state oil sector, especially if this takes place through a state oil corporation.

However, despite these alternative aims, the final and most important reason for choosing a participation solution is given above. State participation when analysed as a concrete real-world phenomenon, rather than an abstract theoretical possibility, gives a producer-state a number of potential advantages, compared with either a tax solution or an auction system, in controlling the rent in the oil industry.

2.8 CONCLUDING REMARKS

In this chapter we have analysed different aspects of the three objectives of bargaining between the companies and the producer states. In conclusion we will briefly examine the consistency of state policy with respect to these three aims. How are they interrelated? To what extent are these aims contradictory?

Oil-rents and volume of production:

We have already shown how control over volume is just another way of maximizing rent in social terms by using a social rate of discount. To the extent that control over volume implies a slower rate of extraction, this means that the state will get access to its share of the income from the oil-rents at a later date and/or it will receive less income than if the production of oil was carried out according to purely

private criteria. If the producer-state imposes cuts in production for the companies this implies that these will suffer a financial loss. The state will therefore be under pressure to 'compensate' them in some way. To the extent that such a compensation takes the form of a cut in the company's taxation burden this means there is a contradiction between the two aims.

Volume regulation and spinoff:

Assuming that the nation-state is capable of securing a fixed percentage of all spinoff activities from an oil province, then there is a contradiction between these two aims. A restricted volume means less spinoffs, ceteris paribus. However, in the case where the spinoff industries have to break into a new market there may be no contradiction between the two aims. A slower rate of output may make it possible for these industries to 'catch up'. This choice has been perceived by public policy-makers.¹²³

Spinoffs and rent maximization:

From a short-run perspective there may be a contradiction between maximizing spinoffs and the maximization of rent, if volume control is used as a way of increasing spinoffs. But in the long run this contradiction may change. A development of national spinoff industries can increase a producer-state's ability to undertake the task of producing oil itself, and hence be instrumental in excluding the companies from future access to oil-rents altogether.

Balance of payments and volume of production:

The maximization of the balance of payments effect from oil exploration often features as a separate aim that nation-states should pursue. It has been particularly important for understanding the UK case.¹²⁴ The fulfilment of this aim is normally presented as being intimately linked to a maximization of volume of production. There is however no such easy and direct connection between the two. The net balance of payments effect of oil production does not only depend upon volume of production. It also depends upon the national content of spinoffs; the ability of foreign companies to repatriate the profits it earns from oil production (and hence touches on the degree of foreign ownership

in the oil sector) as well as the amount of capital raised abroad; and finally the amount of value added accruing from oil which is being processed nationally.^{125 126}

Our analysis of the overall relationship between the international companies and an oil-producing state which can be of use in analysing the Norwegian case study has now been concluded. We have put forward a new framework of analysis because the existing attempts to conceptualise the relationship between producer-states and companies, be they of a general¹²⁷ or more specific character, have turned out to be unsatisfactory.

CHAPTER 3OUR CASHFLOW MODEL AND OPERATIONALISATION OF THE BARGAINING VARIABLES

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CHAPTER 3

OUR CASHFLOW MODEL AND OPERATIONALISATION OF THE BARGAINING VARIABLES

One of the aims of our work is to quantify the outcome of the bargaining process between the Norwegian state and the oil companies. A crucial part of this task will be to determine the state/company division of rent over time. To successfully do this we must first operationalise the definition of rent given in Chapter 2. This is done in Part I of this chapter. We must then construct a detailed cashflow model for North Sea fields. The latter task, which is accomplished in Part II, is necessary to find the total amount of rent from hypothetical finds in the North Sea. Our cashflow model also incorporates different state policy instruments, both in the form of taxes and participation. This helps to determine the division of the rent between the two protagonists in the battle for the oil rent. How this division changes over time can then help us to say something about the shifts in the relative bargaining strength between the companies and the Norwegian state.

Part I: Operationalisations

3.1 OPERATIONALISATION OF THE CONCEPT OF RENT

Having defined rent in the oil industry, we are still faced with the task of operationalising the concept. This is a lengthy and complicated task. Before arriving at the final definition that we will use throughout the thesis (p. 89 below), we have to face three questions:

- (a) We must find an adequate measurement of profitability.
- (b) We must choose an appropriate discount rate.
- (c) Finally we must deal with the problem of risk and uncertainty.

We will discuss each problem in turn.

3.1.1 Measurement of profitability

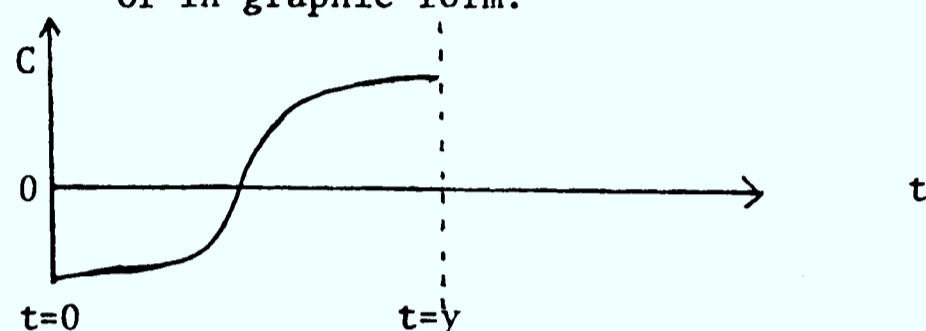
Given our definition of rent (p.36), we must first find an adequate measurement of profitability. Unfortunately there is no accepted discounted method of measuring profitability. According to Newendorp: "There is probably no single method of calculation that completely describes all the dimensions of profitability."¹ We will initially

single out the three most important and most frequently used measurements of profitability. Their nature, and interrelationship, is readily appreciated by means of the formula

$$X = \sum_{t=0}^{t=y} \frac{C_t}{(1+z)^t}$$

where C_t refers to a positive or negative cash flow from an investment at time t , X is the (Net) Present Value of the project, and z is the rate of interest.

Or in graphic form:



The three common measurements of profitability can then be expressed by using the above formula.

1. Pay-out time is found when $z=0$, $x=0$
2. Internal rate of return (IRR) = z
When $X = 0$ and $y =$ lifetime of the project
3. Present value (PV) = X
When $y =$ lifetime of the project and $z =$ the chosen discount rate.
(When the cashflow is computed post-tax X is labelled Net Present Value (NPV)).

Appendix C evaluates in detail the merits of these different measurements for our purpose and concludes that the best starting point for an operationalisation of oil-rent is to find the present value of an oil-field. This is because the IRR-criterion does not tell us anything about the relative importance of the companies' absolute share of oil-rent from a given field. An IRR of 50% on what is 5% of total capital outlay of an oil-field is relatively unimportant from a point of view which wants to emphasise the state's overall control over rents. We will, however, make use of the IRR criterion later on when we want to assess the influence of specific policies on the companies. The simple undiscounted criterion of 'government take' does, on the other hand, not tell us anything about the time perspective of the investment. It therefore remains an unacceptable measurement of profitability and rent unless we postulate that the timing of costs and revenues to the

state is of no importance. But this measurement does nevertheless have a crucial importance with respect to the absolute size of the government's share, which the IRR says nothing about.

3.1.2 The 'normal' rate of profit and the rate of discount

Having decided that the PV of a field can serve as a proxy for the oil-rent, we still have to determine the 'normal rate of profit' in order to operationalize our definition of rent. We will see that there are difficulties in determining this magnitude for the private sector, and hence that there are difficulties in determining which discount rate to use to find the PV. This is because the discount rate, in an equilibrium situation, can normally be approximated to the 'normal rate of profit' in the economy.²

The determination of the exact magnitude of a 'normal rate of profit' has been the central and underlying element in the confrontations between governments and oil companies in the North Sea. There has been full agreement between the two that part of this rate of return should include amortization for former costs of looking for oil. But the key conceptual problem arises when one assesses the future investment needs of the companies. Should one consider as 'rent' the amount of profit above 'normal profits' which is necessary to finance future (and increasingly expensive) exploration of oil? As Adelman has put the case: "Part of 'rent' must be regarded as 'quasi-rent' because it is a surplus in the short run, but not in the long run."³ We will return to this problem in the more specific historical context of the North Sea, and at the moment just point to a number of general problems that arise if such a procedure is accepted.

First, it makes it possible for the oil companies to claim that there never are any 'excess profits' earned in the oil industry, given the huge needs for new investment in the industry in the coming decades. Cases have been known where all notions of 'excess profits' have disappeared in company accounts because the companies have assumed that 60% of their future (and expected higher) capital costs should be generated from internal funds and therefore were part of costs.⁴

Secondly, and closely related to the above point, the oil industry has always had a remarkably high degree of self-financing.⁵ Maintaining such a high level in an increasing cost situation automatically means a lower declared rate of return. But there is anyway nothing intrinsic-

ally desirable from a social point of view in maintaining such a high degree of internal finance in the oil industry.

Thirdly, in order to justify the existence of high profits, one must argue that higher profits for the companies will lead to a more intense exploration activity. This may be the weakest 'link' in the chain of argument because there has recently been a tendency for oil companies to use their oil profits to diversify into non-oil fields like insurance, supermarkets, motor-hotels etc. This was particularly true in the US in the aftermath of the OPEC price increase in 1973/74.⁶ Furthermore, the alleged lack of competition between different sources of energy, often controlled by the oil companies, has also cast doubt on the validity of this link.⁷

Fourthly, there are three main criteria which can be used by a firm to determine its discount rate: the marginal opportunity-cost of capital for the firm; the cost of capital; or a combination of the two (see below). The choice between these different criteria is of great importance, because an acceptance of the first may yield a private rate of discount which is higher than the second one.

We will argue here that within the context of the North Sea, if we are to choose a private discount rate, it is the second criterion which should constitute the basis for an appropriate discount rate. The reason for this is twofold:

A firm which is confronted with two projects, one in the North Sea and one say off South-East Asia, which both yield high rates of return, has to make one crucial assumption when it chooses one project and uses the other as 'opportunity-cost of capital'. It has to assume that the second project will always be available into which the firm can re-invest at the high rates of return the earnings from the first project. If the second project is not available in the future, but only when the original choice had to be made, then the opportunity-cost of capital when the original decision was made is irrelevant for a full appreciation of the project.

If, on the other hand, there are no capital constraints on a firm, then even a firm which permanently earns a rate of return in excess of the 'normal' rate (and which therefore will have a high opportunity-cost of capital) will be induced to invest in projects as long as its expected return is in excess of the cost of borrowing. The main question is therefore to determine whether there are permanent capital constraints for a firm operating in the North Sea. I.e. can a

firm invest as much as it wants in the North Sea? The existence of the consortium method of financing suggests that this is the case.⁸ On the other hand it can be argued that there is a continuous constraint on the number of rigs, skilled personnel, and a lack of continuous new acreage. However, all of these constraints can be said to be temporary constraints,⁹ and hence there seem to be good a priori reasons why no capital constraints exist in the North Sea. As a consequence the relevant rate of private discount for our purpose is the cost of capital.

The most important consequence to follow from this is that the common method of adjusting the private rate of discount upwards in periods of inflation by the whole expected rate of inflation¹⁰ is incorrect. We can only adjust for inflation to the extent that this higher inflation rate has already been reflected in higher interest rates.

(i) Social vs. private rate of discount

But there are not only difficulties in defining the appropriate private rate of discount. It is also possible to argue that the private and the social rates of discount for projects in the North Sea differ. We will not review here the whole literature concerning the difference between the private and social rate of discount,¹¹ but rather deal with the problem within the context of the North Sea.

When evaluating the return from a project in the North Sea in order to decide whether the project should be undertaken or not, such an assessment can be made either from the standpoint of society as a whole or from the standpoint of a private oil firm. It is possible to have a situation where a society might be willing to develop a field, while the private firm will not do so because there is a difference between the private and the social rate of discount. If the investment criterion is that a project will be undertaken as long as there is a positive expected present value to be earned, then it is possible to imagine a project which when evaluated at the (higher) private rate of discount will yield a negative present value, while at the (lower) social rate of discount will give a positive present value. The main reasons why there is a difference between the private and the social rate of discount will now be made clear.

A private company which makes a micro-economic assessment about a future investment must try to incorporate a notion of uncertainty into its calculations. For the specific firm there is a fixed statistical chance that the future level of key variables will deviate from the expected mean (even if this mean can be assumed known by the existence of future markets). To compensate for this uncertainty the firm normally requires a rate of return which is higher, and hence uses a higher rate of discount than if the future was known with certainty, or if these uncertainties did not exist. With respect to oil production from one oil province, the most obvious risk, which would cancel out in the event of full state ownership, would be the geological risk and the corresponding size of the oil deposits which have been shown to be log-normal distributed.¹² By contrast the state is not subject to this risk; hence it will then be able to base its calculations on the mean of the future expected value of the variables in question.¹³ Its discount rate is lower than the private sector's rate.

A second argument is conducted at a slightly different level of abstraction. It argues that only a social rate of discount should have any meaning for policy-makers because the private rate of discount is largely irrelevant in oil production in the historical situation of a number of producer-countries. We have argued that oil production gives rise to permanent rents. Because the income associated with these rents does not correspond to the value of goods and services used in the production of oil, but rather reflects the transfer of an economic surplus from other parts of the economic system to the oil-producing state, a number of particular problems tend to arise in oil-producing states. If we talk about relatively large producers these rents can lead to important structural problems for the economies in question. These are most often described as 'absorption-problems', but hide a number of different processes. Saudi Arabia, Kuwait, and the United Arab Emirates face the problem that there is not enough productive investment within their own boundaries on which this rent can be spent. Since a number of other outlets for their investments are closed for political reasons, their social opportunity rate of return is the rate obtainable in so-called 'safe' placements in the Western financial markets, normally long-run US treasury bonds. This rate is certainly drastically lower than the private oil companies' discount-rate. For other countries like Norway even the expectation of large future rents from oil production in the

North Sea has led to an overvalued currency and the highest unit costs of production of any OECD country. This tendency will increase in step with the oil production itself. These effects plus the more long-run indirect effects of the increased state expenditure which will follow as a result of the oil revenues in the 1980s, can result in a deep structural transformation in the Norwegian economy. (See Chapter 7 for a description of some of these likely changes. This trend was already visible in the partial collapse of some Norwegian export industries in 1977-78.) Iran is today in a broadly similar situation where agricultural production has dropped drastically as a result of the structural changes related to oil. Different societies will value these consequences of oil production differently. But the main point is that because of the characteristics of oil production (high rents) it is in the above cases almost impossible to limit any analysis of depletion to the micro-economic depletion path of one single oil-field using a private discount rate. Such an exercise should be largely irrelevant when a nation-state decides whether to produce oil or not, which depends much more on an analysis of the wider structural and political implications of oil production.

For us, the main consequence of the above discussion is that the social rate of discount becomes the appropriate discount rate to compute the rent from oil-fields in the North Sea, and that the rate of discount must be lower for the state than for the private companies, i.e. the state should exploit oil at a slower rate than the companies.¹⁴

Two comments should be made in this context.

While the social rate of discount may be the theoretically correct discount rate, in our economic case study it is not the state which decides whether to develop the field or not. This decision is taken by the private company according to its own criteria. Hence it is possible to argue that the relevant discount rate is the private one, since it is the companies' decision which 'counts'. If a project's IRR falls between the social and the private rate of discount the state can only develop this project if it pays a subsidy to the firm (as long as it won't undertake this project on its own through a state oil corporation).

Despite the difference between the 'theoretically correct' and 'politically relevant' rates of discount, this difference may not be

as large as is often assumed. By choosing the cost of capital instead of the higher 'opportunity-cost of capital' as the relevant private rate of discount, this means that the difference between the private and the social rates of discount shrinks, even if we must stress that a difference does indeed exist.¹⁵

(ii) Risk and the rate of discount

It is frequently postulated that the oil companies need a return above the 'normal' or 'minimum' rates of profit to protect themselves against the 'risk' in the industry. We will frequently find representatives of both governments and companies talking in such terms to justify their own actions. We will now examine what consequences (if any) 'risk' has for the determination of a 'normal' rate of profit and hence for the rate of discount.

Before we analyse the different ways of measuring risk and assess to what extent 'risk' is a legitimate concept in the industry, we must look more closely into the different origins of risk in the oil industry. These are four-fold: economic, engineering, geological, and political.¹⁶

Economic: This category of risk involves all variables that directly or indirectly affect the money-variables (as opposed to the physical variables) in our discounted cash analysis. In this category we include variables like the level of future prices. But because companies are only interested in net prices (i.e. post-taxes), economic risks must be seen in relation to the next category of risk, political risk.

Political: This risk element consists of factors that affect the net value of the relevant money-variables (for instance by new taxation measures). The definition of political risks may be extended to mean the threat of losing the whole capital value of the existing assets, for example in a situation of a total nationalization without compensation.

Engineering risks refer to the material basis for the expected cost-elements in our analysis. It includes risks related to the introduction of new technology as well as to the normal day-to-day functioning of an oil-field in hazardous conditions.

Finally, geological risks are connected to the exploration phase. Here risks are related both to the probability of finding oil as well as to the likely amount of recoverable oil. Most analysis of risk is directed towards this aspect of risk. (For a further analysis related to geological risks in the North Sea see Section 4.3.1.)

All these elements of risk have one crucial, but often neglected, factor in common: risk is not something that necessarily only works in one direction and contrary to the interests of the oil companies. Risk can also give pleasant surprises. Taking each category of risk in turn we see that prices may go up; the depreciation schedule used by the government may be more favourable than originally thought; technological changes may favour the tasks of the companies;¹⁷ and the oil province in question may turn out to be a 'bonanza'. This immediately suggests that no simple statement that the oil industry is a 'high-risk' industry will be sufficient. First of all we have to distinguish different parts of the industry and also relate risk to the cash outlays involved. Exploration in the North Sea is cheap, but relatively uncertain compared with production, which is very expensive but relatively certain, especially after the top of the learning curve has been reached (see footnote 8 above). Secondly, one can insure against risk. This is possible both politically (through different government export guarantee schemes like the British ECGD) and also to cover engineering risk (through ordinary, albeit expensive, methods of insurance).

Compensation for risk is traditionally thought to require a higher rate of return on investment.¹⁸ But how much higher? Determining the rate of return that compensates for risk is impossible without making specific assumptions about the nature of the risk in question. Using a high interest rate as a discount rate simply indicates that the firm in question wants to recover its investments as soon as possible. If the relevant perceived risk by the company is located somewhere in the medium- to long-run, then such a procedure obviously makes sense. If it isn't (and for example the outlook in the medium- to long-run seems relatively stable with respect to economic risks like prices and incomes), but the relevant risk is expected in the short run, then such a procedure seems much less appropriate, because there is no way the investment can be recovered before the risk appears. And in the oil industry it is the very short-run prospects which are generally regarded as being of crucial importance; not the least because this is the period when a substantial amount of any loan finance is normally due to be paid back.

Secondly, the procedure of using high interest rates to account for risk tends to work against any project which has a long time perspective and can then lead to serious misjudgements with respect to investment decisions (see p.313). The contradictory nature of this criterion

is especially seen if a high discount rate is used to adjust for political risks, e.g. in third world countries. A high discount rate encourages a rapid exploration of natural resources which can then lead to accusations by the host-government that the resources are being exploited 'irresponsibly', which in turn may increase the political risk of nationalization.

Finally, in many contexts it may be important to differentiate between different degrees of uncertainty. Imposing one interest rate on the whole combination of different investment possibilities is therefore a far too simplified procedure. We need a procedure by which different risks of different projects are expressed. As one observer has said:

"How does one establish the 'minimum cut-off' level of profitability? Is it right to reject a relatively certain project having a rate of return of 24 per cent (relatively certain in the sense of having a high probability of obtaining the predicted cash flow) in favour of a high-risk, rank wildcat which if successful will yield a rate of return of 34 per cent?"¹⁹

The choice of one single discount rate to reflect these different conditions is clearly too arbitrary.²⁰

In this section we have both questioned the prevalent view that the oil industry is inherently a high-risk industry, and criticized the normal way of describing 'risk'. This leads us to try to find other solutions to the measurement problem of risk.

3.1.3 Uncertainty

One solution to the measurement problem is to incorporate the concept of uncertainty as a substitute for 'risk' into a model of oil exploration. Such a procedure is relatively new within the industry; some observers suggest that it had little importance until the mid 1960s.

The incorporation of uncertainty is in principle quite straightforward. The expected monetary value of a project is the net expected present value of the project multiplied by the probability of occurrence of that project. Thus the Expected Monetary Value (EMV) of drilling a well in the North Sea equals the expected present value of this investment times the probability that the well may yield a commercial find minus the probability of drilling a dry hole times the cost of

drilling such a hole.²² It is also possible to incorporate the probability of the likely size of a find which will complicate the analysis.

If the PV element in this formula has been computed by using a discount rate that is equivalent to the 'normal' rate of return, then any final EMV becomes an indication of the return over and above a 'normal return', the requirement of our original definition of rent.

We will broadly try to follow such a procedure in operationalising the concept of 'risk'. The initial expected success rate in the North Sea is set equal to the success rate for wildcat drilling in the world as a whole. As drilling developed in the North Sea this rate then changed according to the developments in the North Sea.

This way of evaluating uncertainty incorporates what we call the 'mean-risk' which accounts for how the mean of the expected income moves as the success rate of drilling changes. But it disregards what we can label 'variance-risk', i.e. the distribution of PV around the mean. In short it disregards the kind of risk which makes a firm prefer a certain income of \$X to an outcome with a probability of 0.5 that it will earn \$0.5X or \$1.5X.

Our operationalization of risk disregards this latter risk element and only deals with the former. This nevertheless goes a long way towards the common usage within the industry of classifying risk. When companies state that the 'risk' in the North Sea has decreased, they normally mean that the chance of finding oil has increased.²³ But in order to establish the quantitative importance of the second kind of risk we will run a number of sensitivity tests for our basic cost and revenue data as well as for the drilling success-rates.²⁴

3.1.4 Conclusion

We are now in a position to operationalize our definition of oil-rent. We want to determine the PV of an oil-field using a social rate of discount, adjusted to risk by incorporating the success-rate in exploration.

Once we have determined the total rent from a field, we can then examine in more detail the division of this total rent between the companies and the Norwegian state.

The one author who has come closest to a similar definition of rent is van Meurs (1971). Using his conceptual apparatus both in situations of full certainty as well as in situations of uncertainty,

he tries to analyse the relationship between companies and producer-states in terms of division of rent.

There are nevertheless a number of unresolved problems in relation to his methodology. First, his basic assumption that the present value of investment per barrel is an increasing function of total reserves is questionable.²⁵ Secondly, he is never very explicit on which rate of return on capital to use to find the 'floor-level' for the computation of rent (the problem we have discussed in considerable detail above). Is it the opportunity-cost for the firms in the oil industry, or simply the average social rate of discount? Without such a closer specification, his analysis remains non-operative. Thirdly, he assumes that all profit going to exploration will have to be earned in extraction. This is not necessarily true. In the real world it is thought that companies have an annual general fund which they spend on exploration the origin of which is all the different activities that a vertically integrated firm engages in.

3.2 OPERATIONALISATION OF VOLUME CONTROL AND SPINOFFS

We need no new concepts in order to handle the consequences of depletion controls. The effects of any such controls at the micro-level will be fully reflected in a change in the PV of an oil-field. A macro-regulation of volume will on the other side yield no effects on the PV and its division for the individual find.

The operationalisation of spinoffs requires relatively little theoretical elaboration. We are first interested in the percentage of total capital expenditure necessary to bring a field into operation which is spent in Norway. This figure is therefore not only an indication of how well the Norwegian state as a state is doing in the spinoff industries, but is also an indication of how well both the Norwegian state sector and and the Norwegian private sector together are doing. Secondly, we are also interested in the total amount of forward spinoffs like petrochemical industries, refineries etc. that were established within Norway as a result of the oil production.

It should be noted that in neither of the two cases would an 'optimum' policy from the Norwegian state's side necessarily mean that all forward and backward spinoffs accrue to Norway. We should also take into consideration the important content of the final output and the amount of export orders won by the Norwegian industry (largely private) engaged

in forward spinoffs. Finally, such a monetary quantification of spinoffs says nothing about the way that the state helps or supports private industry in gaining spinoff orders. We will in particular return to this latter point as the case study unfolds.

Part II: The model

We have constructed a computer cashflow model for different hypothetical fields in the North Sea in order to determine the total rent which originates from oil production in the area. This cashflow model, which can incorporate different notions of 'participation', will be used throughout the Norwegian case study to determine the division of rent between the Norwegian state and the companies. It differs in a number of ways from other cashflow models previously used to analyse the situation in the North Sea. This is a convenient point to highlight these differences.

3.3 THE DIFFERENCES FROM EXISTING MODELS

In contrast to the analysis carried out by Official White Papers and oil economists in the past, which has relied on undiscounted figures to determine the division of rent between the Norwegian state and the international companies, we have assessed the historic division of rent in discounted terms. The first official Norwegian government report that treated the division of rent in discounted terms was not presented until 1975 and then did not deal with any historical material.²⁶ Our attempts to carry out a discounted analysis from 1965 should therefore represent a step forward in the understanding of the Norwegian state's historic role in the North Sea. It is in particular important to transcend the major weakness implicit in the undiscounted analysis that the state and the companies do not care when they earn the net revenues.²⁷ And even if cashflow models today tend to use discounted figures in their results, the interpretation of these results is often confused because their theoretical underpinnings are not often properly understood. Furthermore a discounted analysis is not universally accepted. Major works like Robinson and Morgan (1978) still examine the state's take in undiscounted percentage terms.

Secondly, the majority of cashflow models that have been developed to analyse North Sea oil-fields do not mention government participation.

(Williams (1972),²⁸ Ministry of Finance (1975),²⁹ Surrey (1976),³⁰ NS (1976)³¹). The ones that do (MIT (1976),³² Statoil (1974)³³) make explicit what is only implicit in the first group of models: a state participation of X per cent means that the state gains access to an exact corresponding percentage of either the undiscounted or discounted net value of the field. Most importantly, as will be made clear later, in none of these models would participation affect the companies' internal rate of return. As opposed to such a procedure we have developed four different participation schemes which correspond to the four schemes operative in the Norwegian sector up until 1975, none of which under normal assumptions give the straightforward results outlined above. The only example in the North Sea of the very simplified version holding true would be in case of participation as understood by the British National Oil Corporation (BNOC) in the fifth round of concessions, where BNOC will pay a fixed percentage of total costs and receive a corresponding percentage of total output.

Our third extension in comparison with what are 'normal' assumptions in cashflow models refers to the treatment of exploration costs.

Instead of just listing the exploration costs, including the cost of delineation wells attributable to one field, we assess the average number of wells it takes for a company to find a commercial field within one oil-producing province. But only a minor part of this total exploration expenditure is attributable to one specific field. Consequently in the instances where the state is liable for part of the exploration costs we need to assess the percentage of exploration costs attributable to the block where a commercial find is made. All other exploration costs, including the costs of drilling dry holes on blocks where a commercial find is never made, should be counted as costs to the company, even if these according to all agreements concluded during the period of study are not shared by the Norwegian state. Such procedures tend to increase the total costs incurred by the company compared with a traditional analysis, and should be included as a real resource cost of finding a new field. This procedure has the advantage that it allows us to assess in a more realistic manner the often-made claim by the companies that they need a rate of return on capital in excess of the 'normal' because of the high cost and risk of exploration.

The fourth albeit least novel modification from most cashflow models is that we choose the social rate of discount to assess the PV of the different fields.

While the assumption of a zero-sum game implied in our definition of rent is not necessarily relevant in all situations (e.g. to understand the division of rent between OPEC and the international companies as a whole when the price of crude quadrupled in 1973-74), it nevertheless serves well as a working hypothesis with respect to the confrontation between the Norwegian state and the companies where the price of oil is exogenously given.

Finally, our model is constructed around what we label a 'historical' methodology. To empirically 'fill' the cashflow model we will use data as they were available at the time when the specific negotiations between the Norwegian state and the companies took place, i.e. we try to re-create the bargaining situation in the light of what was known at the time of each bargaining round concerning costs, tax conditions, and revenues, and not in relation to what subsequently turned out to be the case. This seems to us to be the only correct procedure if we want to have an insight as regards the historical effects and dynamics of the issue of participation. To be more concrete; the only way to know whether a new participation agreement entered into in 1969 constituted a 'tightening' as far as the Norwegian state was concerned, is to evaluate such an agreement in the light of the 1969 expected costs and revenue figures. The final outcome is irrelevant for such an assessment.

To obtain such data we have made use of company or independently computed figures as they appeared in the professional press, stock-broker reports, and newspapers at the time of each negotiating round. Such a procedure has never before been undertaken to help to analyse in a historic manner the development of the Norwegian oil concessions. Only the roughest ideas in the form of 'government take' figures have historically been at the disposal of any analyst who has wanted to examine in more detail the nature of the participation agreements as well as the first 1965 round of concessions.³⁴

A different methodological perspective also requires us to consider the value of one variable which is disregarded in traditional analysis. This is the total percentage of the PV which in one form or another goes to the state. Orthodox theory is only normally interested in the amount that the state earns in taxation from the share of PV which originally accrued to the company. If however one also has a general interest in the overall role of the modern state and if in particular one wants to analyse the state's role as a productive accumulating unit, the division of the state's share of PV earned from taxation as well as

from the state's role as a capitalist enterprise also becomes important.

It should by now be clear that the direction of this investigation is somewhat different from what is normal in traditional cashflow analysis of the oil industry, and that this perspective brings forth different categories of analysis. The tools of analysis outlined will hopefully help us to understand in a more complete way the genesis and history of the concept of participation. Finally, our cashflow model can be of more general analytical value, for example, by spelling out the consequences of different policies and trying to understand what options at any one time were open to the Norwegian policy-makers.

3.4 SUMMARY OF THE BASIC MODEL

Our next task is to describe in detail the model we will use to determine the present value of hypothetical oil finds in the North Sea and its division between the private companies and the Norwegian state. In this chapter we only examine the variables that are necessary to accomplish this task and point to their interrelationship. In the following chapters, which deal with the historical development of Norwegian policies, will we empirically establish the value of these variables.

The different participation scenarios negotiated in 1969 and later are all superimposed on a 'basic' cashflow model which if necessary can be run without any participation scenarios. This was the case in 1965 during the first round of allocation of acreage on the Norwegian Continental Shelf when no participation agreements were negotiated. Assessing a 'no participation' case in all post-1965 historic cases also facilitates a comparison of the final outcome with what the outcome would have been if no participation agreements had been negotiated.

We will now examine in detail each of the variables necessary to find the Present Value of the field and the division of rent. Since this model underlies all the subsequent case studies which are to follow, considerable space will be devoted to an examination of its basic assumptions. We will then outline how we tackle the problems of government participation and problems like the introduction of the Norwegian special tax.

REVENUES

3.4.1 Price

The price in our model is chosen to equal the price of a barrel of crude as realised in the Western European market. There is an immediate problem with respect to such a price which was highlighted in the Norwegian transfer-price confrontation of the 1960s

(see p.17).

It is very doubtful whether the value of a barrel of oil to a vertically integrated firm was best expressed by the free-market price of oil given the small and unrepresentative nature of the spot markets where such a price was determined.³⁵ Throughout the 1960s and early 1970s, the spot market became the 'dumping ground' for excess crude from the majors. Therefore, at least until 1972, the price used in our calculations can be said to be an understatement of the true price of what the oil was worth to the companies. Hence the state's absolute share of rent would have been overstated as the present value of the field was higher than our calculations suggest. Counterbalancing this however is our treatment of transport costs. Because we assume the use of pipelines, our chosen price refers to landed oil. If the oil had to be reshipped to other countries for further processing, transport costs come in addition to the pipeline costs we have included. On the other hand, if there were major refineries where oil was landed the latter argument tends to lose its force. This corresponds to the situation after 1972, when it was clear that at least oil from Ekofisk would go to Teeside where Phillips owned a major refinery. But when the Norwegian state could take out crude in lieu of royalties and also started to gain direct access to participation-crude, the pricing problem gradually became less important. After 1974 it was however replaced by the new problem of setting an appropriate 'norm price' whereby it was up to the Norwegian state itself to fix a 'fair market price' of oil.

3.4.2 Production profile

The second variable which helps to determine total revenue is the shape of the production profile. Different production profiles will matter little if we are only interested in undiscounted figures of state and company 'take', as long as total output is the same. But our discounted figures are very sensitive to different production profiles. The faster a field is exploited, the better the discounted

position for the company (if costs remain reasonably constant). While there are technical limits as to what is the 'best' or 'optimum' production profile of a field (for example a too rapid exploration may bring about 'fingering', whereby part of the reserves are lost due to water inflow in the field), there is also an element of choice as to which profile to use. The choice of a profile may depend on the crude needs of the specific company extracting oil and also reflect the bargaining position of the companies compared with the state.

As our production profiles (see Table 3), we have chosen the ones used by Surrey (1976). They are based on figures submitted by the companies for their intended (and actual) production profiles in the UK sector of the North Sea, as of 1976. In addition we have constructed a production profile broadly using the same assumptions for a hypothetical 1 billion barrel field (Table 3.2). The Surrey production figures tend to have a longer production run and a lower peak output than almost all the other comparable models. The 1 billion barrel example for Statoil (1974) has a production that lasts for 18 years, while we assume a production span of 26 years, while the Ministry of Finance (1974) assumes a 23-year profile for a similar field. The difference becomes accentuated when comparing our production profiles with the MIT model, whose 700 mill. field has a lifespan of 14 years compared with our 26 years and a much higher yearly maximum production which lasts 6 years, compared with our own maximum output which lasts 4 years.³⁶

We will nevertheless use the Surrey production figures throughout the case study, given that they are based on actual production profiles supplied by the industry. But by doing so it should be noted that the expected present value of the field and the profitability will increase if production is speeded up. So in order to properly assess our results we have also run a sensitivity test for these using the MIT (1976) production profiles. (This latter procedure was also undertaken to counter the possible criticism that we have kept the production profile fixed throughout the period.)

We assume that revenues accrue from the field from the beginning of the fourth year of investment. For a field with more than one platform this is a reasonable assumption, as not all investments need to be completed before making one platform able to produce. And even for a one-platform field it can be assumed that production can take place even if all production wells are not finished.

TABLE 3.1

THE PRODUCTION FLOW SPECIFICATIONS *

	<u>Year</u>	<u>Field size</u>				
		100M	200M	300M	400M	700M
First year of exploration	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
First year of development, last of exploration	4	0	0	0	0	0
	5	0	0	0	0	0
	6	0	0	0	0	0
	7	25	45	20	10	0
	8	40	60	50	45	45
Last year of development costs	9	40	60	80	75	70
	10	40	60	80	100	105
	11	34	52	80	100	135
	12	25	43	67	84	150
	13	18	36	58	75	150
	14	14	31	50	67	150
	15	10	26	44	59	150
	16	7	22	38	53	130
	17	6	18	33	47	112
	18		15	29	42	97
	19		13	25	37	84
	20		11	22	33	73
	21		9	19	30	63
	22		8	17	26	54
	23		6	14	23	47
	24		5	13	21	42
25			11	19	35	
26				16	30	
27				15	26	
28				13	23	
29				12	20	
30				10	17	
31					15	
32					13	
33					11	

* in thousands of barrels per day

TABLE 3.2

DATA ASSUMPTIONS RELATING TO THE BILLION BARREL DISCOVERY

PRODUCTION (thousands of barrels per day)

Year	1-7	8	9	10	11	12-16	17	18	19	20	21	22	23	24
Flow	0	30	60	105	160	225	202	169	142	119	100	84	71	59
Year	25	26	27	28	29	30	31	32	33	34				
Flow	50	42	35	30	25	21	18	15	12	10				

Source: Author's estimates

COSTS

There are three cost categories in the extraction of oil: exploration costs, development costs and operating costs.

3.4.3. Exploration costs

Exploration costs arise from geological and geophysical surveys, and exploratory drilling. Within the category of surveys, seismic surveys constitute the bulk of the expenditure. This is the only cost element that is cheaper offshore than on land. Offshore, charges of dynamite or gas-pistols can be exploded directly in the sea without the elaborate digging down of the charges that is necessary for onshore surveys. The transport of the seismic registration apparatus is also easier than on land. This gives an average cost of sea surveys equal to one fourth of land surveys.³⁷ Magnetometric surveys are also relatively cheap.³⁸

The important cost in the exploration phase originates in exploration drilling. The cost of each well sunk depends upon a number of variables, the most important being distance from shore, depth, weather conditions, depth of target formations, type of rock above target and pressure of reservoir. The costs increase exponentially in relation to some of these variables. Normally the major companies hire the services of drilling firms to carry out exploration drilling. In our model we assume that total exploration costs stretch over 4 years, with 10% of total costs incurring in the first year and 30% in the three following years. This figure is the average figure of the range given by Williams (1972) (2-6 years). Other studies like Ministry of Finance (1974) disregard the exploration costs altogether and simply state that such costs may come many years before other costs.³⁹

The main problem is to decide how much exploration expenditure to attribute to a hypothetical field. We choose to use the wildcat success ratio of unexplored territories on a world-wide scale, and compute the equivalent costs for finding one commercial find in the North Sea. If the commercial success rate of new field wildcats in the mid 1960s (as opposed to the percentage that finds traces of oil and gas) was one in twenty, then total exploration costs would be twenty times the cost of an exploration well. As the geology of an oil province gets better

and better known, this average should decrease. On the other hand, the most promising structures will first of all be drilled, thus contributing to a decrease in the success rate in the long run.

3.4.4 Development costs

Development cost can be divided into the following three broad categories:

- delineation or appraisal wells
- production wells and platform costs, including installation and equipment
- pipelines.

Once a successful wildcat has struck oil, a number of appraisal wells have to be drilled to find the size of the field. It is based on this information that the decision is taken whether to go ahead with the investment of platforms or not. The costs of appraisal wells can be set equal to an exploration well. We can assume that four such wells are on average necessary to determine the size of a field.⁴⁰

The cost of development can then be computed based on the cost of various installations needed to produce from a field. But development costs for one field do not only depend upon the size of the field and the depth of water where it is located. There is also a technological uncertainty attached to such a computation because it is not unambiguously known how many production wells and production platforms are needed (or are optimal) for a field only on the basis of information on size and depth.⁴¹

But all general studies implicitly abstract from these difficulties when they use 'average' production costs for fields of a given size at a given depth in order to carry out their cash flow analysis. Following e.g. estimates by Shell and Hinde,⁴² we therefore assume that it is methodologically legitimate to use an average figure for the number of wells and platforms needed per unit of reserves. Our model will utilize the average figure used by Abbot and Crossman of 18 production wells per platform and one platform per 100m. barrels of recoverable reserves to find development costs.⁴³ It should however be stressed that while this figure can be used as an average, it must only be regarded as a starting point of a full analysis, given the discrepancies of conditions in the North Sea. It is for this reason that throughout the case study we have carried out sensitivity tests with respect to total development costs.

Production wells can be more expensive than exploration wells because the angle at which they drill differs from the normal perpendicular. They will thus both be longer and will have to be drilled with more accuracy than the normal exploration well. But because they will be drilled from the fixed production platforms, no special rig has to be hired. So their final cost is cheaper than the exploration wells even if more production wells are likely to be drilled than actually will be used. Some wells are also used to reinject gas and water into the reservoir.

We now turn to the most expensive item of the development costs: the production platforms. Platforms in the North Sea have historically been of two types, the concrete gravity structures pioneered by the Norwegians and the more traditional steel platforms. The gravity structures were not in use until the latter part of the period we are examining. The main costs to take into consideration are the cost of the structure itself, and its installation. (For example a flotation collar necessary to deposit a steel jacket cannot normally be used more than twice.) In addition we must include the necessary equipment on the platforms. Of the smaller items we must account for land installations (where the pipeline comes ashore), as well as costs to cover administration, land purchase, financing costs. Finally we have included a 'sundry' item. An overview of the distribution of these different cost items, and their relationship to total development costs, has been given by Cazenove⁴⁵ and Lovegrove.⁴⁶ Using Lovegrove's figures and disregarding the submarine pipeline and the platform wells which we treat separately, we arrive at the following relative distribution of the different components of platform cost:⁴⁷

Platform structure (including installation	71%
Equipment	18%
Sundry	11%
	100%

We will on this background assume that if the cost of one of the three items of platform costs is known, then the total platform costs can be computed. Furthermore in line with the assumption made with respect to production wells, we assume that the platform component of the development costs shows constant returns to scale.⁴⁸

There are possible differences in the time distribution of total investments. We assume that the investment is spread over 6 years with a fixed percentage of total investment costs attributable to each year.⁴⁹ The distribution chosen is identical to the assumption of the MIT model

(1976). The number of years chosen for total investment costs (6) are also identical to the number of years chosen by Williams (1972), but 2 years less than Statoil (1974). But this latter discrepancy can at least partly be explained by the fact that investment costs in the Statoil model only includes exploration costs attributable to one field and thus disregards unsuccessful exploration expenditure. We also assume that there is a one-year overlap between exploration costs and investment costs. This seems reasonable as it can be assumed that the first delineation wells will be drilled in the same year as the last of the exploration wells.

Finally, the costs of pipelines depend upon a number of variables like the diameter, depth of water, and weather conditions in the area. Pipeline costs will exhibit the classic textbook economies of scale, only with respect to the actual material cost of the pipe, while the cost of laying a pipe will be more or less the same whether the pipe is 30" or 36" in diameter. Because most pipelines are also constructed with a fair amount of spare capacity, we will assume that total pipeline costs remain constant no matter what quantity is produced from a field. As the North Sea as an oil province grows older and a number of pipelines will have been constructed, smaller new fields may be able to link up with existing pipelines. But during the period we have discussed this was not expected to happen.

3.4.5 Economies of scale in development

When all three components of development costs are taken into consideration our hypothetical fields will exhibit economies of scale, but on a decreasing scale. Pipeline costs are constant while total platform costs show constant returns to scale. This is in line with a number of statements made by representatives of the oil industry and is also used by a number of other studies. Surrey's development cost figures can almost be derived by an identical procedure of assuming a fixed cost and then adding a variable cost which shows constant returns to scale.⁵⁰ The common practice of stipulating a fixed sum of investment costs per daily barrel (of maximum production) from a field also yields economies of scale on quite a substantial scale.⁵¹ But this theoretical result has to be counterbalanced by the actual technical conditions in the North Sea. According to Kennedy (Drilling Editor of Oil and Gas Journal) there had been no economies of scale in

the North Sea by the end of 1972, something he attributed to the fact that "the very big fields have been encountered in the worst conditions". This assessment (but not with the same reasoning) was also echoed by Shell in their submission to the Norwegian Parliament's Industrial Committee⁵³ in 1975.

Given this background, it seems that our assumption that there are modest economies of scale in the North Sea is a reasonable one.

3.4.6 Operating costs

This category includes all non-capital or working expenditure that is necessary to maintain the flow of oil from an oil-field. Direct costs are labour costs (including cost of supplies), power (both of the production platform and the pipeline), transport and cost of separation of oil from gas (if relevant). An often neglected but important element of total costs is insurance.⁵⁴

We assume that operating costs are directly influenced by the number of barrels of crude being produced per time period, so we have assigned a fixed sum per barrel as operating costs. This procedure was first used by Hinde⁵⁵ (who applied it to gas), but was also used in the Gulf of Mexico Study by Weaver (1972) and by Cazenove.⁵⁶ Some studies divide the operating costs into a variable and a fixed amount.⁵⁷ This is however a questionable procedure to the extent that the cost of insurance constitutes a major part of the fixed element of operating costs; the reason being that the value of the platform, and consequently the cost of insurance (which is roughly proportional to the value of what is being insured) will decrease as the field is being emptied. The above argument is only correct on the (reasonable) assumption that the platform is not assumed to have any scrap value and therefore only has a value in relation to the discounted value of future production which will continuously fall as the field is emptied. Given this background it is easily understood why there is no 'agreed' way of treating operating costs. As late as 1975, Lovegrove⁵⁸ characterised operating costs as a 'grey' area of analysis, something which is brought out by wide discrepancies in the operating costs used by different studies. Among other things the treatment of operating costs depends upon whether we have a pipeline or a tanker-loading system. Our choice of stipulating operating costs on a per barrel basis is therefore a compromise, which also tends to underestimate the profitability of the companies.⁵⁹

3.4.7 Debt conditions and taxes

We have now completed our summary of the cost and revenue factors of the basic model which will remain unchanged throughout our case study from 1965 to 1974. Total yearly revenues are based on a fixed production profile which specifies output for each hypothetical field, and the price of crude which can include an escalating factor. Total costs are the sum of exploration, development and operating costs, also suitably escalated over time.

But the total cashflow in each year is not only determined by costs and revenues, but is also influenced by whether part of the costs have been financed by loans. Appropriate assumptions can be included in the model concerning the conditions for the repayment of loans (rate of interest, number of years of 'grace', number of years of repayment, when loans are taken up etc). Throughout the study we have assumed that loans are raised as investment incurs (and not as a lump sum at a specific time), and that interest is still levied during the 'grace period' and added to the total debt, but that capital repayments do not have to be repaid during the 'grace period'. Repayments thereafter take place as a fixed percentage of outstanding debts.

Once the expected present value is found, we can assess the total share of this sum, which in one form or another accrues to the state. The total share going to the state has two components, the tax share and the participation share.

The tax share which arises from royalties, corporation tax and the special tax depends upon the value of the taxation variables which change from period to period, as well as on the percentage of the field which is financed externally. The latter is important because interest on external debt can be deducted from taxable profits. Corporation tax is computed after allowing for deduction of royalties, interest on loans (if any), and depreciation according to a straight-line schedule. All these tax assumptions have been included in the basic cashflow model.

The results from our basic model are presented in a computer print-out which lists the pre- and post-tax present value of the oil-fields, assessed at a discount rate of our choice, as well as the pre- and post-tax internal rates of return. Finally it gives the undiscounted value of the state's 'take'. A number of simplifications have necessarily been made in order to arrive at these results. But all the simplifications have tended to bias the results in the same direction, giving

us a conservative model as regards the expected outcome or expected present value of the field, the most important of which is our choice of production profiles.

3.5 CHANGES IN THE 'BASIC MODEL' 1969

We will now outline how our model deals with the three kinds of state participation agreements which were negotiated in 1969; here labelled Scenarios 2, 3 and 4.⁶⁰

3.5.1 Scenario 2⁶¹

An X per cent rate of participation gives the state X per cent of total production, but also makes it liable for an equivalent percentage of both exploration and development costs. The state's share of exploration costs is initially financed by the company, but is repaid out of the state's production. A rate of interest is charged on the state's outstanding debt. The state has to finance its own share of the development costs.

3.5.2 Scenario 3⁶²

This participation scheme is very much like Scenario 2, except that the company, in addition to financing exploration costs, also has to carry the state's share of development costs. Repayment takes place along the same lines as above.

Our computer program deals with these scenarios in the following way. In both the above scenarios, the state's share of the exploration costs attributable to the particular find is added up on a non-discounted basis.⁶³ Interest is being charged on the outstanding debt once development costs start to occur. In Scenario 2 once development costs start to occur, the state compares the net value of its share of the output with the total amount it owes the company. As long as its debts are greater than its net income, the state receives no oil, i.e. all oil goes to the company.⁶⁴

In Scenario 3 the same process takes place except that the state's outstanding debt will be greater if the participation rate is

the same, because the company will also finance the state's share of development costs. But the principle for repayment will remain the same. We have in both scenarios assumed that the value of the oil which is due to the state is the net value, defined as gross value minus the state's share of operating costs and royalties.⁶⁵

If the rate of interest at which the state is supposed to repay its outstanding debts is less than the discount rate, the concept of participation will mean an immediate and direct financial loss to the company and vice versa.⁶⁶

Note also that when we talk about the 'cost' of participation to the company we are talking in fairly restricted terms. The implicit assumption that we face perfect capital markets makes the ability to raise finance a 'non-problem', while if a private company has to act as a bank and itself finance the state's share of exploration and/or development costs, this may seriously preclude its own access to outside finance.

3.5.3 Scenario 4⁶⁷

The final form of participation negotiated in 1969 was the 'net profit' agreement. Within this scenario the state was to get a fixed percentage of the companies' profit, once their original investment had been repaid out of production. All appropriate calculations have been done in undiscounted terms.⁶⁸ This form of participation can be said to have been the least threatening from the companies' point of view in terms of control over the production process. It could in contrast with Scenarios 2 and 3 be presented as nothing but a financial agreement.⁶⁹

3.6 CHANGES IN THE 'BASIC MODEL' 1972 AND AFTER

In both the 1972 and 1974 rounds the Norwegians asked for a new kind of participation scheme, here labelled Scenario 1.

3.6.1 Scenario 1⁷⁰

The state pays no part whatsoever of exploration costs, which are all paid by the company. But the state pays its full share of development

and operating costs as they arise. So if the degree of state participation is $X\%$, then according to our model the state will receive $X\%$ of final output, while paying less than $X\%$ of total costs.

3.7 DIFFICULTIES

We are now going to investigate in more detail problems which arise if we use discounted figures to determine the division of rent between the state and the companies; difficulties we must bear in mind when we interpret our results.

Consider two different investment projects A and B in Figure 1 with after-tax (NPV) schedules of A' and B; (Figure 2.1). Project A has both a higher IRR and NPV of the two. The discounted value at discount rate r_1 of the state's 'take' is xy , which in percentage terms equals $\frac{xy}{xz} \cdot 100\%$. For Project B, the discounted value of the tax-take zz' equals the pre-tax present value of the project, with a corresponding percentage 'take' of $\frac{zz'}{zz'} \cdot 100\%$. Clearly 'take_B' is greater than 'take_A'. This discussion also makes clear why we can get a state 'take' of more than 100%. At discount rate r_2 , the state take ca is greater than the original present value cb , which means that the post-tax 'take' of the project at r_2 will be greater than 100%.

The problem for an adequate interpretation of the results arises if Project B corresponds to a field with a low profitability. Then a high 'take' under such circumstances may simply reflect the lower profitability and the lower PV and NPV of that project, compared with the results from a field with a higher profitability (Project A), and is unrelated to any other explanation like a high degree of state 'militancy'.

The reason for such an anomaly is to be found in the nature of the taxation system. Due to the weight of royalties in the taxation package, the drop in the PV as a result of taxation will never be proportional to the pre-tax present value of the field (i.e. 'fine tuning' in taxation is not operational). As long as royalties are the main element of the state's tax income at relatively low levels of profitability, then with a given output total royalties will tend to be a fixed sum independent of the PV of the project. Hence the difference in absolute size between xy and zz' may turn out to be relatively insignificant, leading to the difficulties outlined above. (The variable royalty rates introduced in 1972 would have rectified the above anomaly only partially.)

So while we maintain that the discounted measurements for rents are superior to the undiscounted, they also give rise to problems that there are no simple and easy ways to solve.⁷¹

PV and NPV

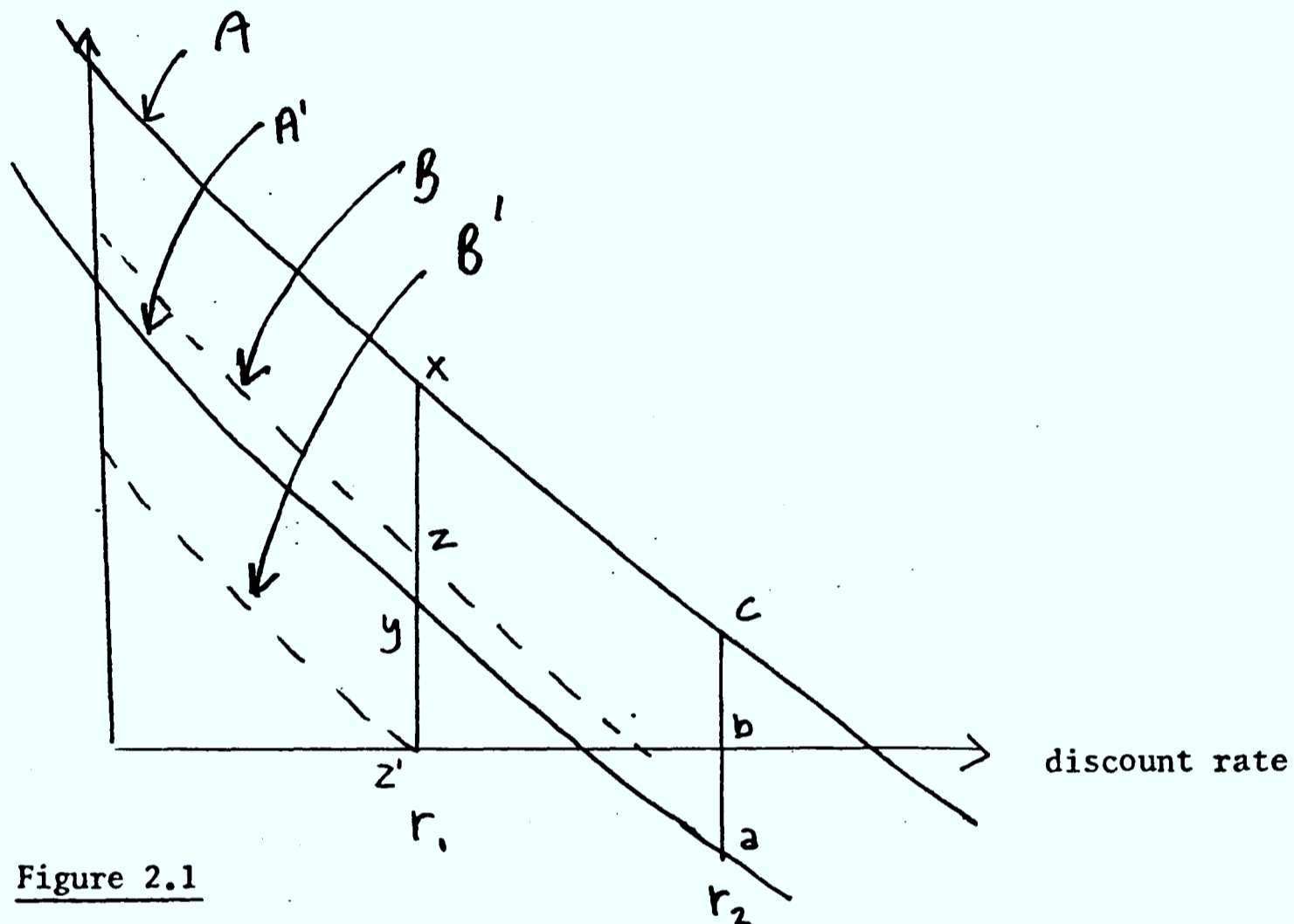


Figure 2.1

3.8 THE MODEL: SUMMING UP

The discussion about participation has one major consequence for our procedure. In order to find the state's total access to the oil-rent we must add all rent that Statoil will earn through its 'participation share' to the rent that the state will appropriate through taxation. (Note that Statoil pays taxes like any other company.) Then, based on the present value of the field, the discounted value of total taxes, the discounted value of the participation share, and the net present value if no participation had been introduced, we can derive a number of categories which we will use throughout our study.

(1a) 'Total state take' = Statoil's Present Value (PV) + discounted value of the state's tax income from the company share as a percentage of the total PV of the field. This measures the state's total access to the rent of a field either by tax or by participation. This total state take can then be separated into taxation and equity shares.

(2a) 'Taxation' share = discounted value of taxes levied on Statoil + discounted value of state's tax income from the private company as a percentage of the total PV of the field.

(3a) This taxation share can also be seen in percentage of total state take (1a above) in which case it measures the weight of taxation (as opposed to equity ownership) in the state's access to rent.

(4a) 'Equity share' = discounted value of Statoil's net income from equity in percentage of total PV of the field.

(5a) (4a) can be seen as the percentage of total state take, in which case it measures the weight of equity in the state's access to rent. In short it says something about the weight of 'state capitalism' within the Norwegian oil sector.

(6a) Finally we can find a discounted approximation to the traditional concept of 'state take', i.e. the present value of the state's tax income from the private company's share divided by the PV of the company's share. In this measure we single out the influence of taxes on the company's share and thus disregard other influences like participation.

Throughout we have assumed that the total PV of the field is the sum of the PV of the Statoil and the PV of the company's share. This sum differs slightly from the PV of the field 'as if no participation' due to the different debt structures of Statoil and the private company. In order to facilitate a comparison with more conventional calculations we can also derive an equivalent number of undiscounted categories:

(1b) Total state take = Statoil's net cashflow + undiscounted total taxes from the company's share as a percentage of the net cashflow of the field as a whole.

(2b) 'Taxation-share' = undiscounted value of all taxes levied on both Statoil and the company as a percentage of the net cashflow of the field as a whole.

(3b) As in (3a), this tax-share can also be seen as a percentage of the total state take (1b above).

(4b) 'Equity-share' = undiscounted value of the state's income from Statoil's equity as a percentage of the net cashflow from the field as a whole.

(5b) This equity share can again be seen as a percentage of the total state take (see 5a).

(6b) The traditional 'government take', i.e. the taxes collected by the state from the company's share as a percentage of the net cashflow of the company's share.

Again all cases are assumed to be with debt, and the net cashflow of the field the sum of Statoil's and the private company's cashflows.

Finally one general point needs to be made. Our model helps us to quantify not only the total amount of rent which accrues to the state, but also the form in which the rent is appropriated by the state. But a mere percentage figure (4a), (5a), (4b), (5b) conceals a number of problems which arise in relation to the introduction of a large state sector. Parallel to our quantification of rent we therefore continuously have to assess the magnitude of participation, how effectively and how independently a state sector can pursue its own aims.

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CHAPTER 4

1965: THE ORIGINAL TERMS

Chapter 1 outlined the historical background to the manner in which Norway in 1965 entered the 'oil-age'. This chapter will deal with the outcome of the first allocation of acreage to the oil companies which took place in that year. It will concentrate on its effects on the division of oil-rent, the possibilities it gave the Norwegian state to control output and the development of a Norwegian spinoff industry. One important bargaining disadvantage in the Norwegian state's dealings with the companies at that time was its almost universal lack of information about all key aspects of the oil industry. We will return to this factor of bargaining throughout the chapter.

4.1 THE BASIC CHOICE

Chapter 2 has shown that there are several policies a nation state can choose when a new oil province is opened up for exploration. It can at one extreme adopt an 'auction' or a Danish system of allocation. At the other end of the spectrum of alternatives it can hand the whole area over to a state oil company. The choice between or the 'mix' of these different models is of crucial importance. Once Norway opted for the discretionary system, which is located somewhere in between the two alternatives outlined, then Norway's ability to pursue its own national oil policy became more limited. Concretely it meant that the terms Norway offered the companies had to compete with the terms offered to the companies in the rest of the world in general, and in other North Sea states in particular.

To better understand why Norway chose the discretionary allocation system, we must first explain why the option of majority state involvement was not chosen by Norway from the very start. We will then analyse why Norway also rejected the 'auction' or the Danish system.

4.1.1 Norway and the 'state ownership option'

A full state involvement in the oil industry relies on three basic preconditions:

- The undertaking has to be technically feasible for the state, both from a financial and a manpower perspective.

- There has to be a political will to implement this solution.
- Speed of exploration cannot be the prime aim of the nation state.
(see below)

Why was the role of the Norwegian state in this initial phase regulatory, when it was later to become much more interventionist and active? One explanation centres around the claim that the most important decision in Norwegian oil policies was the decision to start exploring for oil in 1965,¹ a decision which made the speed of extraction a key variable. Once a decision was taken to go ahead with exploration quickly, one almost excluded by definition a decisive state involvement from the start. This was because even if state involvement was feasible it would always take time to build up a competent state entity to deal with oil production.

No Norwegian firm either had the experience or the capital to go ahead with such projects (a situation very different from the UK). While the UK could have managed to raise enough money to finance a state oil company, access to capital on the international market for the Norwegian state might have been more difficult. With an official policy from the international financial institutions like the World Bank not to lend money to petroleum exploration (see Chapter 2, p.50), finding enough capital could have been very difficult indeed. If the state had followed a policy of waiting, and patiently built up Norwegian expertise while using hired drilling expertise, the project could have been undertaken by a state entity. However, such a line of action was never seriously discussed.

But could not the Norwegian state have played the different companies against one another (as in the Middle East where the European State Oil Companies like ENI tried to break the hegemony of the majors), and negotiate some kind of product-sharing/entrepreneur-contracts with the companies, as the next closest thing to an active state role? In principle such a deal could have been envisaged, but there are no indications that the project was ever seriously discussed. It was in fact a totally unanimous Storting that accepted the broad outlines of the '1965 package'. Not even the only party to the left of the Labour Party (the Socialist People's Party, SF) raised any objections. Perhaps less surprisingly, none of the bourgeois opposition parties argued against the proposed role of the state in the adopted policy package. While Norway was later to become the first major offshore producer country around the North Sea to implement the principle of

state participation, and while the 1965 terms were finally to come under criticism, it is notable that in 1965 there was an almost complete consensus among policy-makers that the state should not intervene as a productive unit in the oil industry. During the late 1960s the arguments for this policy of non-intervention became more coherent. They are set out in more detail in Chapter 5.

We must also make reference to the UK case, because the UK had a major influence on the formulation of Norwegian oil policy. A 'state' solution in the UK in 1965 would probably have had fundamental effects on the Norwegian policy. But a combination of political obstacles and balance of payments arguments 'killed' any initial major state involvement in the UK offshore industry. The detailed reasons for this are set out in Appendix G and in Section 4.2 below.

4.1.2 Norway and the 'Danish' system

In order to assess the 1965 package more fully we must also look at the two other organizational patterns that were not chosen. In effect the auction system was never seriously considered as being an appropriate method of extracting the oil-rents or laying the foundations for the Norwegian policies. The reasons for this have already been touched on in Chapter (pp. 65-68), and little more needs to be added here. On the other hand there was a serious possibility that Norway would have adopted a Danish system, where one firm or group of firms would have got the exclusive right of exploration of an area.² According to the former Secretary of the Oil Council, Gulnes, it was indeed only by "sheer luck" that Norway did not adopt the Danish allocation system.³

This type of concession would have given the company in question untrammelled freedom to act independently, especially if there was no specific work programme attached to the licence, as was the case in Denmark.

But even if there had been a work programme, the company is normally under this system free to choose where within the whole area it would drill the exploration wells. One unfortunate consequence of such a system of concessions is that, once granted, there are very few ways that the state can intervene if new circumstances should make this desirable. Secondly, if the holes turn out to be dry, the general evaluation of the area may fall drastically even if the dry holes simply reflect the geological assessment of one company or consortium. This means that

attempts to attract new companies on favourable terms if the first one pulls out may be difficult for the state.⁴ Thirdly, the exploration record of such a company/consortium may be very bad, especially if the Danish experience is anything to go by. Not even the dispute over the dividing line with Germany's offshore territory is really enough to explain why only three offshore wells had been drilled by early 1968.⁵

It was this Danish system that Phillips wanted the Norwegian state to adopt when it first applied for an exploration licence in 1962. As noted before, this was rejected. But in addition to 'luck' (to quote Gulnes, above), it was the belief that the 'Danish' system was incompatible with a thorough and rapid exploration of the Norwegian Continental Shelf that finally convinced the Norwegian authorities that such an allocation system should not be adopted.

4.1.3 The outcome

Once a pure 'state' solution on one hand or an 'auction'/Danish system on the other was ruled out, it became clear that the terms offered to the companies internationally would be of great importance for the formulation of the Norwegian policies of 'discretionary allocation'. A state solution need not take much notice of such international comparative factors, while the auction system requires a minimum of state policy planning. Thus the main thrust of the argument presented to the Norwegian Parliament by the special Commission created to establish the 1965 terms of exploration was made on the grounds of how they compared with the terms of the other countries of the North Sea region. It stated:

"By introducing a taxation system which, compared with the systems of other countries is less advantageous for those who take the risk of looking for and producing oil, this will easily lead to a situation where the oil companies will look for opportunities elsewhere. In the North Sea area it will be especially natural and simple for the international companies to compare the taxation systems of the different North Sea states.... The taxation system can then contribute towards a move by the oil companies to explore areas where the financial conditions are best."⁶

A good part of the work by this Commission then proceeded to compare the Norwegian and the UK taxation systems, and in its conclusion to suggest a reduction of 9% in the normal company taxation for the oil companies which were to operate on the Norwegian Continental Shelf, so as to be on an equal footing with the other North Sea states.⁷ Of these, it was the UK policies that were the main influence on the Norwegian policy. As the Norwegian Commission of the Continental Shelf stated, "The Commission acknowledges that it has borrowed many ideas from the provisions which apply to exploration and exploitation on the UK Continental Shelf."⁸

It is indicative of the low level of knowledge and/or interest among the Norwegian parliamentarians that most of the time of the debate discussing this issue was taken up by arguments of whether the necessity of lowering the Norwegian rate of taxation to get it in line with that of the UK was, in the words of one MP, "an excellent example of how our taxation rules are less favourable for our industry than the equivalent taxation rules in other countries".⁹ The end result was that the Storting unanimously accepted the recommendations of the Commission. In order to decrease the total tax burden on oil companies operating in Norway to make it comparable with the total UK taxation rate of 53.75 (which included royalties and bonuses), the effective Norwegian corporation tax was cut by 9% for the oil companies and the royalty rate set at 10% instead of the UK's 12.5%. But as opposed to the situation in the UK, Norway did not concede any specially favourable depreciation rules.¹⁰ This meant that the total percentage figure of taxation "must be seen in a totally different light compared with a situation if such a rule had not existed".¹¹ This latter regulation must be borne in mind when we compare in undiscounted terms the outcome of the Norwegian taxation rules with those of the other North Sea states, which showed that Norway still had a high total government 'take'.¹²

.4.2 OPTIMALITY OF NORWEGIAN POLICY AND ITS RELATIONSHIP TO UK POLICY

Having established that the Norwegian policy makers felt they had no choice but to adjust the Norwegian terms of exploration once the UK had laid down its terms (and thereby indirectly vindicate the importance of 'the international context' as a factor of bargaining) we now claim that it would only be by pure chance that the Norwegian terms would be optimal

from a Norwegian point of view. (Optimal is here defined in relation to the aims of the Norwegian state as outlined in Chapter 1). The reason for this was first that the factors that underlay the formulation of the UK terms could by no means be said to apply to Norway.

Secondly, it will be shown that the UK policy, as it was finally formulated, was not even optimal with respect to its own aims. Consequently it would only be by the most incredible of coincidences that Norwegian policy, based as it was on UK policies, could be said to be optimal, being twice removed from its own version of optimality.

The UK's situation differed from that of Norway on at least four crucial counts.

The most important of these was the UK's role as 'mother country' for two of the 'Seven Sisters' (BP and Shell). Their interests were very much in the government's mind when the original policies were formulated. This is made explicit in the following government statement made at that time.

"If the UK were to impose onerous financial terms (with respect to oil concessions - PN), it may incite OPEC countries to follow suit to the detriment of our overseas oil-interests and the Balance of Payments."¹³

Given these companies' political weight, it would also have been very difficult to argue for any state oil corporation to be set up as a possible competitor to BP and Shell.

The later Lord Balogh has stressed the influence of the Foreign Office in the formulation of these terms,¹⁴ thereby suggesting that it was not the whole state apparatus that was behind such a policy, but rather the foreign policy establishment. He then went on to say:

"It is equally silly to claim that had Britain acted otherwise (than implementing the original terms - PN) it would have encouraged the Arabs to squeeze the British companies more. This is still a reminder of the Imperial syndrome which holds that our behaviour influences other people against their own interests and that they are unable and stupid enough not to realise what is in their interests. It should be said that the OPEC experts are among the world's foremost experts on these matters and have proven to be superb negotiators."¹⁵

Secondly, the UK industrial structure was much more developed than its Norwegian counterpart, especially in the crucial field of heavy engineering. Consequently UK industry was potentially in a better

position to reap some of the spinoffs from oil-related activities than Norwegian industry, if it had been given the chance. The situation was so different in the two countries that any attempt to impose the same terms with respect to the companies could almost a priori be said to be incorrect. When talking about protection for a national spinoff industry we are not necessarily referring to specific protectionist clauses, but we also consider the speed of extraction as a crucial policy instrument. A slower speed of extraction would almost certainly have meant a higher degree of spinoffs going to the UK. This was explicitly admitted by Sir Robert Marshall, Secretary of State for the Department of Industry:

"In embarking on a policy of rapid exploitation from the very start ... successive governments realized that in doing so less time was left for their own indigenous industry to make itself ready to seize opportunities." 16

The above argument by Sir Robert Marshall is intimately related to the third level of difference between Norway and the UK. The balance of payments situation differed fundamentally in Norway and the UK in the mid 1960s.¹⁷ Consequently any argument for a maximum amount of production of oil (and thus the freest possible rein for the companies) was in the UK almost invariably referred to in balance of payments terms. It was thought that a maximum rate of extraction would maximize the balance of payments effect of oil. But the balance of payments argument was only valid under a number of strict assumptions. The net saving from oil on the balance of payments in the mid 1960s (when the rent element in the final crude-price was relatively small) originated from that part of import saving which was made by the contribution of UK companies; whether goods and services for production were made in the UK; and whether profits earned by overseas companies were ploughed back into the national economy.¹⁸ Given the (conscious) sacrifice of involvement by UK companies to speed of extraction, and the relatively lax tax proposals suggested, one can see straight away that the balance of payments effect of oil production from the start had to be less than the 'optimists' thought. By examining the 'spinoffs', this conclusion is certainly reinforced.

The final, but perhaps most crucial difference in the basic position between Norway and the UK in 1965 was that the UK expected to find gas, while Norway expected to find oil in the North Sea. The Norwegians thought that nothing but oil would be a commercial proposition, because gas found in the Norwegian sector was too far from the

major markets.¹⁹ (There was at the time only one very small gas distribution system in Norway.) Alternatively, if Norway sold its gas to other countries it might be paid a lower price than for oil. The UK, on the other hand, initially thought most hydrocarbons in its sector would be in the form of gas. This belief originated because Groningen and the area immediately off the Eastern Coast of England are geologically identical. Echoing this view, PPS wrote early on in the exploration phase, referring to the UK sector, "The probability is that the North Sea bed contains primarily gas rather than oil."²⁰ The significance of the different expectations about which hydrocarbon would be found is profound. Oil was an internationally traded commodity which at the time had (with all its reservations) one common international price. Gas, on the other hand, had to be sold locally due to the difficulties of transport. In the UK it was also stipulated that the gas had to be sold to a monopoly buyer, the British Gas Corporation, which would give any national government a very strong bargaining position. It might virtually 'give away' the areas in the North Sea during the original round, but it could redeem all blunders (at least with respect to division of rent) by refusing to pay anything more than the supply price for the gas it bought. And this is more or less what happened. While the Gas Board in the UK certainly did not use its potential bargaining strength fully, it nevertheless tried to recuperate some of the rent by offering a lower than 'market' price for the gas. This possibility was, of course, known earlier by both the companies and the public. But it is a reasonable guess that the companies did not expect it to happen. Perhaps they had overestimated their political muscle to prevent such an outcome.²¹ Norway, on the other hand, had no way of recuperating any 'lost' or 'foregone' rent by such manoeuvres, if oil was found on the Continental Shelf, because oil was a commodity where there was no monopoly buyer.

We can therefore conclude that at the very outset Norwegian policies were unlikely to have been 'optimal' because they were modelled on the UK policies which, as we have seen, were based on completely different premises. This conclusion needs, however, to be supported by more specific Norwegian material.

4.3 INFORMATION

It is possible to show how the companies' control over information in general, and geological and technological information in particular, was a key element in negotiating concession terms for a virgin territory like the North Sea in the mid 1960s. As outlined in Chapter 2, this had important consequences for the tax system which was originally imposed on the companies and the ensuing division of rent. The question of information has both a national and an international dimension. We must argue that the state's ignorance and misunderstanding was not limited to Norway, but also existed in the UK, given the key role played by UK policies in the formulation of the Norwegian policies.

4.3.1 Geological information

In order to evaluate what constitutes relevant information with respect to the negotiations between the Norwegian state and the companies, we need a short introduction to the geology of oil exploration. There can never be a 100 per cent certainty that there is oil in a geological formation, without first drilling an exploration well. We are consequently only concerned with degrees of uncertainty in our analysis. This uncertainty is influenced by a number of variables, which can only be properly evaluated by understanding the preconditions for the existence of oil.²² These preconditions for the existence of oil are only satisfied in sedimentary rocks. The companies will therefore never show any interest in an area if there are not sedimentary rocks present. In addition, a number of factors are relevant for a successful find of oil.

The larger the area and/or thickness of the sedimentary rocks, the greater the chance of finding oil.

The frequency and size of traps give an indication of whether there is oil in a geological formation. But the existence of one of the different kinds of traps, the stratigraphic trap, is almost impossible to identify by traditional geophysical methods because its existence is not related to definite geological structures.

Finally, older sediments tend to contain gas, while younger ones most often contain oil.

It is detailed knowledge about these factors that initially gives the key to a guess of whether oil exists in an area or not. The more

promising parts of a sedimentary basin tend to be drilled before the less promising ones, which increases the chances of finding oil in the initial exploration. A counteracting influence is that knowledge of a basin increases as time goes on and as more and new geological information is being made available from the continuous drilling of new wells. Still it is a rough rule of thumb among oil geologists that 80 per cent of all oil from an oil province is found as a result of the first 20 per cent of all wildcats.²³

The Norwegian state's access to information related to oil was one of relative ignorance. The first Norwegian official specifically hired to deal with oil-related questions (Secretary to the Oil Council, Nils Gulnes) started work on 1 January 1965. No economist was hired until 1970; until then lawyers were the dominating professional group which dealt with oil. This tends to suggest that there was very little specific information available to the state at the time to counteract the information of the companies. It is known that by 1965 the state did not even employ one single person who was capable of interpreting the seismic data that the companies were filing with the state as part of the original agreements.²⁴ The first geologist was not hired until January 1968.²⁵

The companies' official of 'public relations' view that the chance of finding any oil off the Norwegian coast was slim, and that (to put it a little forcefully) the companies were almost doing Norway a favour by looking at all, was fully accepted by Norwegian public opinion and politicians. For example, the Special Commission whose report constituted the basis for the proposals of the fiscal regime implemented in 1965 remarked: "The commission would in this context (the need to attract foreign investment in the oil industry - PN) again remind Stortinget about the great risk of oil exploration on the Continental Shelf, especially in such an unexplored area as the North Sea."²⁶ In the debate in the Storting, others talked about "the great risk"²⁷ that the companies were taking in looking for oil. This attitude was shared at the top policy formulating level. Gulnes has suggested that the Norwegian cabinet at that time had no belief that there was any oil in the North Sea and regarded the whole venture as an exercise of extreme optimists.²⁸

The Norwegian state's ignorance and pessimism was by no means shared by the companies. Phillips had studied geological information about

the Norwegian part of the North Sea as early as 1959. And after the company's initial seismic surveys it concluded that there probably existed sediments of Mesozoic-Tertiary age off Norway - a significant piece of information because such sediments account for well over 90% of the world's proven oil reserves.²⁹

Two AMOCO geologists wrote in 1965 that:

"... the seismic maps (of the North Sea - PN) do show the presence of a number of very large structural traps, as well as many of moderate size. If a fair part of them contain hydrocarbons, then all will be well. Furthermore, the size of the as yet nearly virgin area to be explored is a great attraction. Not many like it, almost untested, are left in the Free World. Statistics concerning discovery ratios alone suggest that a number of fields should be found."³⁰

A Phillips executive talked in 1967 about the geological potential of the northern area of the North Sea, where he said a huge sedimentary basin lay between the crystalline basement rocks of the land area of Norway and the highly indurated older sediments of Scotland.³¹

According to other sources the full size of this basin was not realized by geologists until 1965,³² but the earlier suspicion of the existence of such geological formations gave the companies (in their own words) "sufficient time to do a great deal of preliminary seismic work before being faced with the difficult decision of choosing the acreage to apply for".³³ In the words of a top Norwegian Shell executive, the situation in 1965 was that:

"We knew enough ... the interest was there.... Basins of this size, with the knowledge of the thickness of the sediments, the existence of traps and salt domes ... all lead to the conclusion that oil could be found."³⁴

The relative cheapness of offshore seismic exploration also meant that the North Sea was better explored than most 'virgin' areas, which further decreased the companies' level of ignorance.³⁵

So while the companies by 1965 had a reasonably realistic assessment of the oil-producing potential of the region, the Norwegian government was largely ignorant. And even if this geological information was handed over to the Norwegian state, it did not, as we have seen, have any expertise that was capable of interpreting the seismic data. Therefore to all intents and purposes the Norwegian government

knew little about the potentialities for oil production that existed off its coast.

British geological data was relevant for the Norwegian case study, because there was a considerable overlap between the acreage offered by the two governments in the central parts of the North Sea. The British, like the Norwegian government, continuously underestimated the chance of finding oil in the North Sea. The UK government also had access to very little expertise.³⁶ Since the overwhelming part of the seismic shooting prior to 1964 took place in international waters, the UK government, according to its own statement, "could not demand information as to the cost or result of their (the companies') operations".³⁷ The UK government has in retrospect claimed that "very little indeed was known about them (the opportunities on the UK Continental Shelf - PN)."³⁸ This pessimism of the possibilities of finding oil was well reflected, as one study puts it, "in the failure to give adequate warning to either industry or the communities directly affected about the possibilities of oil".³⁹

But as in the Norwegian case the companies knew better. Sir Kenneth Hutchinson, Deputy Chairman of the Gas Council, said in June 1965: "... it is permissible to say that the results (of the seismic surveys - PN) have exceeded the expectations of the most sanguine".⁴⁰

The described discrepancy in access to information between the companies and the North Sea states concerning the likely extent of expected oil reserves also continued after 1965. As late as 1972 Odell was to write, "the lack of information concerning the resources is more than sufficient to arouse suspicions that the oil companies find it advantageous to keep the facts of the rapidly developing situation from the public and the government policy-makers in Western Europe."⁴¹ Because of this factor's significance for the bargaining situation in Norway, we will repeatedly return to it as the case study 'unfolds'.

4.3.2 Technological knowledge and cost-data

In a bargaining situation, the companies will, in addition to the geological uncertainties, normally also stress the technological difficulties associated with moving into a new area. This will strengthen their hand in any negotiations by minimizing the expected amount of rent to be earned from an area. The North Sea was no different in this respect. The situation was described as 'forbidding' and

doubt was even expressed as to the technical feasibility of producing oil in the North Sea at the time.⁴² But it is important to remember that most of the technical problems of the North Sea have arisen by the movement of oil production into the northern parts of the North Sea (east of Scotland and Shetland), and that the area in question during the mid 1960s was the much shallower and, from the point of view of weather, more manageable southern and central parts of the North Sea. Within this area there is no doubt that the Norwegian acreage presented the gravest problems, but it will be argued that the companies did not feel in any sense that the technical problems involved were insurmountable. One study addressing itself specifically to the comparison between the conditions in the Gulf of Mexico and the North Sea stated about the drilling part of the operation:

"For the most part the basic drilling equipment (derricks, bits, mud system etc) and operating procedures used during exploratory drilling in the North Sea are identical to those used in the Gulf of Mexico."⁴³

And in relation to the phase of production from fixed platforms:

"To date, the fixed platforms installed in the North Sea have been similar to those used in the US except that some of them have been bigger and stronger."⁴⁴

So no qualitatively new technological breakthrough was considered necessary to move into the North Sea.⁴⁵

So much for the immediate prospects in 1965. But what were the long-run perspectives for the deeper parts of the North Sea? It could have been argued that if the companies at the time felt unable to go any deeper than say 300 feet, then the North Sea as an area would not have been very attractive to them as it would not have been large enough. But also on this count there was clear optimism on behalf of the industry. According to one executive, floating platforms implied the possibility to

"drill deep exploration tests at acceptable costs even on the outer edges of the Continental shelves.... And with the continuing improvement of the platform devices, it is possible to engage in year-round drilling without unacceptable interruptions in some of the most hostile waters of the world."⁴⁶

According to this executive the basic problem of oil exploration in the North Sea was not one of technology. It was rather one of the price paid for gas and oil.

The question of costs, which was intimately related to technology, was in the long run going to be of crucial importance in the bargaining game. Without adequate access to cost data and in the absence of their own expertise, there was no way that either the UK or the Norwegian state could evaluate the rate of return from a field. Consequently there was no way the state could determine whether it had pulled off the best bargain possible or not. It is indicative of the importance of this item that even if the companies after a while made geological material freely available to the state, they refused as late as 1973 in the UK case to hand over actual cost figures.

In the end the more blatant optimism exhibited by the industry vanished as the realities of the North Sea made themselves felt. For instance the general expectation that drilling could take place all year round which was repeatedly expressed at the beginning turned out to be unrealistic during the first years of operation. Similarly the cost estimates might have been too low. But here we must re-state an important methodological point. We are interested in how the different actors perceived the situation in 1965, not so much what turned out to be the case, because the negotiations took place based on these original perceptions.

4.3.3 Price negotiations

The Norwegian government could have influenced the division of rent in its favour by adopting a 'posted price' system of oil-pricing. This system which at the time operated in all main oil-exporting countries had developed into a method of increasing the share of rent going to the governments as the difference between the world market price and the higher posted price which was the basis for computing all taxes and royalties, widened. Insisting on a pricing system according to 'posted price' also made life easier for the producer countries because they did not have to preoccupy themselves with the internal prices of the vertically integrated companies.

The Norwegian government did not adopt such a pricing formula, but instead settled for a 'fair market price' as the basis for tax payments.⁵⁰

As Evensen, the main Norwegian negotiator at the time, was to state later: "These formulations were the result of long discussions

with the oil companies during the preparation of the Decree."⁵¹

A number of companies wanted the selling price to be the basis for any calculations related to taxes. But this was, according to Evensen, unacceptable to the Norwegians. The peculiarities of the marketing and pricing structure in an industry dominated by vertical integration and the corresponding small and hence unrepresentative size of any spot-market for oil which would have served to determine the 'selling price', ruled out such a solution.⁵²

4.3.4 Summary: Information

We can conclude that the formulation of Norwegian oil policies from 1965 was made on very shaky foundations. The Norwegian state's general level of information, so important for the negotiations that were to determine the expected division of rent, was generally weak. There was a consistent underestimation by the Norwegians of their bargaining strength. And the Norwegian state's ignorance was not limited to geology, technology, and costs. As made clear in Chapter 1, Norway also underestimated its general bargaining strength. This is also suggested by the Norwegian decision to exploit the oil as rapidly as possible. An analysis of Norway's energy consumption pattern in the mid-1960s shows that, due to its large resources of hydrocarbons, Norway would be in the long run less dependent on imported oil as an energy-source than the other OECD countries.⁵³ Oil's relative weight in the total import bill was therefore potentially less than for the majority of these countries. This suggests that Norway was in no desperate hurry to exploit the oil and could have afforded to postpone exploration without too large a sacrifice. But instead Norway opted for a 'swift' exploration programme. As has been stressed, this had important consequences for which concession system to choose.

The companies, on the other hand, were well informed and equipped to tackle the technical tasks confronting them in the southern part of the Norwegian sector. Only when it came down to an understanding of the consequences of the vertical integration of the industry did the Norwegians put clear demands to the companies.

Contrary to the Norwegian (and UK) governments' pessimism about finding and producing oil from the North Sea, it would have been difficult for anyone who opened the professional oil press at the time to miss the general attitude of euphoria. As PPS wrote in May 1964:

"Altogether, the present onrush to the North Sea ranks about the most exciting episodes in the history of the oil industry."⁵⁴

And even if the companies performed the ritual complaints against the 'onerous' and 'inequitable' tax terms laid down in the UK, by 1964⁵⁵ according to one observer they were at the same time 'falling over themselves' to get concessions.⁵⁶

4.4 DIVISION OF RENT: A QUANTITATIVE ANALYSIS

We will now determine how the 1965 policy package would have divided the rent between the Norwegian state and the companies. To do this we must first employ our 'basic model' developed in Chapter 2 and quantify those cost and revenue variables which are necessary to determine the PV of a hypothetical North Sea field.⁵⁷

4.4.1 Exploration costs

- Cost per exploration well in the North Sea was in 1965 expected by the stockbrokers Cazenove to be around \$2 mill.⁵⁸

- The worldwide success rate per commercial find for wildcats drilling in new acreage remained surprisingly constant at around 5 per cent.⁵⁹

Total average exploration costs per new field in the North Sea should therefore, according to our model, total \$2 mill. x 20 = \$40 mill.

4.4.2 Development costs

The expected cost of a fixed production platform for a North Sea field was in principle derivable from Gulf of Mexico figures, because the Gulf was at the time the main offshore producer-area. (Figures from the Alaskan Cook Inlet were still very tentative.) The data we have available is a high-cost estimate of installed costs of production platforms in the Gulf of Mexico in 1967, based on data from platform fabricators.⁶⁰ The high-cost element allows for minor changes in the design of the platform during construction, difficult sea floor conditions and bad weather during installation. A 14-24-well platform at 250 feet of water (at that time the limit in the Gulf and the average depth of Norwegian acreage in 1965) would have cost \$4.1 mill.⁶¹

These initial figures were then 'topped up' by the companies to account for tougher weather, higher flows of sea current and a number of other 'unknowns' in the North Sea. Given the industry's relatively optimistic declarations about the technological possibilities of production in the North Sea⁶² and based on discussions with the oil companies, we assume that the development costs in the southern part of the Norwegian Shelf were initially thought to be 50 per cent higher than those on the Gulf.

These cost assumptions would then give total platform costs (when the cost distribution in Chapter 3 is taken into account) of (\$4.1 mill.(platform) + \$1.0 mill. (equipment)⁶³ + \$0.7 mill. (sundry) x 150%. In addition to the platform costs we must add the cost of drilling 18 production wells and the cost of the pipeline to find development costs.

The distance from the southern part of the Norwegian sector to possible landing points in the UK is an average of about 200 miles. Despite the regulation in the Royal Decree of 9 April 1965 about landing oil in Norway, there was already at this early time doubt about whether oil, if found, could be landed in Norway due to the 'Norwegian Trench'. This was especially so if the find should turn out to contain gas, for which there was no grid system, nor industrial use in Norway. In addition, the technological difficulties in laying pipelines across the Norwegian Trench were indeed substantial.

Initial assessments of total costs of a pipeline in the southern part of the North Sea varied between \$280,000 per mile⁶⁴ and \$210,000 per mile.⁶⁵ We will therefore assume an average price per mile of \$245,000, something which gives a total estimated pipeline cost figure of \$49 mill.

Total development costs for a 100m. hypothetical field in 1965 would therefore tentatively be: (all figures in \$ mill.)

3 delineation wells @ \$2 mill		6
Platform (including installation)	\$4.1)	
Equipment	\$1.0) x 150%	8.7
Sundry	\$0.7)	
18 dev. wells @ \$1 mill.		18
Land installations		<u>0.7</u>
		33.4
Administration, land purchase, financing costs, and reserve for unforeseen problems in a new producer area:		<u>5.6</u> ⁶⁶
		39.0
Pipeline		<u>49.0</u>
		<u>\$88 mill.</u>
or \$0.88/bbl		

This compares with a 1967 US Department of Interior average computed development cost per barrel of \$0.70 in the Gulf of Mexico.⁶⁷ It cannot be stressed too strongly that our figure is only meant to give a general idea about the magnitudes involved rather than to provide an exact cost estimate. In order to see what difference higher (and lower) development costs would have meant for the PV of the fields, we have carried out a number of sensitivity tests (see p.131).

4.4.3 Operating costs

The final cost to be computed is expected operating costs. We assume an average operating cost of \$0.45 per barrel, which is in line with the Gulf of Mexico figures,⁶⁸ as there are no particular reasons why the harder weather conditions in the North Sea should have the same influence on operating costs as it had, for example, on the cost of platforms. But again because this figure is relatively unsure, we have as a sensitivity test run a number of scenarios with 30% higher and lower operating costs.

4.4.4 Price and volume

The average price of one barrel of crude oil delivered in the UK, the most likely place where oil was to be landed, was in 1965 \$2.46,⁶⁹ which we have rounded to \$2.50 per barrel. Because of the uncertainty about the size of average expected production we have run a number of different scenarios, ranging from a 100m. to a 700m. barrel field.

4.4.5 Expected trends

We now have to decide what the most likely trend of both costs and revenues were to be from 1965. The international oil industry had seen a continuous drop in the monetary price (not to mention the real price) of oil from the late 1950s onwards. There were however signs in 1965 that the nadir had been reached. PPS⁷⁰ in an article headed Turn of the Tide? predicted that oil prices would again start to rise (a prediction which subsequently turned out to be correct). We have incorporated the assumption that prices would increase by 2% p.a. while costs would increase at the average international rate of inflation of 3%. The real price of oil would as a consequence continue to drop, but only

at the relatively modest rate of 1% p.a., a reasonable assumption when the overall situation in the oil industry is taken into account.

4.4.6 Debt conditions, and the social rate of discount

The majority of the firms that were offered acreage in the Norwegian sector were 'majors' or firms which come very close to this category. Their level of self-financing of new investment was very high by any standards. We have therefore chosen the average need for external finance to be in the region of 10%. (Some companies like Shell and Esso would have been expected to pay for all investments out of their own funds while the smaller companies like Hydro would have to find external finance.) We have set the average rate of interest on the international capital market to around 9%, but the rate fluctuated considerably. We have also assumed that loans would be repaid over five years with one year's 'grace'. There was at the time no officially defined social rate of discount. This was first stipulated in 1975 when it was set equal to 10% (Finansdept. 1975). We will however use this figure as the social rate of discount from the very start. A similar figure has been set in the UK, France, and the US.⁷¹

4.4.7 PV and NPV

Based on the above revenue and cost assumptions, the cost functions outlined in Chapter 2, and the social rate of discount, we can find the PV of hypothetical 100m. to 700m. barrel North Sea fields.

Having estimated the PV of hypothetical fields in 1965, we then assess the state's tax-take in order to arrive at how the rent would have been divided according to the 1965 'package'. The relevant tax variables were in 1965:

Depreciation: 10 years straight line

Royalty: 10%

Corporation tax: Norway decreased the local corporation tax for the oil companies from 19% to 15%, while the 5% contribution to the tax distribution fund was waived. The effective tax rate thus decreased 9% from a maximum of 54.3% to 45.3%, consisting of 30% state tax and 15.3% local tax. Corporation tax would be assessed on the following

Table 4.1Assumptions 1965

Year	1965
Price \$/bbl	2.50
Price escalation %	2
Total exploration cost (\$m.)	40
Development costs 100 (\$m.)	88
200	127
300	166
400	205
700	322
Discount rate	10
Operating costs (\$/bbl)	0.45
Cost escalation (%)	3
Percentage debt (i) Company	10
(ii) Statoil	-
Rate of interest	9
Years grace	1
Years spread	5
Participation	NONE

basis: $45.3\% \times (\text{Total Revenue} - [\text{depreciation} + \text{interest repayment} + \text{royalties} + \text{operating costs} + \text{losses brought forward}])$. Losses could be brought forward up to a period of 15 years as opposed to the normal 10 years. Thus the companies' yearly net cashflow according to the 1965 conditions which helped to determine the NPV (i.e. post-tax) would be:

Total Revenues - Total Costs - Royalties - Repayment of capital and interest - Corporation tax + New loans.

4.4.8 Results 1965

The companies' expected post-tax IRR varied between 2.7 and 11.2% depending on the size of fields. (For a summary of the results see p.133). When interpreting this return we should bear in mind that we have used very cautious figures and that the notion of exploration risk has been incorporated into our analysis. Figures of this magnitude cannot be interpreted as any kind of 'bonanza' for the companies.⁷² But neither can they sustain the widely held view, outlined in detail above, that the companies were almost doing the Norwegian state a favour by exploring for oil and that what they were undertaking was a complete

leap in the dark. It is worth pointing out that our possible undiscounted average profit margin per barrel over time of \$1(+) in the North Sea compared favourably with the prospective return of most company investment anywhere in the world at the time.⁷³

The initial expected returns must have seemed especially attractive in view of the position of the North Sea close to the major consumer markets, in political conditions which were far removed from the instability of most oil-producing states. In addition it should be stressed that the 'true' return on investments in the North Sea to any US or UK company would be very difficult to assess. All taxes paid by US oil companies abroad during this period could be deducted directly from US profits (and not treated only as being part of 'costs') (see Appendix A, p.305).

Furthermore if the cost figures were overestimated, and in particular if there were greater economies of scale than assumed in our model, then the situation would immediately improve for the companies. (For the complete results of our sensitivity tests, see Appendix F.) A 30% decrease in development costs would have meant a post-tax IRR for the 700m. field of 18.5%, an increase of more than one-third compared with our original result. And because a number of experts thought that the geological structures in the North Sea would yield large fields, there was hope that these potential economies of scale (to the extent they existed) could be realised. BP's main geologist at the time, Gaskell, was quoted as saying about the North Sea:

"... there would be plenty of room for several fields of 100 million tons (700m. barrels - PN) of producible reserves, giving together an annual production of a few tens of millions tons of oil."⁷⁴

Of equal importance to the companies' rate of return would have been a faster rate of extraction. Using our alternative MIT production profile for the 200m. and the 700m. fields, the IRR would have increased to 15.9% for the 200m. field and to no less than 27.0% for the 700m. field. Thus it is quite understandable why the companies wanted to bring the fields into production as fast as possible.

An expected annual increase of 1 per cent, instead of a decrease, in the real price of one barrel of oil, would also have had great consequences for the profitability of the project, leaving it with a post-tax IRR of 12.8% for the 200m. field, and 15.5% for the 700m. field; while a change in the operating costs seemed to have less importance.

Even if all these different factors are not cumulative, it is easily seen that even some more optimism with respect to what was expected to be the situation in the North Sea would have had a great influence on the expected IRR. So while the computed IRRs were just about acceptable as they stand, because we have used conservative figures and assumptions, it can be concluded that the companies were taking no tremendous risk by going into the North Sea in 1965. On the other hand, an increase in development costs by 30% would have left the companies with rates of return of 6.1% and 9.0% for the 200m. and the 700m. field respectively.

Since the state in 1965 had no equity role, it could only capture the rent in the form of taxation. The undiscounted percentage state 'take' varied between 72.6% and 54.4%. If we concentrate on the commercial fields (where the IRR is greater than the discount rate), this was broadly in line with official Norwegian estimates at the time.⁷⁵ The high take for the 100m. field is due to the inflexibility of the royalty instrument of taxation for fields with low profitability.

The discounted take (when meaningful - see p.106) was as expected much higher, ranging from 99.2% to 86.6%. As pointed out in Chapter 2, this high figure was mostly due to the relatively low profitability of the hypothetical fields. The 700m. field with 30% lower development costs would have given a much more modest state 'take' of 59%. It should therefore be strongly stressed that this high 'take' had nothing whatsoever to do with the negotiating skill of the Norwegian policy-makers. As argued above, the Norwegians had little or no idea about the value of what was buried below the North Sea. Their only negotiating 'coup' could be said to be related to the drawing of the borderline with the UK, but this was unrelated to the Norwegian state's relationship with the companies.

Norway introduced a special tax concession for the companies in 1965. But the debate in the Storting would probably have been even more subdued had the parliamentarians known how little difference such a move would have had for the companies' expected rate of return. Its introduction would have reduced the IRR for a hypothetical 200m. field by no more than 1.0% and the 700m. field by a similar amount.⁷⁶

In a similar vein of analysis, if the success rate in the North Sea turned out to be better (or worse) than the expected world average, this would also have had relatively little influence on the companies'

Table 4.2Results 1965Project appraisal for all fields

	100m	200m	300m	400m	700m
Present value (\$m.)	-5.0	43.5	68.1	89.7	183.2
Pre-tax IRR (%)	8.9	15.9	16.3	16.2	17.2
Post-tax IRR (%)	2.7	8.5	9.6	10.1	11.2
Net Present Value (\$m.)	-39.1	-9.1	-3.3	0.7	24.4

Table 4.3Total government take

(discounted)	+	+	+	99.2	86.6
				+ =	> 100%

Table 4.4Undiscounted results

Pretax profits per field (\$m.)	81.2	280.0	459.9	686.3	1389.3
Traditional state 'take' (%)	72.6	56.9	55.7	55.1	54.4

IRR. Accepting a success rate of 1:30 (and thus taking the companies' continuous statements about the 'riskiness' of the operations in the North Sea at their face value) would only have decreased the companies' expected IRR by 0.8% and 1.8% for a 700m. and a 200m. field respectively. This is as expected, because the exploration costs constitute a smaller percentage of total costs for the larger fields.

4.4.9 A long-run perspective

Because renegotiation was ruled out as a policy instrument, few possibilities were left to the Norwegian state to ensure that the state received a larger share of the oil-rent in the long run than it would have done in 1965. The only one that has been mentioned publicly was that the state during the 1965 negotiations reserved 'key blocks' for itself for future exploration.⁷⁷

However, the number of blocks that fell into this category were limited, thus decreasing the quantitative element of such a move. More importantly, if the state had very little geological expertise at its disposal in 1965, how did it know which were the 'key' blocks?

It could be argued that the state simply decided that the blocks for which there had been most applications should be denoted 'key' blocks. Such a procedure, however, would almost certainly have been met with fierce opposition by the companies. This information still remains 'classified', but we can reasonably infer that since no complaints from the companies ever reached the press on this specific issue (while they certainly did on a number of other issues such as taxes), the probability that the state acted in such a manner must have been minimal. The selection of 'key' blocks therefore must have been a rather 'haphazard' process.

4.5 VOLUME

Apart from maximizing its share of the oil rent, a producer-state also seeks to control the volume of production. We shall see how the Norwegian state in 1965 tried to encourage (and to what extent it succeeded) bringing about a 'rapid and thorough' exploration of the North Sea. This stated aim in turn implied that the state wanted a rapid production as there was no way the Norwegian state politically could have prevented (or indeed wanted to prevent) production once oil had been found. Such an aim contrasted sharply with what was to become Norwegian policy from the early 1970s onwards when there was a clear attempt to decrease the expected volume of production.

Whilst it could be inferred that Norway was following a cautious of "conservationist" line with respect to volume of production because only 81 blocks or 25% of the area south of the 62° was originally licensed, such a conclusion at closer sight is unwarranted. It was the reluctance of the companies that led to such a small figure being licensed, and had nothing to do with any 'foresight' of the Norwegian government. The companies applied for acreage in the southern part of the Norwegian sector where their geological assessment of the situation was most optimistic. But the Norwegian government initially offered all 278 blocks in the Norwegian sector for licensing,⁷⁸ a fact that should make for some scepticism with regard to the state's later claims that all along it had been following a well worked out and long-term strategy (for example with respect to the 'key' blocks discussed above). An alternative interpretation could always claim that if the companies had shown an interest in all blocks, the government would

never have given them all away. But there were at the time no indications of any initial restraint on this count from any policy-maker. There is, on the contrary, no doubt that all the policy-makers at the time wanted a rapid rate of exploration, and therefore were happy to go ahead with exploration efforts at full speed. This aim was indirectly stated in a Norwegian Government White Paper in 1965/66 which said: "In order to achieve a rapid and thorough investigation of the Continental Shelf ... the Department of Industry has attempted to distribute the blocks ... in different geological structures."⁷⁹

We will now discuss whether this aim was in fact fulfilled. To ensure that an area is thoroughly explored, it is not enough to get companies to bid for acreage. A concession also has to ensure that concrete work is carried out by the companies once they have obtained access to a block. This was meant to be accomplished in four ways.

First, the cost of a reconnaissance-licence was negligible: Kr. 15,000/year. Secondly, the relinquishment stipulations would, according to the Norwegian state, induce faster exploration.⁸⁰ As was said by a civil servant in the Ministry of Industry, "No company will want to hand back unexplored territory."⁸¹ Thirdly, the Norwegian government argued that the progressive area costs, levied after six years,⁸² would induce a company either to continue to explore or to give up its acreage because there was an increasing cost of doing nothing. Finally, a thorough and rapid exploration would be ensured by work programmes which were regarded as the state's main policy instrument. The work programme therefore became an important part of the negotiations between the companies and the Norwegian state. Under such negotiations, even if both actors may want to find oil as rapidly as possible, a company may still only want to drill a well to a relatively shallow geological layer where it thinks that the chances of finding oil are the greatest. On the other hand, the nation-state, in order to get the fullest overall picture of a geological province, may want the same well drilled much deeper (and hence at a higher cost). Thus the object of negotiations is not only the number of wells to be drilled, but also the depth to which they are to be drilled.⁸³ We also know that one applicant withdrew because of the heavy financial undertakings in connection with the work programme.⁸⁴

As made clear in Chapter 2, negotiations about the work programme can be seen as a substitute for the bonus bidding practised under the 'auction' system of concessions. To the extent that there was real

bargaining about the work programme and that one company would try to get a block by 'outbidding' another applicant, this view may be right. However, there are few indications that the Norwegian government played one company against another in the nearly 50 meetings that took place between the Oil Council and the companies during the period between the submission of applications and the granting of licences.⁸⁵ Furthermore, subsequent descriptions of the negotiations only stated that changes in work programmes took place "to some extent",⁸⁶ thus at least modifying Trasti's original description which implied that there had been strong antagonisms and bargaining in this field (see Footnote 83 above).

The outcome of this bargaining was a work programme that the Norwegian government itself on a later occasion described as 'relatively moderate'.⁸⁷ It committed the companies to one well every second block (30 wells on 78 blocks).⁸⁸

The government also tried to follow a strategy described as 'site-owner strategic consideration',⁸⁹ according to which both promising and unpromising blocks were allocated together in the same announcement of block allocations. In theory, by coupling the blocks that are seen as being attractive to the companies together with blocks with a lesser geological potential, one can ensure that the latter ones as a minimum will be drilled. If they had been offered on their own, it is not certain that this would have been the case. The state can in this way 'force' a more balanced exploration of an oil province, which contrasts with the 'auction' or the 'Danish' system.

Did the work programme together with the other administrative measures achieve its aims? This question is doubly important if one argues that gaining knowledge of the Continental Shelf (as opposed to trying to maximize its share of oil-rent) was the principal aim of the Norwegian state during the first allocation round. The conclusion must be that to some extent it did, mainly as a result of the work programme. The importance of the other three policy instruments mentioned above to bring about a thorough exploration was less important. Given the size of the companies in question, the relative cost for the companies of sitting with unused acreage for speculative purposes in the medium run, was negligible. But on the other hand the possibility of a massive collusion between the major companies to keep the North Sea just 'ticking over' while they depleted their resources in the Middle East was to some extent prevented by this policy.

Finally, no matter how much the Norwegian state wanted a rapid exploration, the Norwegian Continental Shelf was nevertheless deemed relatively unimportant by the companies, compared with the UK sector. It was reported in November 1965 that most of the companies had to postpone drilling until 1967, largely because of the lack of suitable equipment, most of which was being used in the UK sector. The argument that Norway need not have granted the concessions so quickly is strengthened by examining the general long-run strength of the Norwegian bargaining position. Norway had perhaps more time at its disposal than was commonly thought.

4.6 SPINOFFS 1965

As noted in Chapter 1, the third aim pursued by the Norwegian state was to maximize the spinoff effects from oil. As late as 1972 one of the main architects of Norwegian oil policies regarded the spinoff effects as the main element in a successful oil policy.⁹¹

When the first concessions were granted in 1965, Norwegian industry was confronted with a completely new field of activity in which it had no experience whatsoever. At that time the potential offshore market totalled Kr. 600 mill. (the expected cost of the initial exploration work programme). The possible sectors where Norwegian industry could get a share were supply bases, drilling rigs, and supply ships, while it could not initially compete with regard to the supply of sophisticated drilling equipment like Christmas Trees and derricks. But even the willingness by Norwegian industry to capture the first part of the spinoff market was in doubt. As was later pointed out by the Director of Norges Industriforbund (the Norwegian CBI), there was at that time no guarantee of any finds, so why should Norwegian industry invest money in a sector that might disappear tomorrow?⁹² Such thinking, if widely held, did not rule out involvement in the exploration phase, but it certainly prevented industry from grasping the long-run possibilities that could spring from future production. This attitude was reinforced by the limited resources available to Norwegian industry. At that time there were also full order books for the Norwegian shipyards; an added incentive not to take too much notice of what was happening offshore. This interpretation is reasonable on the assumption that knowledge about the potential of production from the North Sea remained unknown to the Norwegian state, a point we have already argued. Only to the extent that

such knowledge was available, but was not transmitted to industry, can we say that state policy with regard to spinoff was a failure.

The Norwegian state from the start realized that the oil spinoff industry was an industrial sector where restrictive practices and monopolies played a role. This was most clearly put some years later when a government Minister argued that some regulations for the offshore industry were necessary on the grounds that the companies "use their traditional subcontractors because they do not have sufficient knowledge of the potential Norwegian suppliers".⁹³ Consequently a very mild encouragement for Norwegian industry was arrived at during the 1965 negotiations in the form of a "gentlemen's agreement" which was specified in the following terms:

"It is a precondition (for the granting of a licence - PN) that the licensee shall use bases in Norway, and use Norwegian industry and Norwegian manpower to the extent that these are competitive in price and time."⁹⁴

But this agreement was not at the time put in written form.

There is no doubt that there were stronger means by which Norwegian industry could have been favoured, and we shall see how the Norwegian state's support for the spinoff industries expressed itself more forcefully over time. But the Norwegian state claimed to be afraid of reprisals against its shipping industry if it implemented protective measures in the offshore industry. National preferential policies were already at that time making life difficult for the Norwegian ship-owners, and it was thought that Norway could not pursue a protective policy at home while demanding a non-protective policy abroad. This line of argument is a close copy of the UK arguments about how 'onerous' terms in the North Sea could damage BP and Shell worldwide, and the same arguments can be levelled against this Norwegian belief as was levelled against the UK arguments (see p.116). The fact that this argument had weight at all might tell more about the strength of the Norwegian ship-owning class and its ideological beliefs than adequately describe the world. After all, one of the main discriminators against Norwegian shipping was none other than the US!

But compared with the situation in the UK, even such a 'gentlemen's agreement' for the national spinoff industry was an advance. It has been argued (and it was certainly felt at the time) that UK industry did not need any protection. But even so, one criterion in the UK licensing conditions introduced by the Labour Government in 1965 could be

interpreted to favour UK offshore interests; namely the contribution which had been made by the applicant towards the national economy.⁹⁵ This could have helped to discriminate in favour of UK firms generally, and also put some pressure on foreign companies to buy their offshore equipment in the UK (which, however, did not seem to have happened). A similar condition was also echoed in the Norwegian explanation of the original terms:

"The department has taken account of whether the applicants by retailing outlets in Norway, in the use of Norwegian ships or in any other way has contributed towards or in the future will contribute towards the strengthening of the Norwegian economy in general."⁹⁶

In the Norwegian sector this rather timid move of state support for private industry does not seem initially to have had much effect. While Norwegian industry did not take advantage of this encouragement, part of the blame must also go to the state for not thinking about the next possible policy step if oil or gas was to be found. According to one critical observation at the time, no government White Papers during the two years after the first licences had been granted had discussed from a principled and macro- point of view such possible consequences for Norwegian industry.⁹⁷ This critic pointed out for example that if foreign companies were to take all the gas likely to be found, this could lead to a decreased competitive strength of the indigenous Norwegian chemical industry.

In only one industry was there an attempt to take advantage of the new situation. The Aker group (owned by ship-owner Fred Olsen) signed a contract to build a semi-submergible drilling rig, 'Ocean Viking', for ODECO. The construction was based on US drawings, but with major modifications. The rig was delivered on time in 1967 and became the second rig to operate in Norwegian waters. The construction also entailed cooperation with other shipyards in Scandinavia⁹⁸ and gave Aker important experience, but little profit.⁹⁹ Aker also ran the Norsco supply base near Stavanger, but that also without much pecuniary reward. But apart from the above isolated examples (and the almost inevitable national involvement in catering and helicopter services), Norwegian industry did not take much advantage of the new industry on its doorstep.

4.7 CONCLUSION: 1965 TERMS

It is possible to argue, on almost any criterion, that the Norwegian terms that were laid down in 1965 were weak. The only objective that was to some extent fulfilled was the wish for a thorough and rapid exploration of the Norwegian Continental Shelf. But given the companies' basic interest in the Shelf, and the geological promise of the Norwegian acreage, one can legitimately ask whether this aim would not have been fulfilled anyway. And even if this was not the case, this objective was fulfilled at the expense of almost all other objectives. We have seen that the state's maximization of oil-rent from hypothetical fields was made difficult mainly by the Norwegian state's almost total lack of information, and that the companies' expected IRR was indeed acceptable, especially in view of Norway's proximity to the Western markets and its stable political system. There were furthermore no long-run safeguards for a rent-maximization on behalf of the state, especially as renegotiation was ruled out as a policy instrument. And there were no agreements for transferring knowledge and expertise to the Norwegian state. The spinoff effects from oil were poor and there was no short-run or long-run coherent plan to maximize Norway's share of the rent by direct ownership in exploration. In the words of an American oil executive some years later: "The 1965 law was a hell of a good law."¹⁰⁰

To explain this situation one does not need to have recourse to any conspiracy theory. Oil was a completely new field for Norwegian policy-makers. And once Norway decided to explore its Continental Shelf, it had no choice, given the lack of any Norwegian state alternative, but to fall into line with the terms already offered (especially by the UK) to attract the companies. But the UK policy-makers made as many, if not more, mistakes as their Norwegian counterparts, which indirectly affected the Norwegian terms. What we will see happening from 1965 onwards is a concerted attempt by Norway to rectify the initial errors and miscalculations. It is the special role that the state played in this process that will be the centre of our analysis in the next chapters.

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CHAPTER 5

THE INITIAL SEARCH: 1966-1970

As suggested in Chapter 4, the companies must have been extremely pleased with the conditions of exploration offered to them during the first round of concessions. But they still had to find the oil.

ESSO was the first company to start drilling in the Norwegian sector using the semi-submergible rig 'Ocean Traveller', hired on a three-year charter from ODECO. It spudded the first well in July 1966. Indications of oil were found in the second test well in 11/25, 112 miles west of Stavanger, in 415 feet of water, but these were not in any commercial quantities. ESSO then sank five consecutive wells with no further traces of oil or gas. Phillips joined the search with a second submergible in July 1967, but AMOCO/NOCO had to abandon the use of a converted whaler as a drill ship, due to the difficult weather in the area. Phillips found a condensate field in 7/11 in their second attempt, the news of which was publicly known in July 1968. But when the third appraisal well turned out to be dry, Phillips declared the field uncommercial if exploited on its own. The prospect of oil production was however taken so seriously that the Norwegian state formed a commission to look into the problems of a possible pipeline to Norway from the field which was called 'Cod'.

While this was going on, safety rules in the form of a Royal Decree of 25 August 1967 were laid down by the Norwegians and a second round of concessions were offered to the companies in May 1969, following long negotiations. Three different systems of 'carried interest' were for the first time introduced. These have already been described in detail in Chapter 3. Only Shell was unaffected by any new agreements. The only new conditions imposed on the company was that it should train Norwegian civil servants. These agreements only related to new concessions, so there was no 'retroactive' legislation involved.

At the time these new policies were interpreted by the industry as being "more stringent"¹ than the 1965 ones. It is our task later to determine whether this was so.

Drilling then got under way both on the old and the new concessions and on 23 December 1969, in the 33rd well drilled on the Norwegian Continental Shelf, Phillips found the Ekofisk oil and gas field. A total of Kr. 750 mill.² had by then been invested in the search on the Norwegian Continental Shelf.

As pointed out in Chapter 2, the companies will, at least initially, try to conceal their real appreciation of a production area in order to maintain the best possible bargaining situation vis-à-vis the state. Part of this process was to continuously point out the difficulties encountered in the North Sea and generally to underestimate the chances of finding oil. This process was clearly expressed in the period leading up to the Ekofisk find. The professional oil press was particularly 'schizophrenic' in this respect. On one hand it tended to mirror the public relations stands of the companies. On the other it knew enough of the real situation at times to break through this facade and state that the outlook was by no means bleak. The OGI wrote in May 1969 that "The success ratio off Norway has been less than encouraging. Every prospective discoverer faces a difficult and costly production operation." And it seemed that this sentiment was echoed in the concrete actions of the industry as the number of rigs and wells drilled dropped during the winter and spring of 1969 and only picked up marginally following the handing out of new concessions in May of that year. At least sections of the Norwegian civil service seemed to share this sentiment of pessimism. One of the reasons put forward in justifying a new round of concessions in 1968/69 was that the companies were 'running out of steam'. It was even suggested that if one of the major companies withdrew it could become difficult to get the rest of the companies to fulfil their work programmes, so immediate would be the collapse of all confidence in the Norwegian acreage.³

But the shortfall in drilling activity, interpreted as a sign of decline in company interest, might not have signified any fundamental collapse in company expectations. Given the existence of a continuous shortage of drilling platforms, any reallocation to the UK sector could indicate nothing but a temporary shortfall in activity as all operators tried to fully explore the 50% of the acreage which they had to hand back to the UK state by 1970. After all, the interest shown by the ten groups⁴ that applied during the second round of concessions was a good enough indication that the Norwegian shelf in no way could be declared 'uninteresting'. This point is brought out most clearly by a statement made about the UK sector as the search for oil moved northwards into the same geological structures as the northern part of the Norwegian Shelf. Callow observed following a visit to Shell's headquarters in October 1969 after the COD-find, that "from the way the Shell officials spoke it was becoming a question of when, not whether, oil was there"⁵

("there" refers to the northern parts of the Continental Shelf). He also observed that:

"while the industry was only too happy to mount a massive public relations campaign in its battle for higher gas prices, a discreet, unified silence was maintained about oil prospects."⁶

This was hardly the attitude of an industry that had lost all interest in the North Sea. The extent to which the companies at the time knew the geological potential of the Norwegian Continental Shelf is clearly expressed in a historical overview which Noroil recently wrote about the Frigg field. According to them,

"A female geophysicist in Elf convinced the management to pursue a more detailed study of the Frigg area (when the second Norwegian licensing round was announced - PN) and the study indicated the presence of a large structure...⁷ Of primary interest to the geologists and geophysicists was a large 'beautiful' structure which today is the Frigg, Odin, N E Frigg, E Frigg and S E Frigg finds."⁸

It is part of the story that the Frigg field was found in April 1971, with the first wildcat spudded in the area.

Finally, there had been a remarkable success rate in the search for gas in the UK sector. The UK Minister of Power, Mr R. Marsh, in the beginning of 1967 said: "Exploration ... over the past two years has been so remarkably successful as to invite an attitude of overoptimism."⁹ At that time 24 wildcats had been drilled with 5 or possibly 6 commercial finds. This ratio one year later declined to approximately one commercial find in ten,¹⁰ still way above the average world-wide ratio.

Superimposed on this strong geological interest in the North Sea there was also a more intensified general interest shown by the companies, which was due to the changing international circumstances. According to World Oil of July 1968, the massive move to offshore activities took place because:

"Major producing nations' political instability and demands for a larger share of the production dollar makes it more attractive to search for reserves in secure areas even at higher costs."¹¹

It is in order to understand this aspect of the situation in the North Sea that we have to examine the global situation of the companies in this period.

This will make clear why the companies were very far from losing an overall interest in the Norwegian acreage. While the Norwegian state, despite the first changing of terms in 1969, was still taking a relatively pessimistic expectation of the future, this sentiment was, on a closer reading of the situation, not shared by the industry whatever their 'public relations' statements suggested. Two months after the letter from the Oil Council to the Department of Industry (p.143 above), the OGI headed its North Sea Report "Big offshore hunt scatters to Holland and Norway..."¹² One year later the same journal observed in response to the assertion that activities in the North Sea were on the decline: "The extent of this offshore operation still continues to stir the imagination."¹³

5.1 THE INTERNATIONAL CONTEXT

As predicted in Chapter 2, following a first find of oil the Norwegians now felt themselves in a position to tighten the terms they offered the companies.¹⁴ But what form this tightening was to take remained undecided. The Norwegian policy-makers could choose between five approaches, all of which had at one time or another been practised by other oil-producers. These were: increase in taxation; joint ventures with or without the active participation of a state oil corporation; net-profit deals; service contracts; and finally production-sharing agreements. All these ways to increase the power of a producer-state, with the exception of the production-sharing, had been used in the oil industry in the period to 1965. Their increased use among producer-states in the period 1965-69 strengthened the resolve of any Norwegian policy-maker who might have wanted to follow their example. What we witnessed in this period was therefore not any qualitatively new developments on an international scale, but rather an intensification of an existing trend in concession patterns.

In 1967 a joint-venture agreement was signed between The Kuwait National Oil Company (60% owned by the Kuwaiti state, the rest by Kuwaiti nationals) and the Spanish company Hispanoil (a combination of Spanish state and private interests), where the national oil company for the first time had 51 per cent of the shares of the joint undertaking. All risk was carried by the Spanish company until a commercial find was made. Hispanoil was, in addition, forced to pay

all the normal Kuwaiti income taxes. Joint venture agreements were also signed between Saudi Arabia and ENI in 1967 giving the state oil corporation Petromin the right of a 30% participation in an integrated firm. State participation was negotiated in 1968 between the Libyan state oil corporation LIPETCO and the French state company Auxirap; the same year as an agreement was reached between Abu Dhabi and the Japanese Mitsubishi company. We can see that the principle of state participation was spreading rapidly, even if the only agreement negotiated with any of the majors remained the Kuwait/Shell agreement of 1961. (We disregard the very special Iranian situation in the wake of the 1954 'nationalization'.)

The concept of service contracts was also spreading. Venezuela offered the exploitation of areas south of the Lake of Maracaibo in 1968 on the basis of such arrangements. It received offers from, among others, the majors, but finally rejected them all as being unsatisfactory and asked for new bids. The important element in this development was, in the words of one observer, how this might be "the first sign that the major international companies operating in Venezuela accept a development where service contracts can become an important element in a country's oil policies".¹⁵

Iran entered into service contracts with the French state company ERAP in 1966 under conditions where the French company was guaranteed between 17.5% and 22.5% of total output (a figure considerably lower than in most joint venture agreements), to a price that was equivalent to production costs plus what would in normal concessions have been paid per barrel in taxes. Iraq followed in 1968 with an agreement with ERAP which was closely modelled on the Iranian agreement of 1966, even if the Iraqi situation was very different from that in other oil-producing states. But the principle of service contracts was everywhere fought by the majors, with the possible exception of Venezuela.

The only new policy alternative which had emerged in the period 1965-69 was 'product-sharing' contracts. This kind of agreement was pioneered by Indonesia, which at the same time continued to sign more traditional agreements like service contracts. On one interpretation the product-sharing agreements were nothing but service contracts where the foreign company got a certain percentage of the oil to cover its costs (40% in the Indonesian case) plus some more as profit on the venture. (In Indonesia a 65/35 division in favour of Pertamina of the profits earned from the remaining 60 per cent was agreed to.) In the

Indonesian case there were also several stipulations which further weakened the 'bite' of the original service contract, and therefore made them more acceptable to the majors.¹⁶

Neither net profit agreements nor a simple increase in taxes, royalties or bonuses had been much utilized by the producer-states during the 1965-69 period in their bid to increase their share of the oil-rent. This was perhaps not surprising, given the mood of the producer-states at this period. In June 1968 the OPEC conference recommended to its members that "On the grounds of changing circumstances ... for those who have still not done so, to take up participation". There were no immediate consequences of the OPEC resolution cited above, especially as the majors were still unwilling to compromise on the question of participation. But the question of new forms of agreement had for the first time been seriously put on the agenda, something the Norwegians fully appreciated.

Partly as a consequence of this development, the companies also felt themselves to be under increasing long-term pressure in their traditional producing areas. A more militant stand by the new government of Libya headed by Ghadaffi and by Algeria also contributed to a new sense of instability in the industry. And even if the failure of OPEC to act decisively about the participation question and the collapse of the 1967 oil embargo which followed the 1967 Arab-Israeli war was seen to be an indication of the powerlessness of the producer-states, few people in the oil industry took this to be a permanent state of affairs. For the companies it was becoming more and more a question of when the old concession system was to change, not if. The only surprise, when it finally came, was how fast the change did come about. This feeling of impending change, coupled with projections of a continued increase in the world's energy demands, made the companies more eager than ever to gain access to the North Sea.

Events closer to home also influenced Norwegian policy-makers, but this time in a somewhat more ambiguous fashion. The fact that the companies did indeed pull out of the German sector after 11 dry holes and no commercial finds of oil or gas made it clear that the companies' statements that there were limits to their patience, had some validity. This was a pertinent point for Norway, which still had to rely on statements by the companies regarding the interpretation of geological data in order to get a full view of the situation. The situation did not improve until 4 geologists were hired to work full time for the Ministry of Industry in the middle of 1969.¹⁷ The early attempts by

the Dutch state to obtain state participation and a larger slice of the total oil rent likewise had met with determined opposition by the companies, which rejected the Dutch terms on 8 August 1966. The proposed Dutch terms were stringent by the standards of that time. For example the government wanted a veto power over all actions by the proposed joint ventures, no matter what the size of state participation, and also sought to implement the most stringent fiscal take of all the states in the North Sea.¹⁸ These terms were never implemented, despite the obvious attraction of the Dutch offshore acreage, which was close to Groningen and close to the major markets. When the terms were changed following the inauguration of a new government in 1967, there was an immediate rush onto the Dutch Continental Shelf.

But even in the North Sea area there were successful precedents for any Norwegian policy-maker who wanted to tighten the terms offered to the companies. Sweden, in 1969, gave all the rights for exploration and production of oil to AB Oljeprospekting, a company half made up of state-owned companies and half of private interests (including the oil company OK owned by the Cooperative Movement). The aim was clearly to keep any future oil production in Swedish hands and to keep foreign risk capital out of this sector of the economy. However, it was envisaged that foreign companies would be used as contractors.¹⁹

And in the UK a similar critical attitude towards the international companies expressed itself in the form of the suggested creation of a National Hydrocarbon Corporation (NHC), a kind of British state oil corporation. This suggestion appeared at the same time as the controversy over pricing of the North Sea natural gas, which was set by the state more in line with a 'cost-price' instead of 'market-price' (as the companies pressed for).²⁰ The suggested creation of NHC was in response to a call by the National Union of Miners at the Labour Party's Annual Conference in 1966 for a report on the "advisability of public ownership of all operations concerning the production of natural gas and oil in Britain or on the British Continental Shelf".²¹ The final report from the Labour Party study group (which included Peter Odell) did not recommend any nationalization of oil, but saw in the end the NHC as a supplement to the private companies very much along the lines of ENI and ERAP. It was to play a direct role in both production and distribution of oil and gas as well as owning pipelines. That the whole project in the end was scrapped by the Labour government of the day²² is largely irrelevant for our argument. We merely want to point to the abundance of cases which potentially represented a break with the traditional structure of

the industry and which could consequently have served as an example for the architects of the second stage of Norwegian oil policies. It was after all one of the major virtues of the initial period of the operation of the Norwegian Oil Council that they travelled extensively in order to absorb new ideas about the organisation of the oil industry.

5.2 DIVISION OF RENT

We will now evaluate the second Norwegian round of concessions in the light of its potential effect on the division of oil-rent between the state and the companies. To do this we must determine the value of the cost and revenue variables as they were expected to be in 1969.

5.2.1 Exploration costs

We maintain our cost assumptions from 1965 about the costs of exploration and production wells. Even if the initial easy optimism about year-round operations in the North Sea had been rudely shattered, new drilling techniques like turbo-drilling had also made drilling in the North Sea easier.²³ Further, technical progress was also expected to take place. According to PPS, summing up the situation after the World Petroleum Congress in 1967:

"In so many areas, offshore work is only beginning, and the next few years are likely to see a great development in work on the shelves, both in geographical spread and in the techniques of operation."²⁴

Shell, in an internal management brief of November 1968,²⁵ assumed that the average cost of a production well offshore was less than \$1 each (\$11.5 mill. for 2 delineation wells and 12 production wells). This yields a cost per exploration well of less than \$2 mill. if we as before assume that the cost of each delineation and exploration well is the double of a production well.

Each step-out well on the Ekofisk field was assumed to cost £0.5 mill. in 1970,²⁶ a figure which is roughly in line with a British Labour Party study of 1968 which assumed a cost per exploration well of £1 mill. (\$2.4 mill.).

Given that Cod had been found before the 1969 allocation, it was clear that the Norwegian sector contained oil. In order to take account

of this new situation, which meant that the chance of finding oil in the North Sea had increased, we have lowered the average success rate for the new acreage in the Norwegian sector to 1:12. The final figure is somewhat arbitrarily chosen, but must also be seen in relation to the phenomenal success that the companies had had in the UK sector of the North Sea; the general optimistic geological assessment by the companies in the Norwegian sector; as well as the standard practice of assuming that in any area the success rate at least initially will tend increase as more knowledge about the oil province is acquired.

5.2.2 Development costs

Based on what was said above, the average cost of a delineation well is still assumed to be \$2 mill. The best basis for a computation of the expected platform cost is a Shell study of 1968. This is the first available study this author found which related specifically to the North Sea. A fixed platform constructed for between 300 and 400 feet of water, but excluding installation, would, according to this internal study, cost \$7 mill.²⁸ Using the cost distribution assumed in Chapter 2, total expected costs for a fully operative platform for a 100m. barrell field with 18 production wells in the North Sea comes to \$44 mill., when reserves are included

3 delineation wells @ \$2m.	=	\$6m.
Platform costs	= \$7m.)	
Installation	= \$3.5m.)	= \$14.1m.
Equipment	= \$2.5m.)	
Miscellaneous	= \$1.1m.)	
18 production wells @ \$1m.	=	\$18m.
		<hr/>
		\$38.1m.
Land facilities (7%)		1.7m.
<u>Reserve to cover administration,</u> land purchase, financing costs		\$4m.
		<hr/>
		\$44m.
		<hr/>

The last element to fully determine total development costs is the cost of a pipeline. It was in this field that the most dramatic (indeed the only) major change in expected cost conditions compared with 1965 was to take place. The laying of a 30-inch natural gas pipeline from the Leman field in the southern sector of the North Sea in the end cost \$600,000/mile, almost three times as much as expected.²⁹

But this could be said to have been an exceptional figure. As the Shell study stated, "the costs were greatly influenced by hold-ups due to bad weather,"³⁰ so the actual realistic planning figure was probably considerably less. We have chosen as an average figure a total pipeline cost of \$400,000/mile, a figure which is well supported by Wenger who estimated costs to be between \$280,000 and \$560,000/mile,³¹ depending upon the diameter of the line. The assessment is also in line with the estimates given in 1968/69 about the cost of a pipeline from Cod of the order of \$450,000/mile.³² The expected average pipeline costs in 1969 therefore totalled \$80 million (200 miles @ \$400,000/mile), and total development costs for the 100m. field would have been \$124 million.

5.2.3 Operating costs

There were no indications that the average expected operating costs in 1969 compared with 1965 would have increased in any dramatic way. We have therefore conservatively assumed an increase in line with general inflation to 55 ¢/bbl.

5.2.4 Price

The price of a barrell of crude delivered in the UK in 1969 was around \$2.80.³³

5.2.5 Expected trends

The price situation in the oil market continuously improved for the companies from 1965 onwards. The assessment of a falling real price of oil made in 1965 was clearly turning out to be too pessimistic, as the growth in the world's demand towards the 1970s for the first time threatened to outstrip the growth in the supply. Some even expected an acceleration of this trend, the most notable being an internal Shell study which already in the late 1960s predicted a dramatic increase in the price of oil, but not until the 1980s.³⁴ But it is clear that the majority of the companies and the Norwegian state took a relatively sanguine attitude to what was happening, and that very few expected any dramatic change in the oil price. We have therefore assumed that the real price of oil would increase by 1% p.a. With a continuous world

inflation at an average rate of around 3%, a figure we will also use as our cost escalation factor, this meant an expected increase in price of around 4%.

5.2.6 Participation

We have in Chapter 2 outlined the important variables that determine the effects of the three participation scenarios negotiated in 1969. What remains to be done is to give a numerical value to these variables.

(i) In participation scenario 2, where the company covers both the exploration and investment costs of the state, these were to be repaid at whatever the Eurodollar market medium-term interest rate happened to be in any one year,³⁵ which we have set to 10%.³⁶ The Frigg field was developed on the basis of this agreement, and we will use the 5% participation rate of that arrangement in our example.

(ii) We have assumed that the same interest rate was used in the state's agreements negotiated under scenario 3, where the companies only carry the exploration costs. The exact interest rate for the state's repayment has never been made public for these agreements, but information received from Norwegian civil servants makes us believe that this approximation is reasonable. (We will in due course show that even a major miscalculation on this count would have had very little effect for the division of rent.) As participation rate for scenario 3 agreements, we have chosen the final rate of 40% for the 036 agreement which was the basis for the Heimdal find.³⁷

(iii) In scenario 4 we assume an average participation rate of 17.5% which corresponds to the rate in the 027 and 030 agreements between ESSO and the Norwegian state.

We now have to establish the percentage of finds attributable to one block, data which is relevant for the participation scenarios 2 and 3. The companies will drill a number of blocks where no commercial deposit will be found. We have assumed that only one-fourth of total exploration expenditure can be attributed to a block where a commercial find is expected. The state will therefore only pay its participation share of the total exploration costs attributed to the successful block.

This follows from our expected 1:12 success rate and the assumption that on average three holes will be drilled in each block (the compulsory work programme of 1969 specified a minimum of one well per block). Hence on average 4 blocks would be drilled before a commercial

find was made, and 25% of total exploration costs can be attributable to the successful block. Note that we assume that there are possibly more than one structure to drill on each block so that the two first exploration wells in a block can be dry, while a third can still yield a commercial find.

5.2.7 Other assumptions

In line with the weakening profitability of the companies and the increasing costs of finding new deposits of oil outside the Middle East, we have assumed a further drop to 80% in the level of self-financing compared with 1965 for the companies. All other assumptions are unchanged from 1965. A summary of all assumptions is found below.

Assumptions 1969

Price \$/bbl		2.80
Price escalation %		4
Total exploration cost (\$m.)		24
Development costs (\$m.)		
Fields in mill./bbls	100	124
	200	168
	300	212
	400	256
	700	388
Operating costs (\$/bbl)		0.55
Cost escalation (%)		3
Percentage debt		
Company:		20
Statoil:		0
Rate of interest		9
Years grace		1
Years spread		5
Discount rate		10

PARTICIPATION SCHEME:	(Percentage state share)
Scenario 2 - Repay exploration costs later	40
Scenario 3 - Repay exploration and development costs later	5
Scenario 4 - Net profits	17.5
Rate of interest for cost repayment in scenarios 2 and 3	10

Tax: In 1969 important changes were announced in the Norwegian tax system. The general state tax for corporations was to be reduced from 30% to 26.5%, giving a total effective tax rate for the oil companies of 41.5%. This decrease was widely anticipated in political circles and there is every reason to assume that the oil companies and the Department of Industry firmly assumed in their spring 1969 negotiations that such a policy would be in operation, even if the new rates were not to be made effective until the financial year starting in January 1970. In the 1969 negotiations we have therefore assumed an effective tax rate of 41.5%.

In 1969 it was also decided that distributed dividends should be made deductible.³⁸ But because of the special organizational nature of the great majority of oil companies on the Norwegian Shelf, it was in 1969 very unclear whether these would be able to deduct the distributed dividend in the way stipulated by the law. Because of this uncertainty, which was not sorted out until 1971, we have decided to ignore for the 1969 round of allocations this ability of the companies to deduct distributed dividends.³⁹

5.2.8 Results: IRR and the state's share of rent

Plugging the 1969 cost and revenue assumptions into our model, Table 1 shows that the expected present value of any find in the North Sea had increased by 1969 compared with 1965. The main reason for this increase was the decrease in the expected exploration costs and the increase in the price of oil, which more than compensated for the shown cost increases. The Norwegian state's way of reacting to this situation was to increase the 'toughness' of its terms. But this increased 'toughness' took the form of a demand for participation instead of pressing for higher taxes. As a matter of fact the effective rate of taxation had fallen for reasons totally unrelated to the oil industry, a development it took the Norwegians' oil policy some time to 'catch up' with.

The three different participation scenarios agreed on in 1969 had some influence on the expected IRR of a project, but, as we shall see, they meant much more for the overall division of rent. Analysing each participation scheme in turn we note that:

(i) Scenario 4

The net profit agreement made the average IRR for the companies decrease by an average of 0.9%. (Deduct the final post-tax IRR in Table 5.2 from what the IRR would have been without any participation, i.e. the post-tax IRR figure in Table 5.1). While this was not the most favourable participation scenario from the companies' financial point of view, it was nevertheless the scenario which ESSO was happiest to accept in 1969. This may indicate that it was not the financial aspect of the participation schemes which was the main worry for ESSO at the time, but rather that of 'control'. Scenario 4 is the closest one can get to a complete 'sleeping' state participation, and any company which at that time put an important value on the long-run maintenance of total operational independence would have tended to favour such a participation scheme even if this meant a slightly higher financial loss compared with other scenarios.

One significant feature of this kind of participation agreement is its complete absence of risk for the state. In effect the participation is very much like an additional taxation. But possibly as a consequence of this the 'effective' rate of participation for the state was small. This can be seen from an analysis of the 'hidden' rate of participation (Table 5.6), defined as the difference between the state's share of the PV from participation and the percentage participation rate. (A 40% rate of participation which yields 44% of the PV to the state will have a $\frac{4}{40} \times 100\% = 10\%$ 'hidden' participation). In this case the state had a participation rate of 17.5%, but Statoil only took around 11% of the pre-tax present value of the field, giving a negative 'hidden participation'.

Because Statoil does not pay out any money (and hence only has positive cashflow), it is meaningless to compute Statoil's IRR in this scenario. But the value of this kind of participation can nevertheless be measured. The additional potential net present value accruing to Statoil as a result of such a participation agreement would have differed between \$6.4 mill. for a 200m. field and \$27.7 mill. for a 700m. discovery (Table 5.3).

(ii) Scenario 3

For both Scenarios 2 and 3 we would on a priori ground expect little difference between the 'participation' and 'no participation'

IRRs of the company, given our special assumptions that the rate of discount equalled the rate at which the state's debts to the company should be repaid. The small difference would then originate from the different debt structures and from the fact that exploration costs are not discounted, so that the state's share is computed out of the simple sum of total exploration costs, leaving the companies at a small financial disadvantage. Scenario 3, with its small 5% participation rate, was for the above reason seen as almost costless to the company. On average the IRR would only decrease by 0.3% as a result of the implementation of this scenario.

But in the event of a significant increase in this participation rate, the difficulties for the companies of raising finance could have become a problem. Furthermore, it should be borne in mind that this kind of participation was also without any risk for the state, which did not have to commit a single penny to the project. This may explain why the participation rate agreed for this type of participation was the lowest (5%) of all the different participation agreements entered into at the time. But because of the minor effect this participation scenario would have had on the NPV of a firm (representing a difference of no more than \$3 mill. for a smaller and \$10 mill. for a larger field compared with a 'no participation' case), it is almost impossible to argue that it could ever inhibit the development of a field.

This kind of agreement would give the state control over between 66.4% and 80.6% of the present value of a field (Table 5.4), which is on average only 3 percentage points higher than what the situation would have been without participation. It can therefore be concluded that this participation scheme is not particularly significant as a revenue collector for the state. But the Norwegian state was not necessarily only interested in revenue at the time. This participation agreement (in contrast to scenario 4) gave the state access to valuable information by its participation in the operating committees. This was a positive result from the state's point of view, on the reasonable assumption that access to information is not a free good.

(iii) Scenario 2

In this scenario the 1.2% average difference between the pre- and post-participation IRR, while still modest, was the most important of the three scenarios. But as the importance of exploration costs to total costs decrease as field size increases, the difference between the pre-

and post-participation IRRs tends, as would be expected, to decrease (as does the degree of 'hidden participation'). At worst the private firm will have its IRR decreased by 1.7% as a result of the participation. And the more successful the exploration efforts (and the smaller the total exploration costs), the less the decrease of IRR to the company.

Concentrating on the percentage of present value accruing to the state by participation, this percentage will for both scenarios 2 and 3 depend upon the interest rate at which the state repays its debts to the company. As long as this rate is less than the discount rate, the 'effective' participation rate will be greater than the 'agreed' rate. This will also be the case because the state does not repay its full share of total exploration costs necessary to find a commercial field. But it should be made clear that, while these variables are important from a theoretical point of view, they are less important in practice. A change in the rate at which Statoil's debts are repaid to the companies from 10% to 5% will increase the PV going to Statoil from the 700m. field (scenario 2) by a mere \$0.2 mill. (\$59.6 mill. to \$59.8 mill.). For the same field in scenario 3, however, the influence is somewhat larger; an increase in NPV from \$9.9 mill. to \$11.6 mill. (or around 16%). This is easily explainable due to the larger sums involved in scenario 3. Similarly, if the percentage of total finds attributable to one block changes to 50%, Statoil's NPV in the same blocks as above decreases as expected by \$1.3 mill. (from \$59.6 mill. to \$58.3 mill.) and \$0.2 mill. (from \$9.9 mill. to \$9.7 mill.) respectively.

In this scenario Statoil captures a maximum of 47% of the PV for the smaller fields decreasing to 42% for the 700m. barrel field. When total state take is considered, including income from Statoil, the state would have captured up to 93% of the smallest commercially viable field. This share would have increased to 79.8% for the 700m. field (Table 5.4), 17.8% of which is due to the state's equity-share. The trend which was later to become so pronounced in the form of Statoil's increased role as a capitalist collector of rent therefore was starting to assert itself. The NPV (i.e. discounted profit from equity) accruing to Statoil reached between \$13.3 mill. and \$59.6 mill. (or between \$93.7 mill. and \$497.7 mill. in undiscounted terms). Since Statoil was now also investing money (the development costs), it became meaningful to state that the post-tax IRR for Statoil was between 15% and 16% depending upon the size of the find. Indeed an investment worth making for the state!

RESULTS 1969TABLE 5.1 PROJECT APPRAISAL FOR EACH FIELD AS A WHOLE*

	<u>Field:</u>	100M	200M	300M	400M	700M
Pre-tax IRR (%)		13.8	21.9	21.8	21.3	22
Present Value (\$m)		17.8	96.8	147.9	197.9	386.3
Post-tax IRR (%)		6.3	13.2	14.2	14.5	15.7
Net Present Value (\$m)		-15.6	21.3	42.2	62.3	138.9

* No state participation assumed. Because of the different debt-structure of Statoil, participation may marginally affect the PV of a field.

TABLE 5.2 PROJECT APPRAISAL AS SEEN BY THE COMPANY⁺⁺Participation

<u>scheme</u>	<u>Criteria</u>	<u>Field:</u>	100M	200M	300M	400M	700M
No.2	Pre-tax IRR (%)		11.3	19.5	20	20	21.2
	Post-tax IRR (%)		4.7	11.5	13	13.6	15.1
	Net Present Value (\$m)		-15.4	7.1	19.6	31.7	78.9
No.3	Pre-tax IRR (%)		13.5	21.5	21.4	21	21.7
	Post-tax IRR (%)		6	12.8	13.9	14.2	15.4
	Net Present Value (\$m)		-16.4	18.7	38.3	57.1	129.9
No.4	Pre-tax IRR (%)		13.3	21.2	21	21	21.2
	Post-tax IRR (%)		5.5	12.2	13.3	13.6	14.7
	Net Present Value (\$m)		-18.2	14.5	31.1	47.2	110.5

⁺⁺ Participation assumed to be in force.

TABLE 5.3 STATOIL'S POSITION^{***}Participation

<u>scheme</u>	<u>Criteria</u>	<u>Field:</u>	100M	200M	300M	400M	700M
No.2	Pre-tax IRR (%)		*	25.7	24	22.8	22.6
	Post-tax IRR (%)		*	15.5	15.7	15.5	16.1
	Net Present Value (\$m)		*	13.3	21.3	29.1	59.6
No.3	Net Present Value (\$m)		*	2.6	3.9	5.1	9.9
No.4	Net Present Value (\$m)		*	6.4	10.4	14.2	27.7

^{***} Internal rates of return cannot be assessed for the scenarios numbered 3 and 4, because the flow to Statoil will always be positive. (Strictly, post-tax IRRs can be computed since Statoil will pay taxes in the year after the field has been closed down, but here little meaning can be attached to them.) Consequently the IRRs will be infinite, and as such their use in project appraisal is partly lost.

TABLE 5.4 TOTAL STATE TAKE FROM BOTH EQUITY AND TAXES (discounted)
(in % of PV of field)

	<u>Field:</u>	100M	200M	300M	400M	700M
as if no participation		97	78	71,5	68.6	63.8
Scenario No.2	*		92,7	86.7	84	79.8
Scenario No.3	*		80.6	74.1	71.1	66.4
Scenario No.4	*		85.7	78.9	76.1	71.4

TABLE 5.5 THE IMPORTANCE OF PARTICIPATION:

Statoil's NPV (income from equity) as a percentage of total discounted state income from a field,

	<u>Field:</u>	100M	200M	300M	400M	700M
Scenario No.2	*		14.8	16.7	17.5	19.4
Scenario No.3	*		3.3	3.5	3.6	3.8
Scenario No.4	*		7.8	8.9	9.4	10

TABLE 5.6 THE PROPORTION OF THE PRESENT VALUE ACCRUING TO STATOIL (%)

Statoil's pre-tax present value as a percentage of the total pre-tax present value of a project. 'Disguised' refers to the difference between this percentage figure and the official participation rate as a percentage of the latter,

	<u>Field:</u>	100M	200M	300M	400M	700M
Scenario No.2						
Statoil's proportion of PV	*		46.8	44.5	53.3	41.7
(representing disguised amount of)	*		(17)	(11)	(8)	(4)
Scenario No.3						
Statoil's proportion	*		5.8	5.5	5.4	5.2
(disguised)	*		(16)	(10)	(8)	(4)
Scenario No.4						
Statoil's proportion	*		10.7	11.3	11.5	11.6
(disguised)	*		(-39)	(-35)	(-34)	(-34)

TABLE 5.7 TRADITIONAL MEASURE OF STATE PERFORMANCE (discounted)⁺

	<u>Field:</u>	100M	200M	300M	400M	700M
Scenario No.2	*	86.3	76.1	71.8	65.3	
Scenario No.3	*	79.5	72.6	69.5	64.5	
Scenario No.4	*	83.2	76.3	73.0	67.7	

TABLE 5.8 STATE'S SHARE OF RENT FROM ALL SOURCES (undiscounted)⁺⁺

	<u>Field:</u>	100M	200M	300M	400M	700M
Scenario No.2	*	72.6	71.6	71.0	70.4	
Scenario No.3	*	54.6	53.6	53.0	52.4	
Scenario No.4	*	57.8	57.0	56.4	55.8	

TABLE 5.9 TRADITIONAL 'TAKE' (undiscounted)⁺⁺⁺

	<u>Field:</u>	100M	200M	300M	400M	700M
Scenario No.2	*	52.7	51.6	50.9	50.3	
Scenario No.3	*	52.4	51.4	50.8	50.2	
Scenario No.4	*	53.6	52.6	51.8	51.2	

⁺ State discounted income from taxes from the private company as a percentage of the PV of the company's share of the field.

⁺⁺ Statoil's net cash-flow + undiscounted taxes from company share as a percentage of the net cash-flow of field as a whole (with debt).

⁺⁺⁺ Taxes from the company's share as a percentage of the net cash-flow of the companies' share.

* Uncommercial as IRR < discount rate

Table 5.4 shows that the scenario with the highest participation rate not surprisingly gives the state the highest control over the PV from a field, which in the case of scenario 2 reaches 92.7% for the 200m. field. This is almost 15 percentage points higher than what it would have been if no participation had been in force. This decreases to no more than a 2.6 percentage point difference for scenario 3 (200m. field).

We could be tempted to compare the three scenarios at the same participation rate, but should exercise some caution in uncritically using such a procedure to measure the 'effectiveness' of the different scenarios. The three scenarios have different participation rates exactly because their effects differ from one another.

We have so far disregarded Shell's 1969 agreement which did not involve any kind of state participation. Their IRR would have fluctuated between 6.3% and a very acceptable 15.7% (Table 5.1). By focussing on this, we can at the same time say something about how sensitive the results are to changes in our exogenous variables. Following the procedure from 1965, we see from the results outlined in Appendix F, that a drop in development costs by 30% would increase the expected post-tax IRR for a 700m. field (scenario 3) to 19.9% compared with the 'no participation' outcome of 15.7%. More modestly, a drop in operating costs to 39¢/bbl in the same circumstances would increase the expected IRR to 15.9%.

Again it seems that only a slightly more optimistic view of the future of the North Sea would have made a significant difference to the companies' investment decisions. And if we should take the Shell price study referred to above more seriously we see that a 2% increase in the real expected price of oil would have meant an increase in the IRR to 19.1% for a 700m. field. Compared with the steadily dropping profitability which the industry experienced through the late 1960s both the original and these returns would have been very acceptable indeed.

5.3 THE STATE'S INVOLVEMENT IN OIL PRODUCTION

We have in Chapter 4 examined why no exclusive state solution was chosen in 1965. We will now analyse in more detail why the Norwegian state in the period 1965-1969 continued its passive policy with respect to productive state involvement in the oil industry. While participation agreements had been negotiated in the second

round of concessions, still no state oil corporation existed, so the different participation scenarios remained virtual 'empty shells'. The government's attitude was on this point clearly influenced by the attitude of the only body with any knowledge of Norwegian oil matters, Oljerådet (The Oil Council), which in 1968 wrote the following to the government: "At the moment the Oil Council will not recommend state involvement in exploration."⁴⁰

The main argument put forward by the state against any direct state involvement in the oil industry was the alleged risk involved. This was a clear continuation of the argument used in 1965. In a letter to the Department of Industry on 27 February 1968 the Oil Council argued that:

"the part of the Continental Shelf under Norwegian jurisdiction is so extensive and so scantily explored that such an undertaking (direct state involvement - PN) from the state would be extremely (sterkt) hazardous."⁴¹

The risk would also increase, it was argued, because the Norwegian state would not be able to spread the risks of exploration world-wide over a number of fields in the same way as the majors would be able to do.

A further reason had to do with the government's unwillingness to spend any public money on 'risky' North Sea ventures. And once this is made an absolute starting point, then it follows almost automatically that state involvement in drilling (which includes a risk element) gets excluded. It is interesting to note that in all later state involvement on the Norwegian Continental Shelf the state has attempted to uphold the principle of letting the companies, and not the state, bear the exploration risk. (It was only with the advent of Statoil drilling on its own account in 1976 that this principle was abandoned.) While risk of course was present in the North Sea, we have argued that during this period it was exaggerated and anyway decreasing. This tended to weaken (but not totally remove) the state's rationale for its policy.⁴²

One largely unknown episode during the negotiations in connection with the second round of concessions clearly brings out the state's reluctance to take risks. Rinde Oil Corporation, an independent Californian oil company, was one of the ten applicants for blocks in the second round of concessions. Three of these were later withdrawn and one rejected as disagreements arose over the question of work programmes and other conditions of exploration.⁴³ The rejected application was that of Rinde Oil Corporation, as Wenger makes clear.⁴⁴ But,

according to Wenger, Rinde Corporation also offered the Norwegian state 50% participation in its concession. The reason this proposition was rejected must have been very important for the Norwegian state, because the Norwegians were at the time generally trying to press for state participation. The most likely reason then for a refusal was the Norwegian state's wish to stick with major companies in the exploration of the North Sea.⁴⁵ This was also consistent with the Norwegian unwillingness to implement an auction system of block allocation in the North Sea. For the state it was a question of picking the company which, because of its expertise in offshore drilling, would expose the state to a minimum amount of risk with respect to accidents and ensure a thorough exploration. A small company like Rinde presumably offered better conditions in order to compensate for this weakness, but for the Norwegian state the preference for risk-avoidance was paramount. Hence Rinde's application was rejected, despite the offer of a higher participation rate.⁴⁶

The second reason why the Norwegian state initially declined to participate directly in drilling was due to the capital needed for such an undertaking. St.meld. no.11 stated: "The necessary investments surpass the possibility of the Norwegians",⁴⁷ while the Oil Council argued that what the state "would have to invest by necessity would have to be so enormous that they would burst the (rammer) limits for a Norwegian state budget".⁴⁸

But as it turned out the total yearly exploration expenditure of Kr. 145 mill.⁴⁹ on the Norwegian Shelf constituted no more than 0.6% of the total 1968 state budget. It is only if we take the Oil Council's argument to include production expenditure (which it does not explicitly do) that the argument becomes marginally more convincing. But the Norwegian state's access to overseas credit to finance such projects was much better in 1969 than it had been in 1965. Because the Eurodollar market had recently been created and Europe was awash with US dollars looking for placement, it seems that the Oil Council's argument presented above was unconvincing, if not downright inaccurate.

The third reason given by the Norwegian state for not involving itself directly in the production process was related to wider questions of foreign policy and the ability of the major companies to respond to Norwegian initiatives in a way that might harm Norwegian interests. According to the Oil Council, direct state involvement was to be avoided because of "problems of sale and distribution, problems of foreign policy like regard to our tanker fleet etc."⁵⁰ Again, while we recog-

nize that this was perceived by the policy-makers to be a major problem, we must also analyse the extent to which this was objectively the case. Judging by former experiences of countries which had attempted to defy the majors, there was until 1968 (when the observation was made) a disturbingly high failure rate. In 1968 60% of the Norwegian tanker fleet was on time-charter to the majors.⁵¹ While it was unlikely that the companies would have broken existing charters with Norwegian ship-owners, the possibility that they would not take on new ones, either on long-run contracts, or in the spot-market, could not be discounted by any Norwegian policy-maker. And given the extent to which the Norwegian economy as a whole depended upon the invisible earnings from shipping to cover its balance of trade deficit, this potential pressure constituted a formidable threat to the stability of the Norwegian economy.⁵² This question also has to be seen within the context of Norway's adherence to the Western Alliance. In 1968 it was primarily third-world countries, often with a socialist ideology, which tried to make definitive breaks with the oil companies, something a genuine state participation at that time would have represented. Such behaviour was after all not expected, nor (it is quite possible to surmise) would it have been tolerated within the Western alliance.

We have now analysed three reasons why the Norwegian state adopted a cautious attitude towards state involvement in respect to the second round of concessions. Two of these we have found to be debatable on 'objective' grounds, while the third constituted a more genuine reason for the state to have wanted to avoid a confrontation with the companies and their home governments.

We have not discussed the potential threat by the companies to pull out of the area altogether. The overview at the beginning of this chapter should make it clear why we think such a threat was never credible.

But while we have outlined the basic caution of the state, there is still little doubt that, within a paradigm of non-intervention of the state in production, the Norwegians made a reasonably good deal. For instance the exposition of the role of the majors is not complete without an analysis of what kind of blocks Shell received in 1969. Because of Shell's refusal to accept state participation or even a net profit clause, the company did not receive blocks which were high on the list of their priorities.⁵³ In fact no oil was ever found on these two blocks.

But on the other hand there are ample suggestions that the majors were well pleased with the outcome of the second round of concessions. One director of Shell said that "All we had to do in exchange for two blocks was to train people from the Norwegian Ministry of Finance/ Industry. This was a very good deal indeed."⁵⁴ And neither Shell nor Esso yielded to the principle of participation. This was important (but of course not decisive) for their own bargaining in the Middle East.

It is thus possible to conclude that, while the Norwegian terms had tightened and reacted to a changed external situation, no qualitative change had taken place in the relationship between the companies and the Norwegian state. The basis for such a change, which was to centre around the creation of a state oil company, had however been laid.

5.4 THE STATE'S RELATIONSHIP TO PRIVATE NORWEGIAN INDUSTRY AND SPINOFFS

We will now focus on the Norwegian state's relationship to Norwegian industry as this was expressed in the second round of concessions. During the 1965-69 period it is reasonable to believe that the Norwegian state considered Norwegian interests to be identical with the interests of the Norwegian private sector.⁵⁵ Therefore when the Department of Industry was looking for ways in which it could contribute to "a greater Norwegian (PN emphasis) role in the exploitation of the possibilities on the Continental Shelf",⁵⁶ this policy was congruent with a methodological framework which sees the state as being in a subservient and 'gate-keeper' role in relation to Norwegian industry (to borrow Solo's phrase from Appendix D, p. 324). In this sense the state's role was a true reflection of its reluctance to actively engage itself as a productive unit in the oil industry. It is only with the formation of Statoil in 1972 that the state intervened as a productive unit in its own right.

The Norwegian state's 'gate-keeper' attitude is most clearly seen in the conditions imposed on production consortia where there was Norwegian capital involved. The Petronord group obtained four blocks in 1969 where the Norwegian state had a right to participate along a sliding scale from 5 to 12 per cent, all depending upon whether Hydro (at that time owned 49% by the state, but very much run like a private company like BP) maintained its initial 13.6% share, or exercised its right to increase this share to 24.1% or 34.6%. Thus the actions of the state were seen as complementary to the actions of the Norwegian private firms, with the latter being the 'first' or the 'moving' element. The state acted largely in response to the desires of the Norwegian firms, not on its own initiative.

The Amoco-Noco group, which was granted two licenses in 1969, and where the Norwegian Oil Consortium⁵⁷ participated with a 25% share, was the only group (with the exception of Shell) which in 1969 did not have to enter into any state participation agreements. This was again as a response to the considerable Norwegian private participation share in the consortium. The state's action again becomes most immediately comprehensible mainly as a supporter of Norwegian industry.

Finally, the state could have given the relinquished areas on the Continental Shelf (the companies had to return 25% of the acreage after six years) in any new round of concessions to Norwegian private interests. Alternatively it could have issued some of the Norwegian 'key' blocks to the private sector, which had been kept back by the state.⁵⁸ While these ideas were seriously discussed, their suggested implementations were overtaken by events, and in particular the creation of Statoil.

The state's attitude to private industry was also clearly shown in its relations to the spinoff industries. As will be made clear in the next chapter (Section 6.5), there were no fundamental changes in the terms guiding the relationship between the companies operating in the North Sea and Norwegian spinoff industries in the period 1965-70. Following Phillips' COD find, a special commission was formed to look into the consequences of shipping the gas from the field to Norway. The report was published on 19 September 1969 and, in line with the general guidelines envisaged for state/private relations, exclusively preoccupied itself with the possible consequence of gas production on the private sector's use of energy and the possible repercussions for a petrochemical industry in Norway. But there were no discussions as to whether this was to be a state owned industry or not. In light of what was later to happen in this field, with a strong state involvement downstream, this omission is important as an indication of how the Norwegian state was viewing the state/private relationship at the time.

On the other hand, as in 1965, there was no way in which the Norwegian state could force Norwegian industry to participate either in actual production or in the spinoff industries. Norsk Industri, the journal of Norsk Industriforbund (the Norwegian equivalent of the UK's CBI) stated that until the first find had been made on the Norwegian Continental Shelf (COD), not much advance planning work had been done concerning how to utilize the hydrocarbon resources in the North Sea.⁵⁹ But once the first finds were made, this mouthpiece of Norwegian industry firmly recommended an extensive programme of "analysis,

evaluation and coordination';⁶⁰ even if the state as late as St.meld. no.11 (1968-69) didn't find it could fully recommend the entry of Norwegian industry into what was still an area where no commercial finds had been made.

5.5 TOWARDS A CHANGE IN STATE ROLES

We have outlined how the Norwegian state during this period continued to behave like a 'regulatory' state, by fundamentally playing a passive and non-interventionist role in the oil industry. But within this overall framework, which also has been partly recognized by Turner (1975), Naustdalslid (1975a) and Hellem (1974), other developments took place which were in no way recognized by the three authors, and which in themselves threatened to transcend the limits of the then existing policies outlined above. These developments were to lay the foundation for a clear shift in Norwegian policy in the period up to 1972. Naustdalslid argued that the Norwegian state in an administrative sense was unprepared for a major find in the North Sea,⁶¹ while we have continuously stressed the role of the Oil Council, which plays no important part in his work and which was instrumental in formulating Norwegian policies in this period. Indeed the most important change in the oil policies from a long-run point of view, the introduction of state participation, was a direct result of an initiative from the Oil Council. In a similar way Hellem sees the Norwegian state's action until 1970 as being basically "reactive", while we have attempted to show that, while its overall policies may have fitted this description, within the framework important initiatives were taken. These became of special importance compared with the situation in the UK where there was no change with respect to toughening the terms of exploration, despite the remarkable success rate in UK waters. Likewise Turner, in his otherwise comprehensive review, fails to stress the peculiarities of the Norwegian or the international situation, and therefore provides no convincing explanation for the shift from a 'regulatory' to an 'active' state.⁶² Also by building his argument on the assumption that the shift occurred simultaneously with a shift from the view that the North Sea was a gas area to the view that it was primarily an oil province, the argument fails to recognize that the Norwegians never expected to find gas in the first place, and always considered oil to be the main object of the search on its Continental Shelf.

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CHAPTER 6

1970-72: FROM EKOFISK TO THE ROYAL DECREE

We will in this chapter analyse how the division of rent, volume control and spinoffs in the Norwegian sector of the North Sea developed during the 1970-72 period and look in more detail at the formation of Statoil. The change from a 'passive' to an 'active' role for the Norwegian state associated with the formation of Statoil was a key element in the Norwegian state's oil policies during the 1965-74 period and greatly influenced its relationship to the international oil industry.

6.1 AN OVERVIEW

The international oil industry was immediately aware of the significance of the Ekofisk find long before it was declared commercial in the summer of 1970. The International Editor of OGJ stated that "the huge North Sea find has the entire oil world vibrating" and described the find by three words: "Proximity, security, immensity".¹ Then there was a sudden dramatic increase in the success ratio of exploration. In the first 10 months of 1970 no less than eight fields were discovered on both the UK and the Norwegian Shelf in the Tertiary Basin where Ekofisk was found. In January 1971 the Norwegian sector was described by the PPS as "the one outstanding potential oil-producing area of non-communist Europe",² and later in 1971 the explorers found in block 25/1 further north one of the larger offshore gas fields in the world, Frigg. When the first official announcements about a possible third round of licensing were made in the summer of 1972, between 60 and 80 companies showed an interest in obtaining licences.³ 1972 also saw the interest of the companies moving further towards the north. The most dramatic expression of this interest was revealed in the UK third round of licensing, some of which took place according to the auction principle. The highest bid of \$50.5 mill. was submitted jointly by Shell and Esso for block 211/21, 170 km north-west of the then northernmost field, Frigg.⁴

This undoubted interest in Norwegian acreage showed that any complaint made by the companies or their representatives that the terms in the Norwegian sector were 'too strict', or that the interest of the oil industry in the Norwegian sector was diminishing,⁵ must be met with more than the usual scepticism. Alarmist statements were not confined to the private sector. Especially in the light of the cash-flow results

below, it is permissible to seriously question the judgement of an anonymous Norwegian civil servant who was quoted as saying: "We know what it costs to drill out there, and if we give the companies too much trouble, they'll walk away as they did in Libya."⁶ The companies had never felt closer to a real bonanza in the North Sea. And what is more, they expected this bonanza to take place in political surroundings that would yield no great surprises.

This fact may more than anything else explain the strong reactions by the companies when they were finally confronted by relatively harsh demands from the North Sea producer-states. They simply had a different set of expectations with regard to the behaviour of European oil producers than with the OPEC countries. The industry's level of general expectations in 1971 were clearly, and almost lyrically, spelt out by one of the industry's journals:

"Security - yes. Friendly, stable, developed countries surround the North Sea. In years to come all the host countries may be admitted to the EEC, which would facilitate the flow of oil across national boundaries in every direction."⁷

This journal had still not changed its opinion approximately eighteen months later when it wrote:

"Both government and company spokesmen have a high regard for the other side.... The company side (says) that the government has been fair, patient, and understanding."⁸

Another question that may be posed in the aftermath of the string of discoveries in the early 1970s relates to the more general problem of information and knowledge. There are reasons to believe that Odell was at least partly right when he suggested that the companies did not bother to look very closely at the acreage of the North Sea until the very late 1960s due to the international strategies they were pursuing, and that therefore these discoveries were not totally accidental. The finds would therefore partly be a reflection of the change in company strategy both in the traditional producer-countries, where the companies were coming under increased pressure, as well as being in response to the situation in the southern part of the UK sector where they obtained unfavourable terms for the sale of gas. In particular there were a large number of undrilled structures which were extremely promising, and which had been known about for a long time. Phillips had struck oil in 1969 on the north-eastern flank of a huge 400-mile long and 200-mile wide Tertiary basin that lies approximately in the

middle of the North Sea and whose existence was known from the mid-1960s onwards.⁹ It was also known that around 90 per cent of all oil produced in the world by 1970 originated in the kind of rock that Ekofisk was found in.¹⁰ And once Ekofisk was found it became suddenly clear that much more oil was likely to be found underneath the North Sea in the same geological formations. THE OGJ quoted one company representative as saying:

"There are many, many, structures, some of them of exciting magnitude, in the Tertiary basin area"

and continued:

"The tertiary basins, such as the US Gulf Coast Area, are noted for the variety, abundance and complexity of structures contained within them.... And the heart of this particular basin lies almost totally undrilled."¹¹

Furthermore, representatives of the companies became very careless about their public statements, something that often happens in the euphoria after a significant find. After having complained for five years about the impossible conditions and the hard and momentous risks the companies were taking in the Norwegian sector (at that time they were all drilling in the souther part), it was indeed surprising to read in the wake of the Ekofisk find:

"Offshore technology being what it is today, no insurmountable problems are seen for Ekofisk. Water depth, at an average of 220 feet, is no problem for platform builders.... Winds of formidable strength and 50 ft. seas occur in this part of the world, but they've not hindered year-round operations so far.... From a difficult-development standpoint this is no Prudhoe Bay, despite its built in problems. By comparison, the logistical, political, and weather problems in the North Sea are minor."¹²

After the Ekofisk find, it soon became clear that Norwegian policy-makers wanted important changes to be made in Norway's oil policies. Parliamentary Report No.95 presented by the Centre-Right government headed by Per Borten made the first suggestions; in September 1970 a committee (Knudsen-utvalget) was formed to look into the organisational form for the future oil industry in Norway. The main suggestion of the Parliamentary Report was that the Norwegian state itself (but with the possible aid of Norwegian and foreign contractors) should undertake seismic surveys north of 62°, and then sell the final results to the oil

industry. It was argued that to give exploration rights to some companies would give the same companies a de facto right to obtain subsequent production licences, and thus prejudice the possibility of future Norwegian involvement.¹³ So the state decided to undertake the surveys, partly as a result of pressure from Norwegian industry;¹⁴ seeing that private Norwegian involvement off northern Norway would be expected to increase.

It is significant that little was said in the report about the form that state involvement should take either north or south of the 62°. The Oil Council wrote in a letter to the Ministry of Industry on 28 April 1970 that the existing regulations of April 1965 were sufficiently flexible to serve as a basis for granting new concessions south of 62°.¹⁵ In particular nothing was said about the need for a state oil corporation. North of 62° the situation was different and the Department stated that "it would not totally disregard the possibility of a commercial state participation".¹⁶ The reason for this stand is interesting. Representatives of Norwegian private interests who wanted to start to look for oil north of 62° realized that they could not undertake such a task alone, but would have to cooperate with the international companies. And it was in order to strengthen their own bargaining situation that they wanted a state participation of 20% in a consortium dominated by private Norwegian interests.¹⁷

In 1971 a Labour government came into office and presented Parliamentary Report no.76 (1970-71). This report did not so much contradict the previous Parliamentary Report but took its recommendations further and most importantly introduced the key concept of a state oil corporation. The new Prime Minister, Trygve Brattelie, had already as the head of the opposition in 1970 called for the formation of a state oil corporation. Now the Labour Party had a chance to implement these ideas. What is extraordinary about this report, however, is how it became the basis for an unanimous oil policy of the Norwegian state. This unanimity (while being masked by a certain number of ambiguities - see below) was to remain intact until the spring of 1974. One consequence of this was that it became extremely difficult for the international oil companies to play one domestic Norwegian group against another and thus weaken the state's negotiating position.¹⁸ The concrete expression of this unanimity was what was to become known as the 'ten oil commandments' agreed by Stortinget in the summer of 1971.¹⁹ While these ten basic foundations for Norwegian policy could

be said to be ambiguous on some points, they were clear enough in relation to the formation of a state oil corporation. 'Commandment no.8' recommended "the creation of a state oil corporation which can protect the business interests of the state and have a satisfactory (formålstjenelig) cooperation with domestic and international oil interests". The need for state involvement in the industry as a whole was expressed in 'Commandment no.7', which recommended state involvement "on all appropriate levels". This was to secure what 'Commandment no.1' specified as "national control (styring) and control ... for all activity on the Norwegian Continental Shelf".

The political justification for a change in the conditions of exploration and in particular the role of the state, had thus been formulated and accepted. These changes now had to be incorporated into the organisational structure of the state's oil sector. This came in the form of St.prp. no.113, delivered on 17 March 1972.

Parallel to these political developments, the distribution of new blocks proceeded very slowly. While it was becoming obvious that the Norwegian state was going to put into practice its new and tougher oil policies, this was only initially in relation to a couple of 'farm-in' agreements. These were only allowed after the state obtained a higher share of state participation as well as renegotiated the royalty rate. In one of the agreements the Norwegian state, via a state company, Kongsberg Våpenfabrikk, obtained access to acreage on the Dutch Shelf.

Finally, in July 1972, the Minister of Industry, Finn Lied, declared that 202 blocks were up for lease, 75 of which were to be kept by the state. By this time the Norwegian state also controlled the originally relinquished area which had been returned in 1971.²⁰

In Norway the companies did not have to return the blocks in any specific pattern. In the words of one Norwegian civil servant, "Our map now looks like a jigsaw puzzle. We didn't do it right."²¹ But the expected round of new concessions was postponed. While the applications were asked for by the autumn of 1972, only 8 of these blocks had been allocated by November 1974, more than two years afterwards. The international oil world was for the first time becoming acquainted with the Norwegian 'go slow' policy. Labour's Prime Minister Bratteli, in a press conference in July 1972, said that since oil was a non-renewable resource, "we will see to it that this resource is not exhausted in a hurry, but exploited in a reasonable way."²² The specific reasons underlying this statement were not made clear at the time, but the companies had been warned.

with the Conservatives during the referendum campaign. To regain its ideological profile and try to recuperate some of the members who left during the campaign, from 1972 the Labour Party had a continuous need to show a more radical posture. In the next chapter we shall see how this concretely expressed itself in Norwegian oil policies.

The December 1972 regulations were the legal expression of the trend towards a greater and more important state role in the oil industry. PPS even went to the extent of stating that "taking a leaf out of the OPEC book, the new Norwegian government decided to stiffen the terms for offshore exploration".²⁶ This stiffening had different elements; there were important changes in the traditional variables. Area costs were increased in order to make it more expensive for companies to hold on to their acreage; a sliding royalty rate between 8% and 16% was agreed to, while the royalty for gas was increased to 12.5%; the basis for the pricing of crude for the purpose of royalties was changed; 50% of the area had to be returned after 6 years instead of 25%, and the life of a production licence was shortened to 36 years. In addition, the principle of state participation was put into legal form. (Its absence had not, however, made it impossible for the Norwegian state to negotiate state participation in 1969). The exact percentage of participation was to be determined in each specific case. This last stipulation was an indirect confirmation that the Norwegian state had gained an increased knowledge of the oil industry. While in the past the Oil Council in particular had used foreign consultancy firms to evaluate existing contracts,²⁷ this job now fell to sections of the Department of Industry. The first economist started work in the Spring of 1971 to make such an evaluation.²⁸ The qualitative change took place when the Norwegian civil servants attempted to press for agreements and conditions which left the companies with a given internal rate of return, which meant they had to analyse each potential field separately. This introduced a mode of operation within the Norwegian Ministry which later was to become both generalized and the 'normal' way of thinking. It contrasted very sharply with the initial bland statements about percentage "government take" as a criterion for the development of the state's role. The inputs of the initial models were provided by the Ekofisk capital costs which by the beginning of the 1970s were given to the Norwegian Ministry by Phillips. The official thinking behind this move was that the companies were willing to forego a larger percentage share of the total present value of the

field (i.e. have a lower rate of participation) if the field turned out to be exceptional, either in terms of total reserves or in terms of low development costs. This was not only because a greater state participation rate would decrease the IRR (the effect of which in any case was relatively modest), but also because an increased participation rate would decrease the companies' access to long-term supplies of crude. The value of the latter is difficult to assess in monetary terms, but even in 1972 carried a positive monetary value to the companies.

6.2 DIVISION OF RENT

We will now examine the significance of the tightened terms of December 1972 for the division of rent and use the case of the Brent blocks as our hypothetical field. Despite the unofficial 'go-slow' policy, it was thought these two blocks had to be exploited because of the finds that had been made just across the median line in the UK Brent field. More than 20 companies approached the Norwegian government late in 1972, and the Norwegian government in the end chose an agreement which gave Statoil a 50% carried interest in cooperation with a consortium of private companies whose two most important members were Mobil (as operator) and Shell. This was the highest degree of government participation which had been negotiated in the North Sea until then, but interestingly enough the terms were immediately challenged by members of Statoil. According to reports, Statoil, acting just a few months after its creation, would have liked to retain the two blocks for itself and to use the contracting services of a rig contractor or oil company to develop them.²⁹ This was rejected by the political authorities. Throughout this thesis we have denoted the allocation of the Brent blocks as the '1972 round', because negotiations started then, even if the final signature of the contract did not take place until August 1973. It was also no 'round' in the normal sense of the word, as only 2 blocks were allocated. But the allocation was very important both from a quantitative (the reserves were immense) and a qualitative point of view.

6.2.1 Exploration costs and success rate

As the search was moving into the northern parts of the North Sea the average cost of an exploration well increased dramatically even if OGJ as late as the beginning of 1973 stated that the average cost of a wildcat in the North Sea until then had been no more than \$2 mill.³⁰ (This implied that the average historic finding costs per barrel of oil in the North Sea was a very low one of 3¢/bbl.³¹) Cazenove stated that the average expected cost of a wildcat in the northern North Sea ranged from \$2.9 mill. for a rig-owner to \$4.1 mill. for a rig-hirer.³² On the assumption that most companies rented exploration services, we assume \$4 mill. per wildcat drilled.

Because the 1972 allocation only related to two adjacent blocks (33/9 and 33/12), our chosen success rate of exploration is based on geological characteristics of the blocks in question. There was almost unanimity within the industry that there was a great chance of finding oil in what was believed at the time to be the continuation of the geological structure which on the UK side of the border had yielded the Brent field. (Ironically enough, Statfjord turned out to be a separate structure.) The Norwegian state had previously been informed by Shell/Esso that the Brent structure probably extended into Norwegian territory.³³ And by the time the Norwegians in August 1973 settled the final details in the Statfjord agreement, they must have known that the Orkney/Shetland offshore basin was as prolific as the Ekofisk area.³⁴ The Norwegian state demanded a work programme consisting of no less than 8 wells for the two blocks, which is a further indication that they valued the acreage positively.³⁵ We have therefore assumed that the average success rate would be 1 in 5. (In fact this turned out to be too pessimistic; Statfjord was found with the first wildcat that was drilled.) Total expected exploration costs would therefore come to \$20mill.

6.2.2 Development costs

By the time the 1972 agreement was negotiated, the former uncertainty with respect to data from the North Sea was receding. By September 1972 there were at least four overall evaluations of what it would cost to develop a hypothetical field in the North Sea.³⁶ From the four alternatives we have chosen Cazenove's assessment of an average expected cost per barrel per day of £760. This was also virtually equal to the

Ekofisk figure, which at the time was the main reference point as far as the calculations of the Norwegian state were concerned.³⁷ The cost figure was also very close to the expected cost of BP's Forties field situated east of Scotland in the same depth of water as the two blocks in question. To properly use the Cazenove figure we must deduct the estimated £42 mill. cost of a pipeline, which would have left us with a variable development cost component of £186 mill. for a field which would produce 300,000 barrels/day. If we assume that such a peak production during one year equals 10% of the total reserves of a field,³⁸ this represents total reserves of 1.08 bill. barrels.

If we follow the cost assumptions made in Chapter 2, the total cost for a 100 mill. field would have been:

Total development cost (including delineation wells)	
10% x 186 = £18.6 million	= \$44.6 mill.
Pipeline cost: (120 miles from the area to Shetland @ £0.35m./mile ³⁹)	= \$100.0 mill.
	<hr/>
	\$145.0 mill.
	<hr/>

6.2.3 Operating costs

We assume operating costs to have been 75¢/bbl. This figure was in line with the general rate of inflation since 1969, and also tried to account for expected higher costs of operating in the very north of the North Sea. It could also have been arrived at by using a 'rough' guide for finding total operating costs put forward by the stockbrokers Wood MacKenzie. They assumed a yearly total operating cost of 4% of total capital cost, for which a 100m. field would have given average operating costs of \$0.64/bbl.⁴⁰ Cazenove assumed yearly operating costs to be equal to 5% of total capital cost, which with similar calculations gives an operating cost of 80¢/bbl. As an average per barrel operating cost, taking into account the difficult operating conditions in the north of the North Sea, we have assumed 75¢/bbl.⁴¹

6.2.4 Loans and finance

The financing of Ekofisk made it increasingly clear that loans for the purchase of capital goods were available to the companies at less than the going market rate. This was primarily due to the export finance institutions in a number of Western European countries which

in a bid to gain orders for their industry were prepared to subsidize the purchase of offshore equipment. According to Wood MacKenzie, "While some (loans - PN) will be subject to full market rates, lower interest rates are generally obtaining from equipment suppliers, so that overall an 8% rate of interest should appear reasonable."⁴² We will use the same assumption.

We also assume that the average level of self-financing for the companies on the Norwegian Shelf by this date would have shown a further drop. And even if a number of small companies (especially in the UK sector) would borrow almost all their capital, the continued dominance of a number of the majors like Esso and Shell in the Norwegian sector, which until then had never borrowed any money for their North Sea development, makes it reasonable to assume a degree of self-finance of 70% for the private companies.⁴³

It is more difficult to make a meaningful assumption about the degree of self-financing for Statoil. Statoil's investment funds originated from the Norwegian Treasury's general foreign funds.⁴⁴ To distribute this fund according to source (between general funds and loans) and assign Statoil's capital to either or both of these is difficult. We have therefore somewhat arbitrarily assumed that Statoil (via the Norwegian state) borrowed 50% of the needed capital. This percentage depended upon the general amount of borrowing that the Norwegian state engaged in on the international market. The larger this proportion the larger we can assume Statoil's dependence on external finance to have been.

6.2.5 Price and production

The average Rotterdam price for crude in the middle of 1972 was between \$3.00 and \$3.25 per barrel and on a clearly upward trend.⁴⁵ The Norwegian state assumed an average 1972 price of \$3.10⁴⁶ in the middle of 1972. Given the general upward movement of the market, it seems reasonable to assume a price of \$3.20/bbl. by the time the final agreement about block 33/9 and 33/12 was made. We have also for the first time included the cashflow results from a 1 bill. barrel hypothetical field. This is a reflection of the large-sized fields found in the North Sea (in particular Ekofisk). The specification of the production profile is in line with the other production profiles used by the Surrey model.

6.2.6 Expected trends

There was in 1972/73 no doubt as far as the industry was concerned about the future price of crude. Already in 1971 PPS carried an article headed: "It has to be dearer" which stated:

"Prices may fluctuate in the near future but the longer term trend is probably set upwards. The main reason is that enormous quantities of oil needed to satisfy demand in the 1970s and 1980s will have to be sought for and developed in more and more difficult places and that the investment for this will have to come largely out of retained earnings.... The rise in price will have to be greater than the rise in costs because of the need for larger earnings...."⁴⁷

We have therefore assumed an expected increase in the real price of oil by 2% p.a., a modest assumption given the increasing discrepancy between an increasing demand and a relatively stagnant supply experienced in the oil-market at the time.

With an accelerating world inflation costs would have been expected to increase at a rate of 4% p.a., while the price of oil should have increased by 6% p.a.

A summary of all assumptions for the 1969 calculations appears on p.182.

6.2.7 Other variables

Royalties: A system of variable royalties between 8% and 16% depending upon production was introduced from the autumn of 1972.⁴⁸ If the rate ever increased above 12%, it would never again fall below that rate.

Tax rate: The special 9% reduction in the companies' corporation tax which originated in 1965 was withdrawn in 1972,⁴⁹ leaving the companies with a total normal tax rate of 50.8%. As described in Chapter 5, the Norwegian Centre-Right government announced in 1969 new tax laws which gave the firms the right to deduct distributed dividends from their taxable income, a move which would decrease the state's total future tax income from the oil industry. The aim of this regulation was to increase the very low levels of self-financing of Norwegian industry and remove what was claimed to be 'double' taxation of

dividends. It was partly in order to compensate for this shortfall in expected revenues (see below), partly as a result of the 1969 decrease in state tax, that the Norwegian state decided to abolish the special 9% reduction in corporation tax.

But the distributed dividends would be 'lost' for the Norwegian tax authorities if the right to dividend deduction was given to foreign firms that exported their dividends. So the Norwegian tax authorities could suffer a 'double' shortfall in revenues, first because total deductions for the purpose of assessing corporation tax would be larger for foreign firms; and secondly because this loss couldn't even be partially made up again by taxing dividends within Norway. Therefore an average source tax (also called withholding tax) of 10% was introduced for foreign firms which otherwise would have been able to avoid having their exported dividends taxed within Norway.⁵⁰ Statoil can be assumed to fall within the same category as foreign firms because the state would not be taxed on its equity income.⁵¹

But the source-tax was only a partial solution. As Ot.prp. no.26 later stated, the right to deduct distributed dividends "may entail a reduction in Norwegian National tax revenues which is only partly compensated by the withholding tax."⁵²

One aspect of this tax change shows the power that the international companies were wielding at the time. US firms were originally registered in Norway as branches (filialer) in order to gain tax advantages in the US (depletion allowance). But such 'branches' could according to Norwegian law not pay dividend to their mother firms.⁵³ Consequently the US firms could not gain any tax advantages by the new rules about deduction of dividends because, strictly speaking, they did not pay dividends. This was one of the reasons we disregarded this aspect of taxation in our 1969 analysis (see Chapter 5, p.154). But a special tax agreement was concluded between Norway and the US on 3 December 1971 whereby US companies were given the right to deduct dividend payments as if they were ordinary subsidiaries and hence profit from the overall change in the tax structure.

Assumptions 1972

Price \$/bbl	3.20
Price escalation %	6
Total exploration cost (\$m.)	20
Development costs \$m.	100
	145
	200
	190
	300
	235
	400
	280
	700
	405
	1,000
	540
Discount rate	10
Operating costs (\$/bbl)	0.75
Cost escalation %	4
Percentage debt (i) Company	30
(ii) Statoil	50
Rate of interest	8
Years grace	1
Years spread	6

PARTICIPATION (%)

Scenario 1 - No repayment of exploration cost 50

6.3 RESULTS

Following our former procedure, we now feed the value of the expected variables into our cashflow model to determine the division of rent between the Norwegian state and the companies as it would have appeared in the 1972 allocation round. The main results are set out in Tables 6.1 - 6.9 below. The expected PV of all fields likely to be developed following the Brent-block allocation was higher compared with the same size fields after the second round in 1969. Cazenove claimed that by 1972 profit per barrel when all costs had been repaid was higher in the North Sea than in the Middle East.⁵⁴ If there had been no participation, an oil company could have expected to earn a post-tax rate of return of between 10.3% (for the 100m. field) and 21.6% (for the 1 billion field), with most fields showing a rate of return towards the higher end of this range. The increased profitability was mainly a result of changes in the exogenous variables. While costs had increased, the price of oil had increased even more, leading to an increase in the PV that could be expected from each field (see

Table 6.1).⁵⁵ If there had been no participation, the discounted state take would have been relatively low; less than 70% of all rent would have gone to the state.⁵⁶ The Norwegian increase in participation to 50% can be seen as a response to this new exogenously given situation, with its subsequent low 'state take'. Again, it is seen that the form this increase in appropriation of rent took implied no drastic decrease in the IRR of the private firms, even if the consequences on IRR were more pronounced than for the participation scenarios negotiated in 1969.

In cases like the 200m. field, where exploration costs were relatively important as a percentage of total costs, participation (scenario 1) signified a moderate 2.8% difference in the IRR. As the relative importance of exploration costs decreased, this percentage dropped in the 1 bill. field to 0.9%. This effect was also apparent from the decreasing 'disguised participation' as field size increases (Table 6.6). It should be noted that at least in one instance (the 100m. field), the introduction of state participation would have changed a commercial field (defined as a field with a rate of return above the discount rate) into an uncommercial one. This was the first instance in our case study where state participation made such a crucial difference.

By insisting on a 50% state participation, the state's total share of the rent jumped drastically to a maximum in the middle 80s (Table 6.4). And what is even more important, Statoil's equity share constituted on average 30% of the total state 'take' (Table 6.5). The Norwegian state had really taken a step into the era of 'state capitalism'.

The undiscounted result shows that the traditional state take was just below 50% (Table 6.9), which was marginally lower than the 1969 result. But the state's overall access to rent as a result of the higher participation rate would have been in the mid 70s (Table 6.8), a clear increase from 1969.

Let us now assume that the speed with which oil was to be produced could have been accelerated. This would have had a fundamental influence on the expected profitability of the 1972 allocation. (All sensitivity results are found in Appendix F.) The post-participation, post-tax IRR for a company producing from a 200m. field would, according to our alternative production schedule, have increased from 15.6% to no less than 28.1%. For a 700m. field the increase would have represented more than a doubling, from 19.5% to 45.1%. No wonder that the speed of extraction from individual firms became one of the major points of confrontation between the companies and the state. It is on this back-

ground easy to understand why the companies in their initial negotiating positions would have sought to emphasise the technical difficulties why the expected rate of production would not be high. On the other hand it is difficult to argue that if there was a possibility of producing oil more quickly, this opportunity would not be fully exploited by the companies. Therefore, to the extent that the companies in 1972 thought that they could produce oil faster than they led the Norwegian state to believe, they ultimately seemed to have miscalculated. The Surrey production schedules are after all based on actual planned schedules in the North Sea.

But speed of extraction apart, a more optimistic evaluation of other variables could also have meant a better deal for the companies than what we have so far postulated. Greater economies of scale for the 700m. field (reduction in development costs by 30%) would have meant an increase of the IRR to 24.1%, an increase of more than 4 percentage points on the original result. A decrease in operating costs to 53¢/bbl would have meant an increase in the IRR to 20.6%.

The quadrupling of prices and a doubling of costs, developments which were just around the corner, were of course largely unpredicted in 1972/73. Judging by what most oil-men thought the world had in store for them at the time, our own figures about future prices and costs would probably have been regarded as rather cautious. And, as we have shown, only minor adjustments in a positive direction would have been sufficient to raise the expected IRR to well into the 20s if not higher. The drive by the oil industry for as quick and as extensive an exploration as possible can therefore be traced back to the profitability conditions in the North Sea as seen at this time. The UK Ministry of Energy's own analysis of the cost escalation experienced after 1974 even goes to the extent of blaming part of the subsequent escalation on the euphoric and over-optimistic plans made at the time:

"... these appraisals (of profitability in 1972 - PN) showed very high internal rates of return and net PV, and the pressure to go quickly derives directly from this."⁵⁷

The new era of over-optimism, which strikingly contrasted with the former pessimism, had now set in. This new attitude was in itself an outcome of the companies' negotiating position. It is likely that the only way a number of new firms could have hoped to enter the Norwegian Continental Shelf at the time would have been by making extravagant claims about possibilities of production to the Norwegian state.

Furthermore, once oil was found then the ability of a number of the oil companies to obtain external finance for investment became directly related to their own reserve-estimates. This tended to exaggerate total reserves because there was no independent institution which could check the companies' estimates. We therefore have to distinguish the companies' reserve-estimates during the initial negotiations from after oil had been found.

As a consequence of the December 1972 regulations and the increase in the state's participation rates under scenario 1, we can conclude there was an increase in the percentage of PV which accrued to the state compared with the situation in 1969.⁵⁸ On the other hand the traditional measurement of state take, both discounted and undiscounted, decreased slightly. This was so despite the 9% increase in corporation tax for the oil companies, which must therefore not be seen as a tightening in its own terms, but rather as a compensation for the confusing, complex, and contradictory tax changes which took place in Norway around 1970.

6.4 VOLUME

The Norwegian state did not issue any new concessions between the 1969 round and the autumn of 1974, with the exception of the Brent blocks. There was therefore a de facto control of volume by macro-regulation; a system which in no direct way challenged the hegemony or the autonomy of the oil companies to determine output from individual fields. But the 1972 regulations suggested for the first time, albeit in an indirect way, that a system of micro-regulation could also be considered as a method of volume control. Paragraph 34 of the Royal Decree of 10 December gave the Department of Industry the right to issue "more specific regulation concerning exploration and production of petroleum", which included among them, as specified in subsection (f), "steps with a view to ensuring a responsible exploitation of the oil reserves (conservation)". While it was initially believed that this paragraph was sufficient to control volume at the level of the individual firm, later developments suggest that this not the case.⁵⁹ There can thus be no sense in which the Norwegian state during this period represented a micro-challenge to the companies, even if the lack of issuing new acreage was a source of constant frustration to the oil industry.

RESULTS 1972*TABLE 6.1 PROJECT APPRAISAL FOR EACH FIELD AS A WHOLE

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Pre-tax IRR (%)		18.8	28.3	27.7	27	27.9	28.5
Present Value (\$m)		45.4	168.1	259.8	356	699.3	1054.8
Post-tax IRR (%)		10.3	18.4	19.4	19.6	20.6	21.6
Net Present Value (\$m)		1.4	63.6	109.1	157.5	308.9	484.1

TABLE 6.2 PROJECT APPRAISAL AS SEEN BY THE COMPANY⁺

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Pre-tax IRR (%)		14.5	24.1	24.7	24.7	26.4	27.4
Post-tax IRR (%)		7.5	15.6	17.3	17.9	19.5	20.7
Net Present Value (\$m)		-6.7	24.6	47.4	71.2	147.2	234.8

TABLE 6.3 STATOIL'S POSITION

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Pre-tax IRR (%)		*	40	35.4	32.7	31.9	31.7
Post-tax IRR (%)		*	25.8	24.8	23.8	23.7	24.1
Net Present Value (\$m)		*	41	64.2	88.7	166.1	254.9

TABLE 6.4 TOTAL STATE TAKE FROM BOTH EQUITY AND TAXES (discounted)

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
As if no participation		97	62.2	58	55.8	55.8	54.1
Scenario No.1		*	85.4	81.8	80.1	79	77.8

* For an explanation of the different table headings, see Chapter 5, pp.158-160.
See also pp.107-109.

TABLE 6.5 THE IMPORTANCE OF PARTICIPATION:

<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
*	28.4	30.1	31	30	31.0	

TABLE 6.6 THE PROPORTION OF THE PV ACCRUING TO STATOIL

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Statoil's proportion	*	55.8	53.8	52.8	51.5	51.0	
(disguised)	*	(12)	(8)	(6)	(3)	(2)	

TABLE 6.7 TRADITIONAL 'TAKE' (discounted)

<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
*	67.3	60.8	57.9	56.8	54.7	

TABLE 6.8 STATE'S SHARE OF RENT FROM ALL SOURCES (undiscounted)

<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
*	75.2	74.4	74.0	74.8	74.6	

TABLE 6.9 TRADITIONAL 'TAKE' (undiscounted)

<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
*	49.2	48.2	47.6	49.5	49.2	

* Uncommercial as IRR < discount rate

It should be noted that the decision taken by the Norwegian state to 'hurry slowly' during the 1970-72 period was not related to the dangers of structural dislocations that would follow a rapid rate of production; an argument that would later become crucial. It was rather a result of a combination of factors like the outcome of the EEC referendum campaign; the dispute with Phillips about the landing of oil in Norway (see Chapter 7, p.208) and the realization that a slow rate of extraction would increase the bargaining strength of the Norwegian state.

6.5 SPINOFFS

While there was disagreement about the future shape of Statoil among Norwegian politicians (see below), there was much more agreement that Norwegian private industry should try to obtain a maximum of spin-offs from the North Sea. This may be partly because it was generally believed that there would be no direct state involvement in the spinoff industries, and hence there would be no direct confrontation between state and private interests.

A later Labour Minister of Industry was adamant that one of the key roles of Statoil was "industrial-political" or, as he put it, "it is an important task to facilitate the participation of Norwegian industries to develop activities based on oil exploration, oil industry and petrochemical industry".⁶⁰ But even with this broad consensus, disagreements were to arise concerning the focus this support was to take.

We have already seen how Norwegian industry had been aided by the Norwegian state with the 1965 'gentlemen's agreement', a policy that was written into the contracts in 1969, and formalized in 1972. The compulsion to use Norwegian goods and services "to the extent that they are competitive with respect to quality, price, service and delivery time" was then written into paragraph 54 of the Royal Decree of 1972. In addition to this somewhat broad formulation it was decided that all relevant Norwegian firms should receive the specifications about tenders for offshore equipment issued by the companies in order to increase the chances of Norwegian industry to obtain orders. This scheme was developed in connection with the Norske Industriforbund. The companies also had to report and explain to the Ministry of Industry why Norwegian goods and services

were not used, and justify their choice. Finally, the government created a Commission (Kontaktutvalg) between the Norwegian Ministry of Industry and the Norske Industriforbund to inform Norwegian firms about the requirements of the offshore industry.⁶¹ The Norwegian state justified these special measures with reference to the practice of the companies, which "often use their own traditional suppliers because they have insufficient knowledge of the Norwegian possibilities".⁶²

A more general reason for such a regulation was put bluntly at the time by a well-placed Norwegian civil servant who stated: "The government has, (however), not been satisfied with the oil companies' use of Norwegian goods and services so far". According to him, the government was at the time also studying ways to ensure "stricter supervision to see that Norwegian industry really gets the possibility to participate in the bidding".⁶³

Part of the emphasis given at the time to the question of spinoffs stemmed, paradoxically, from the relatively low level of crude-prices. As late as 1972, expected state income from oil was £100 million by 1975 (or Kr. 1.3 bill.).⁶⁴ Compared with the state income expected after the 1973/74 price rise, this was relatively insignificant. Consequently the state's main interest stemming from the petroleum activities was the possible effects of the spinoff industries on key variables such as employment and total industrial activity within Norway. The importance of the question of spinoffs, which was understood by some from the very beginning,⁶⁵ was later echoed by a broad spectrum of politicians. The Conservative Chairman of the Norwegian Parliament's Industrial Committee argued vigorously in favour of strengthening the spinoff industries, and in particular the petrochemical industry, by saying, "It is of no use to be left with the sovereignty and the formal property rights if we let the value added (foredlingsinitiativet) accrue to other nations."⁶⁶

Apart from the more traditional service activities necessary for a drilling operation (catering, helicopter services, coast bases), Norwegian industry had no particularly successful record to point to in the field of spinoffs. The exceptions were the large Ekofisk storage tank built in concrete which was towed onto the field in 1971/72, but even this was made according to French specifications. Of advanced drilling and development equipment, Norwegian industry only supplied gas turbines. It was only in the more classical Norwegian industries, such as shipbuilding, where there had been anything like a moderate

success. Four drilling rigs destined for use in the North Sea were in the process of being constructed at Norwegian yards by the end of 1972. At the same time a trend towards an international involvement by Norwegian private capital as owners of drilling rigs was asserting itself. By the end of 1972 11 rigs were on order to Norwegian owners, worth an estimated total of £100 mill.⁶⁷

The reasons for the general shortfall in Norwegian spinoffs were first the traditional patterns of supplies pursued by the companies.⁶⁸ But in addition, and existing even after the 1972 Decree had tightened the spinoff terms, there were difficulties in ensuring a maximum Norwegian involvement. The first arose from the dominance of the US in the international petroleum industry. All installations in the North Sea had to be guaranteed according to API (American Petroleum Institute) standards. But there were at the time, for example, only a handful of Norwegian welders who possessed an API certificate, and consequently Norwegian industry was at a disadvantage. This non-permanent problem, which was solved as more welders got API certificates, simply serves to illustrate which barriers Norwegian industry initially had to struggle with. Of much more serious consequence was the fact that each country with a spinoff industry offered financial incentives to back up that national industry. What became of importance for a success in the spinoff industries was therefore also the relative cheapening of finance that these different schemes represented. If an American company could point to substantial savings in financing costs by using US suppliers (even if the quoted price was higher), then such suppliers would be preferred. It was only by 'undercutting' the offers of the US Export Import (EXIM) Bank that for example the Norwegian Eksportfinans could help to gain Norwegian orders. But given the very heavy needs for finance, it is doubtful whether the Norwegians had enough capital available for such schemes to fully maximize Norwegian spinoffs.

Among Norwegian policy-makers everyone agreed that the provision of export finance was a legitimate way of supporting a national spinoff industry. The Norwegian institution Eksportfinans provided Kr. 100 mill. to finance national purchases from Ekofisk, including the cement storage tank. But there was disagreement about the use of other policy instruments of discrimination. The Norwegian Centre-Right coalition explicitly exempted the construction of ships and drilling rigs from the provisions of paragraph 54 of the 1972 Royal Decree (see Chapter 7, p. 235 for a further discussion of this point.)

On the above evidence, the Norwegian spinoff policies expressed nothing but a desire on the part of the policy-makers to give the Norwegian spinoff industry an equal chance to bid for orders. The policies were essentially an attempt to remove the monopolistic barriers to entry which it was believed impeded the full access of Norwegian industry to participate in the spinoff industries, and in this way represented no fundamental challenge to the international companies. There is no doubt that the Norwegians could have pushed the "protection of an infant industry" argument much further than was done. It was not until the creation of Statoil that a new and more powerful form of de facto discrimination was conceived of.⁶⁹

6.6 STATE ROLES

Our analysis of the 1965 and 1969 rounds of concessions highlighted how the Norwegian state initially pursued a passive policy in the oil industry and how in particular the state refused any direct productive role. There was furthermore a clear identification between the interests of the Norwegian state and Norwegian private industry.

The events which followed the Ekofisk find indicated that this former pattern of state intervention was changing. While in some areas the state continued to fulfil its passive gatekeeper role, this was intensified. This is described in Section 6.6.1, where the state's relationship to the creation of SAGA and how it encouraged the concentration of Norwegian capital is discussed. (The state's treatment of the spinoff industry which also shows how the state after 1970 sought much more actively to help Norwegian private industry has already been discussed above.) In Section 6.6.2 we discuss the state's qualitative new role which was brought about by the creation of Statoil.

6.6.1 SAGA and the 'people's companies'

After the Ekofisk find it had become clear that not only was the state's direct strategy of participation ripe for a revision, but the state's role vis-à-vis private Norwegian oil capital also needed a complete overhaul. The result of this new policy was a decision that the Norwegian state should "contribute to a coordination and a concentration of Norwegian (private - PN) interests within the Norwegian

oil industry".⁷⁰ The reason given for this strategy was the high risk and capital-intensive nature of the industry which, according to the government, made it unlikely that more than one or two Norwegian groups could become oil companies in an international sense. The more immediate reason for this policy was the wish expressed by 11 Norwegian industrial groups to start oil exploration. This wish had been made clear in discussions with the state in the winter of 1970.⁷¹ As a consequence of this interest, the state was instrumental in setting up SAGA Petroleum, a merger between the private Norwegian companies already involved on the Norwegian Continental Shelf, and a number of new ones,⁷² in total 91 firms. A number of these new firms were Norwegian shipping firms, which between them owned around 10 per cent of the world's tanker fleet. The new company thus represented both a large part of Norwegian industry and had a considerable financial muscle, not the least with respect to its ability to raise international finance.⁷³ Even if one state-owned firm was represented among the 91 (Årdal & Sunndal Verk, the largest Norwegian aluminium producer), it was clear that the state preferred to keep the state oil sector separate from SAGA. This, in addition to Statoil, consisted of Norsk Hydro which, to all intents and purposes, maintained its role as a private firm even after the state acquired the majority of the shares in March 1971. (The state didn't even have the right to appoint a representative to the Board.) The Knudsen Commission (see above) at one point had considered the possibility of turning Hydro into the new Norwegian state oil corporation, but in the end found such a solution unsatisfactory because a state oil corporation would be given a number of tasks which "could only be managed by a pure state entity".⁷⁴ What this meant was never discussed in more detail. But there is every reason to believe that an important reason for not choosing such a solution was the substantial foreign (mainly French) minority interest in Hydro. SAGA was also seen as being potentially an international company,⁷⁵ so it is possible to argue that the state's plan was a "division of labour" between the state and the private sectors of the economy, seeing that Statoil had no international ambitions.

The state's preference for SAGA as a representative of private Norwegian oil capital was well expressed in its rejection of a number of smaller and more speculative Norwegian oil companies. Some of these were set up primarily by foreign companies, which realized that their main chance of gaining access to the Norwegian Continental Shelf lay in cooperation

with a Norwegian company. After all, this strategy had worked well in the past; it was a pattern which had been accepted in the UK, where a number of small companies had obtained concessions; and finally it had the support from at least some sections of the Norwegian bourgeoisie.⁷⁶ The most blatant example of how such a Norwegian company could act as a 'front' was provided by Norsk Vikingolje a/s which made an agreement in the autumn of 1972 with 12 foreign oil companies (most of which were minor companies) on the understanding that once Vikingolje had obtained concessions on the Norwegian Continental Shelf, it would do nothing more but insist on a 10% carried interest in whatever blocks it was given, leaving the rest to the international companies.⁷⁷

But in addition to companies like Norsk Vikingolje there were also a number of smaller companies like Det Norske Oljeselskap a/s (DNO), which were genuinely national; and which primarily represented small investors who wanted to take advantage of what they saw as the "impending oil Klondyke". These were quite accurately characterized as "People's oil companies". The fate of such companies (DNO was soon to be joined by others) was later to become a source of considerable friction between the different political parties in Norway. But while the Norwegian state's policies consistently stood against the smaller national oil companies, support for the creation of SAGA was readily forthcoming from all political parties. Apart from the Conservative Party, the Labour Party was the most consistent supporter of the process of concentration and centralization of the private Norwegian oil-capital sector which the creation of SAGA represented.

6.6.2 A new phase: Statoil

The key change in Norwegian oil policy during the period under study was the creation of a state oil corporation, Statoil, which was to function from 1 January 1973. Statoil was to take over and administer the state's participation shares; both the ones concluded in 1969 and all later participation agreements.

6.6.21 The international dimension

Throughout the initial process of clarification and search for organisational solutions for a future state oil corporation, constant references were made to the existence of state oil companies in other

countries.⁷⁸ The creation of Statoil should therefore be seen in relation to the situation in these countries. We will now show why Statoil nevertheless had to face a number of questions which were different from the ones which faced most state oil corporations of the day, and how the plans for Statoil attempted to deal with a number of the weaknesses of these companies.

The main difference was that the European state oil corporations were brought into existence in order to supply the consumer states with cheap energy, while Norway would be an oil-exporting state. So when ELF/ERAP was created in France, ENI in Italy and Hispanoil in Spain, this was justified in relation to these states' positions as importers of oil.

In order to achieve security of oil supplies as cheaply as possible the three Mediterranean countries first set up their own state oil corporations, which were then encouraged to engage in production abroad. The instrument to carry out such aims was to create a fully integrated oil industry (in this sense they were not very different from Statoil). According to these countries the traditional set-up of the industry was unable to provide security of supply.⁷⁹ Because the state oil corporations would obtain direct access to crude 'at cost', it was also thought that such a state sector would help to bring down the cost of imported crude.

Whether the state oil companies managed to fulfil all these expectations was less sure. According to Frankel (1968), they got into the game much too late. He argued that while a policy of 'entrism' might have made sense in the 1950s when the companies earned considerable upstream profits, by the late 1960s when the state companies really became active, this margin had shrunk to around 25¢/bbl, making the 'cost saving' argument less convincing. He even argued that their existence made the price of oil go up, because the very favourable terms offered by the state companies to the producers after a while became generalized to the whole industry and thus pushed the tax-paid price up.

The partial nationalization of the French oil assets by Algeria in 1971 also indicated that 'special' arrangements were no guarantee of security of supplies. Still there were advantages with such state oil corporations. The cost of oil supplies could be decreased as it could mean the discontinuation of the overpricing of crude supplied to the majors' subsidiaries. Also state oil corporations could

engage in special industrial barter deals which could safeguard industrial production.⁸⁰

The Norwegian requirements for a state oil corporation were much closer to the situation in a number of producer-countries, which also had set up state oil corporations. But most of these were at the time nothing but paper organisations. There were in the early 1970s probably only three producer-state oil companies that could efficiently lift their own oil: Sonatrach in Algeria, Pemex in Mexico (which could be taken as a representative of a number of Latin American state oil corporations), and NIOC (National Iranian Oil Corporation). Pemex was not immediately relevant to the Norwegian case because the state had full monopoly of oil production in Mexico. It was the two other state oil companies that could be taken to be models, as they could more easily be fitted into a system of 'carried interests'. But none of these cases completely fitted the Norwegian requirements, and as a consequence Norway had to tackle completely new areas in the field of nation-state/oil-company relations. For example, in all three cases above, the national oil corporations sought to maximize the absolute amount of the rent to the nation-state. Thus the moves towards partial nationalization in Algeria, and the increasing importance of Sonatrach, took place, according to one observer, because

"From 1969 onwards it was clear that Algeria was seeking complete 'recovery' of its sources of production, in order to obtain full possession of the proceeds from them, for the purpose of financing very large investments under the first Five Year Plan (1970-73)."⁸¹

A similar situation could be said to apply to Iran, which also wanted to industrialise rapidly. As a consequence, all three state oil corporations wanted to maximize their output. But this was not an equally pressing aim in Norway, which meant that Statoil was created and had to operate subject to different external pressures.

On the other hand both the Norwegians and the Iranians/Algerians could not in the short run break with the majors because they were constrained by their own lack of technology, and because they were dependent upon the downstream activities of the majors. We can therefore conclude that while the Iranian and Algerian cases were much closer to the Norwegian than was the situation in the other Mediterranean consumer countries like France and Italy, there was nevertheless little direct precedent for the creation of a state oil corporation in Norway.

But regardless of the relative merits of state oil corporations both in Europe and in the producer-countries as a blueprint, they still had one great influence on Norwegian policy-makers. Their mere existence indicated that organisational alternatives to the majors could be created if there was a political will to do so, and that to be of maximum efficiency a state oil company must try to engage in the whole integrated process of oil production

The final outcome of the organisation pattern of Norwegian oil policies led to the establishment of a state oil corporation which was to deal with the business or commercial interests of the Norwegian state. Other institutions (the Ministry of Industry and the Oil Directorate) were meant to deal with the more overtly political aspects of the undertaking ('forvaltning'), and the technical regulating aspects of the activities respectively.⁸² This solution was contrasted by a Norwegian Parliamentary Committee to an organisational pattern where the state oil corporation exercised the monopoly of extraction of oil (as in Mexico) and where it "had become natural to let the state oil corporation execute the state oil policy".⁸³ There was thus a clear link between the wider conditions offered to the companies and the organisational pattern proposed for the state oil corporation. Norway chose an organisational solution for Statoil which was to coincide with a system of "carried interest".

6.6.22 Statoil: a traditional view

We now want to start to examine whether Statoil represented a threatening form of state intervention for the private oil companies. This question is brought into focus by examining the debate in Norway that surrounded the creation of Statoil. There were two clearly separate notions of what Statoil ought to be, hidden beneath the unanimity of the 8th 'oil commandment' (see p.173 above). One trend of thought wanted Statoil to fit into a traditional and "non-threatening" state role, where Statoil was mainly seen to back up and support the Norwegian private sector, but where the private sector maintained the hegemony. According to such a view, Statoil's role would appear as the residual of the play of market forces.⁸⁴ The other trend of thought wanted Statoil to adopt a more aggressive and independent attitude towards the companies, which was not primarily determined by the immediate needs of Norwegian private capital. We shall examine

each in turn. The 1972-74 period would see a continued battle between the 'traditional' and the more 'aggressive' views of Statoil.

The clearest example of what a 'traditional' form of state intervention could mean within the context of a state oil corporation surfaced in the first parliamentary debate where the question of a state oil corporation was discussed. Here a Conservative MP pointed out that the national consensus for a more 'active' state involvement was nothing but a broad and fairly vacuous starting point. What needed to be determined was "the kind and breadth of the state involvement". He argued that a future state oil corporation as an "obvious prerequisite" should "act as a coordinator (samordner) of foreign and Norwegian oil interests, rather than spread itself right across the spectrum of possible activities from exploration to downstream activities".⁸⁵

This role of the state as a coordinator for private capital interests was echoed, albeit in a less strident way, by others who sought the state to become a non-operative holding company whose role for example in the case of exploration north of 62° was primarily meant to increase the bargaining strength of the private companies.

This concept of a state oil corporation is the clearest example of how it was not state involvement in itself which was at stake in the debate. The 10 'oil commandments' had made it very clear that there was an unanimous agreement among politicians that the role of the state ought to increase.⁸⁶ (The necessity of some form of state oil corporation had anyway almost automatically arisen once it was decided that the state was to receive oil from its participation agreement and as payment for royalties.) But what was at stake was the kind of state involvement this was to become.

When the Knudsen Commission recommended that Statoil should represent the business interests of the state, the company was also seen in the same traditional sense as being necessary "as an organ which can coordinate (PN emphasis) the interests of the state and the private industry's interests while at the same time be a partner (samarbeidspartner) with private industry".⁸⁷ But, the Commission continued, "a company with such an industrial-political aim has to be fully state owned". So in order to be of maximum use to the private national sector, Statoil had to be 100% state owned.

6.6.23 Statoil: a more aggressive view

There was a second current of Norwegian opinion that did not view a future state oil corporation primarily in relation to what it could accomplish for and on behalf of the private sector. This current held a more autonomous and aggressive view of state intervention. Its members advocated a state role which, at least in theory, would act at the expense of the private companies. The important distinction became whether this more 'offensive' attitude was directed against foreign or national capital, or both. Gulnes described 1972 as heralding the beginning of a new era, where the state no longer was supposed to be simply a 'sleeping partner'. He wanted "an active state participation" in the form of a state oil corporation, and implied that it was the wish of the Norwegian government that "the (oil - PN) activity shall be managed from Norway and to the extent possible by Norwegians. The management should not take place in the international oil companies' headquarters overseas, but be carried out in Norway where we could influence policy over a wide field."⁸⁸ Similar sentiments were expressed by important sectors of the DNA. Ingvald Ulveseth, later Minister of Industry, pointed out that the way forward for the Norwegian oil industry was "international cooperation with the other oil-exporting countries ... and away from the situation where the big international companies control both the total taxes, and the final price to the producer.... Norway would (instead) have to build a national industry, and preferably a state industry".⁸⁹ The left-Labour MP Thorbjørn Berntsen was even more direct in his justification for a state oil corporation. He described the principle which was subsequently unanimously agreed by Stortinget that "oil resources should be exploited so that they benefit the whole society" as "the principle on which Norwegian oil policy ought to rest. This," he continued, "and not the battlefield where powerful private (PN emphasis) interests try to expropriate the maximum profit"⁹⁰ must be the basis of Norwegian policy. But while both Gulnes and Ulveseth, quoted above, were at least verbally critical of the international companies, they at the same time opened the door for state cooperation with Norwegian capital. Berntsen, on the other hand, was distancing himself altogether from private interests, and made little distinction between national and international capital. This critical attitude to all private involvement in the Norwegian oil industry (whether Norwegian or foreign) has continued among the left wing of the Labour Party until this very day.

6.6.24 Fiscal autonomy

The disagreement about the exact role Statoil was to play also arose in connection with the amount of 'fiscal autonomy' which the state oil company should enjoy. This problem can be analysed both on the level of Statoil's access to capital and the distribution of its future profits. With regard to the first factor, there was an initial consensus among Norwegian politicians that if Norway created a state oil corporation, lack of access to capital should not become an impediment for the efficient running of the new company. Hellem, the MP who, on behalf of the Parliamentary Committee of Industry, presented the case in favour of granting Statoil such an autonomy (which by implication meant a very 'unrestrained' oil corporation), stated:

"If this company (Statoil - PN) is going to serve its purpose of satisfying the commercial interests of the state, it has to be able to act on an equal footing with other oil companies. It has to be an absolute prerequisite that the company is allowed full freedom of manoeuvre and at any time has access to sufficient capital so that it is capable of taking rapid decisions when required to."⁹¹

As an example of how to deal with the question of the distribution of future profits, Hellem cited the case of ENI, where 65% of the state oil company's net profit went to the Italian Treasury.⁹² On the other hand, a number of reasons were also put forward why the development of the state oil corporation should be under stricter control as regards the company's ability to expand along purely commercial lines. Initially this critique came from the right, which wanted to draw a very clear line between the commercial and the administrative elements of the state's involvement in the oil industry. Its primary aim was to ensure that Statoil was not to gain any undue advantages in relation to the private companies, and to attempt to limit Statoil's activities to oil extraction.⁹³ Later on, this critique was also to come from the left.

The contradiction in which the politicians found themselves was almost inevitable. If the state wanted to challenge the international companies once a decision to explore for oil had been taken, the state did not have any choice but to develop Statoil along dynamic state capitalist lines as advocated by Hellem. But such a strategy would immediately bring into the open the dilemma of political and fiscal

control of Statoil. (See Chapter 7 for a further discussion of this dilemma.)

6.7 SUMMING UP: 1970-72

The period saw a significant tightening of all the three main variables we have singled out for special attention, compared with the preceding period. This tightening not only took place within the context of what we have chosen to call 'traditional' forms of state intervention, but for the first time we see in the contours of Statoil the possibility that the Norwegian state should change from a 'passive' to an 'active' role in the oil industry. To what extent this role was actually to be played will be examined in the next chapter, but all indications were already at this time that the battle between the two notions of state intervention we have described was slowly being won by the more 'aggressive' current of opinion.

But we should on the other hand be clear about which limits the Norwegian state laboured under. This was clearly put by the main architect of the Norwegian oil policy, Jens Evensen, who said:

"Different kinds of contracts can exist side by side without weakening the principle of law (rettsikkerheten) ... I do of course (PN emphasis) reject any recommendations that advocate a change in existing contracts."⁹⁴

Compared with the development taking place internationally in the industry at about the same time, where rewriting of contracts was the order of the day, this must have sounded like honey to the oil companies.

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CHAPTER 7

1973-74: CONSOLIDATION OF THE STATE'S ROLE

7.1 BACKGROUND

By early 1975 one could discern what were to become the permanent features of Norwegian oil policies. The principal expression of this development was the increasingly active role that the state was coming to play through the workings of the three-cornered institutional structure created in 1972, and in particular through the growing role of Statoil. Although this consolidation of the state's role was relatively unspectacular by international standards, when seen together with demands for an increased state participation and tighter tax rules, the policy package of 1974 (described below) was interpreted as representing an important change in Norwegian policies. This was well reflected in comments made by two sources with very different relationships to Norwegian policies. In a comment to St.meld. no.25 (1973-74), the Conservative faction in the Committee of Finance (Finanskomiteen) stated:

"The government creates by St.meld. Nr.25 a deep and fundamental split (strid) about Norwegian oil policies and thereby breaks the national unity which hitherto has characterized our relationship to (the) oil."¹

When the Saudi Arabian Oil Minister Yamani was asked what he thought about the Norwegian terms related to the third round of concessions, he answered that it would be an understatement to call Norwegians blue-eyed Arabs - the Arabs should rather aspire to become brown-eyed Norwegians.² Indications of the new mood of Norwegian oil policies were the two confrontations between the Norwegian state and the international companies over the landing of oil from Ekofisk and the introduction of new tax rules. While in no sense challenging the existence of the companies, these episodes represented the first serious public disagreements between the two sides.

The increased state role in the oil industry appeared at the same time that the oil industry, following the 1973 price rise, at a stroke became the most important Norwegian industry. This contrasted with the position as late as early 1973 when the oil industry was still relatively unimportant with respect to the value of total produceable reserves,³ its expected share of GDP⁴ as well as in its relationship to total state income.⁵

The third round of concessions on the Norwegian Continental Shelf, expected since the summer of 1971 and officially announced in the summer of 1972, was postponed yet again in the autumn of 1972. The official reason was that the new Korvald government wanted to settle the controversy about landing of oil from Ekofisk, but the outcome of the EEC referendum also played an important part. The new government regarded itself as an interim government with one main (and limited) mandate, that a free-trade agreement should be negotiated with the EEC before the September 1973 general election. Because the outcome of the referendum was interpreted as a vote of no confidence in the forces inside and outside of Norwegian society most closely identified with the oil industry (the multinational oil companies and their Norwegian counterparts), there was also an understandable caution on the side of the Korvald government to engage in any new initiatives in the field of oil policies.⁶ Only in the case of the landing of Ekofisk oil and granting of the Brent blocks was action taken. While there was a pressure based on geological information for Norway to develop the Brent blocks, the granting of these concessions also became part of the Norwegian negotiations with the EEC about a free trade agreement. It had long been known that the EEC wanted to step up the production of indigenous energy resources of Western Europe;⁷ indeed this had been one of the important points in the EEC referendum campaign. Norway, which knew there were very good indications of substantial oil and gas deposits in the Brent blocks, refused to give the concession until a free-trade treaty had been concluded. It is indicative that the leaks about the extreme promise of the two blocks came from the Norwegian delegation in Brussels, which was led by the former head of the Oil Council, Jens Evensen.⁸ On the other hand, one should not make too much of the Norwegian bargaining card. The EEC knew that Norway, sooner rather than later, had to explore the two blocks for fear that the UK side's exploration might "suck them dry".⁹

Then finally on 11 July 1973 the Norwegian state officially announced that 32 blocks would be offered for allocation. The closing date for applications would be in September 1973, after the General Election. This third round was the first major licensing since 1969, and was warmly welcomed by the companies.¹⁰ The 32 blocks were concentrated on either 'border-blocks' against the UK or other blocks where an increasing knowledge of deep-sea drilling would be required. The new Royal Decree of December 1972 would constitute the basis for the

new concessions, while the major elements to be negotiated were the work programmes and the percentage of state participation. The offer of new blocks followed a season of relatively modest activity on the Norwegian Shelf. But by the time the applications were closed in September 1974, no less than 175 companies had applied. This time around there was not even any pretence from the companies that they were not interested in the Norwegian acreage. By the time the applications were received, Norwegian political life had experienced a major new upset which was to colour the oil policies over the coming years. The general election of 1973 was the parliamentary expression of the outcome of the EEC referendum and brought into government a minority Labour Party which was dependent on the support of 16 MPs from the Socialist Electoral Alliance (SV), a group that consisted primarily of anti-EEC forces.

The first negotiating round between representatives of the Ministry of Industry and the Oil Directorate and the companies took place in November/December 1973. Again the question of state participation was in focus. One new development as far as the companies were concerned was the state's demand that Statoil might want a sliding participation scale.¹¹ But the companies were also forced to consider what the Norwegian demands meant for their bargaining with governments in other North Sea countries, as by this time Norway had the strictest set of offshore conditions of any North Sea country.¹²

The second negotiating round took place in March 1974, by which time it was clear that only 12 blocks would be offered, two of which (36/1 and 35/3) were especially earmarked for the development of deep-water technology. The exact nature of state participation was again a major negotiating point, but also more traditional questions such as the extent of the work programmes and the density of seismic shootings were discussed.¹³ It was becoming clear (as first suggested by the Royal Decree of December 1972) that there would be differentiations in the conditions imposed on the companies and that there were wide divergencies with respect to the geological expectations and cost conditions of the different blocks that were offered.

Difficult and expensive technical conditions were expected, especially in the two deep-water blocks off Måløy. If a high state participation was demanded in such high cost conditions, where a heavy work programme was linked with modest geological expectations, this could have brought down the expected rate of return for the companies.

This follows from the participation-conditions of scenario 1, where any high exploration costs exclusively carried by the company had to be set against a relatively modest oil company income share, i.e. a 15% share of future profits from a field might be considered insufficient to warrant a \$100 mill. exploration programme.¹⁴

In the March negotiations the companies were also for the first time confronted with prospects of a change in the taxation rules. But at that time no further details were given, for the simple reason that these had not yet been finalised.

The final negotiating round between the Norwegian state and the prospective companies took place in the summer of 1974. Statoil was also allowed to be represented at these negotiations, despite loud objections from the Norwegian opposition politicians, who complained about the company's special and privileged position. By this time it was thought there were few outstanding problems.¹⁵

Five licences were in the end offered to the companies on 15 November 1974. They were much tougher than all former agreements issued in the North Sea. Statoil's 'carried interest' share was 50% in four and 55% in the fifth licence, with an in-built escalation scale which would increase government participation to a maximum of 75% for the biggest finds. The state would thus have an effective majority interest in all commercial finds. In addition Statoil would be operator in one licence covering three blocks (with assistance from Esso) and would have the right to become operator in another block if the finds straddled the UK/Norwegian boundary. Hydro became operator, on behalf of the Petronord group, in two other blocks. SAGA was initially only given a 15% share in one of the deep-water blocks, but after the withdrawal of Chevron (see below) was granted operator status on 35/3. In none of the agreements was the state to pay for exploration costs. In addition there were a number of stipulations concerning the compulsion for the companies to accept Norwegian trainees, and that the companies would be responsible for possible pollution in connection with the drilling and production.¹⁶

7.2 THE TAX CONFRONTATION

The companies had 30 days to accept the Norwegian offer of the conditions for the third round. But before the time limit ran out, the details about the new tax proposals had become known. These new tax

rules were the result of the work of the Commission set up on 15 January 1974 to review the income of the Norwegian state from North Sea activities, headed by the State Attorney (Statsadvokaten).

The Minister of Trade made clear in an interview published after the new tax proposals were known that the purpose of the new fiscal system was to secure a 'maximum take' from the companies' earnings on the Norwegian Shelf, following the quadrupling of the oil prices.¹⁷ He claimed the companies had already been warned in their March 1974 meetings with the government about the new taxes. But even so, according to the FT, "they had never envisaged anything like the proposals presented".¹⁸ The Norwegian terms were presented in a secret meeting with the companies on 27 November 1974. The suggestions included an extra profits tax reaching 40% to be levied on top of the normal government take. Furthermore, it was suggested that the companies deposit 20% of their total profits in a special account with the Bank of Norway and that a 'ring-fence' principle of taxation should be applied to each field, making it impossible to offset profits on one part of the Norwegian sector from losses on another part.

The companies promptly threatened to withdraw from the third round if these taxation rules were adopted¹⁹ and an intense lobbying started against the special tax, spearheaded by the Norwegian Oil Review, the magazine which had initially made the conditions public. The magazine claimed that the proposed tax "breaks with all accepted taxation norms in the free world".²⁰ The international oil press was not less dismissive in its characterization.²¹

The Committee which had been working on the taxation problem had not been unanimous in its approach. The major aim for the Committee was to capture the maximum amount of the increased oil rent, and its most concrete point of reference to evaluate conditions in the North Sea was the situation in the Ekofisk field. The expected return on Ekofisk, given that the majority of the investment had been made relatively early in the history of the North Sea when costs were smaller, would have been phenomenal. So by arguing mainly from the perspective of Ekofisk, it is hardly surprising that the Committee wanted to increase the rate of taxation. However, there was an alternative approach to capturing the rent, and this was to ask for government participation in Ekofisk. A minority of three members of the ten-man Committee wanted to renegotiate the Ekofisk agreement.²²

Such a solution would have had a number of advantages for the Norwegian state. The marginal rate of taxation would have been less steep if the case of Ekofisk was satisfactorily dealt with. Furthermore, it would give the Norwegian state increased control over the developments at Ekofisk. On the other hand, it would involve a renegotiation of an existing licence, an unwelcome development for most Norwegian policy-makers in view of the principled Norwegian stand on this issue. As will be made clear below, a renegotiation of tax rates was seen as legally acceptable by the Norwegians, while an intervention in the participation rates constituted a much clearer break with the principle of "non-retroactive legislation".²³

Faced with the uproar about the new taxation scheme, the Norwegian authorities almost immediately back-tracked. They claimed that the '90%' tax law (as it was to become known) were only 'ideas' intended to form the basis for 'preliminary discussions' and were not binding for anyone.²⁴ This way of describing the initiative is however contradictory to a later government characterization of the episode which talks in terms of an actual government 'proposal' being put forward.²⁵

On Friday 13 December 1974 the Norwegian state, according to Noroil, "had to retract one of the most ill-considered and inept oil political overtures yet",²⁶ and the companies were allowed to postpone the date by which they had to accept the third round of concessions. According to the Norwegian authorities this happened "because one could understand that the companies wanted more time to evaluate the concessions in light of the tax proposal which had been published..."²⁷ But in reality it was an admittance of defeat for the Norwegian authorities and served primarily to give the Norwegians time to develop a new set of tax proposals, which were presented in an Odelstingsproposisjon, no.26, of 14 February 1975. The companies, which all along insisted on seeing a close connection between the tax proposals and accepting the new concessions, were given a final time limit for accepting the third round concessions to 17 March.

All the companies, with one exception, had accepted the concessions by that date. Even if the government's tax proposal had not yet been ratified by the Storting, the proposals of 14 February gave very clear indications of what they would be like. The one exception was Chevron, which had been given the operator role on one of the deep-water blocks, 35/3, to be exploited together with SAGA. Chevron stated that it only wanted to accept the offer on the condition that Stortinget passed a

tax law which "satisfied the company".²⁸ But Chevron also knew that such an answer was synonymous with a refusal, because the Norwegian authorities had made it clear that any conditional acceptance of a concession would be regarded as a refusal. The Economist, in evaluating the final package, wrote: "Oil companies operating the Norwegian sector have voted in a majority to stay put", and attributed the Chevron pull-out to the bad geological prospects of the acreage.²⁹ Even Noroil, which normally could be described as an extremely pro-industry magazine, described Chevron's conditional acceptance as "politically unconscious" given the political realities of Norway.³⁰ Chevron's concession was later taken over by BP, while SAGA became operator of the block. (For a further discussion of the special tax, see Section 7.4 below.)

7.3 THE LANDING OF OIL FROM EKOFISK

The second major confrontation between the Norwegian state and the companies during the 1973-74 period arose over the landing of oil from Ekofisk. The issues involved have been set out in great detail by Owe (1974) and highlighted by Andreassen (1973). There is therefore no purpose in repeating the complex background to the decision reached by Stortinget in April 1973, which led the Ekofisk oil and gas to be piped to the UK and West Germany in spite of the stipulation in Norwegian law that it should be landed in Norway.³¹ In exchange for this agreement Norway obtained a 50% share in the pipeline and secured delivery of raw material to its future petrochemical industry.

The agreement was mainly seen internationally as yet another step by the Norwegian state to increase its role in the oil industry.³² And from the perspective of rent-division, the Norwegian insistence on a 50% share in the pipeline avoided a potential loss of rent to Phillips. The company could have charged a high price for transporting oil through the pipelines and thus transferred profits to a separate pipeline company outside the jurisdiction of Norwegian tax authorities. This was avoided by Statoil becoming co-owners of the pipeline.

But there were also some more principled issues arising from this confrontation. First, insisting on landing the oil in Norway would have led to a postponement for 'several years'³³ of the full flow of gas and oil from Ekofisk because the technical problems of crossing the Norwegian Trench first had to be overcome. This in turn would have meant a loss of profit for Phillips (and loss of income for the state).

Given the concession pattern originally chosen by Norway, it was almost impossible for the Norwegian state to insist on such a postponement, especially once Phillips had been granted a production licence.³⁴ A postponement would have amounted to a major interference in the micro-conditions of exploration for the company, something we have shown was virtually impossible for the Norwegian state to carry through, and thus represents a major weakness in this kind of concession.

Secondly, while the agreement obviously decreased the manoeuvrability for the Norwegian state, especially in foreign policy terms, the state also managed to secure the interest of the Norwegian spinoff industry. This was done by negotiating a steady supply of raw materials at favourable prices for the planned petrochemical industry.

Thirdly, the concessions obtained by the Norwegian state from Phillips, especially the 50% share in the pipeline (in addition Norway only had to raise 5% of the total capital for the project), as well as the open confrontation with the company about whether the chairman of the joint pipeline company should have a casting vote (a confrontation which Norway lost), were paradoxically an expression of the political weakness of the Korvald government. Korvald's apparent 'toughness' was needed to ensure the passage of the proposal through a sceptical Storting. Parts of the Labour Party were clearly unhappy with the government's recommendations, an uneasiness that only increased when LO (the Norwegian Trade Union Congress) recommended a postponement of the decision. Opposition to the idea of landing oil abroad was centred around the plea that Norway should postpone a decision in order to gain more time to further evaluate its oil policy.³⁵

Finally, the confrontation said something about the power of the international financial institutions. The international bank consortium led by First National City Bank refused to finance the Ekofisk pipelines if the Norwegian state took control through the Norwegian chairman's double vote.³⁶ Given the close connection between the major international banks and the international oil companies,³⁷ this intervention could be seen as the companies' joint objection to a de facto Norwegian control with installations on the Shelf, a development the industry was not willing to accept at the time. What is surprising is how this example of overt and direct pressure was not taken up further by the Norwegian state and used in its bargaining stand against the companies, something that would have been relatively easy to do. It rather seemed as if the state was happy not to have this excuse to point to. This reinforces

the belief that the Norwegian state was at the time not interested in any fundamental confrontation with the companies.

7.4 THE BARGAINING STRATEGY

We can now examine in more detail the bargaining strategy pursued by the companies and the Norwegian state as it expressed itself during the third round. Most of our comments will centre around the special-tax controversy. On one hand we shall see that the companies changed their bargaining strategy from what had historically been 'normal'. On the other hand the Norwegian state had made dramatic strides in its access to information.

7.4.1 Retroactive laws

This time around it was difficult for the companies to claim that geological indications were unfavourable and that therefore the Norwegian state would have to induce them to explore for oil in Norwegian waters. Reference to the high success rate of commercial finds on the Norwegian Shelf (see p.215 below), and the large number of companies applying for Norwegian acreage in 1973, would immediately make such a claim sound hollow. And when oil prices increased from 1973 onwards, the traditional argument that profitability would be low also fell flat on its face. The companies therefore changed their traditional strategy and started to stress a number of issues which had been familiar in other parts of the world, but which had featured little in the Norwegian debate. One disadvantage of changing tactics was that they had to take their arguments much more into the public sphere of politics. Their first stand was on the question of retroactive laws.

The more general attitude of the companies to Norwegian licensing policies was well expressed in the beginning of the period by one oil executive who said, "There is this constant nibbling away at what you thought were yours by right."³⁸ But the strongest statements did not surface until Norway suggested the introduction of the special petroleum tax. The companies claimed in a special report³⁹ that such an action was unlawful according to the Norwegian Constitution.⁴⁰

What is interesting about the companies' intervention is, first, the timing of the initiative, which came only after the state's initial

suggestions had been rejected by the companies in early December, and the government was clearly on the defensive. So the companies undertook no public initiative until they felt that they were politically on the offensive and the government was temporarily discredited. Then they chose to challenge the whole principle of the Norwegian initiative, even though the companies had known as early as March 1974 that new tax laws were on the way.

The companies' judicial judgements were backed up by their memoranda submitted to the Finance Committee of the Storting which examined the proposal of the new tax. Shell claimed that the government had not refuted the arguments put forward.⁴¹ Norsk Agip was "in grave doubt about the constitutional validity of the proposed law"⁴² Agip also interestingly claimed that the crucial variable when the initial negotiations took place in 1965 was "total government take",⁴³ arguing that any new taxation law which changed this 'take' was unconstitutional. This strategy tried to take advantage of the Norwegian government's initial lack of negotiating sophistication (when its reference was to "total government take" and not to internal rate of return). The Norwegians overruled the objections by the companies concerning the constitutional nature of the extra tax when Professor dr. juris C.A. Fleischer, on behalf of the Norwegian state, wrote his answer to the companies' special report,⁴⁴ and more fundamentally when the special tax law was finally passed in Stortinget in June 1975.

7.4.2 Marginal fields

Everyone in the oil industry had to admit that the expected 60.3% rate of return for Ekofisk was what SAGA chose to describe as "good business",⁴⁵ which would recuperate its total investment in the staggeringly short time of two years. Consequently there could be no question that the companies could point to a general shortfall in North Sea profitability when they negotiated with the Norwegian state. They therefore again had to change their bargaining approach and put more emphasis on the marginal fields, a bargaining strategy we have already anticipated (Section 2.5.11). By 'marginal fields' we here mean fields which operate under difficult technical conditions, especially in greater depths. The companies' arguments as presented to the Parliamentary Committee of Finance bears out such an observation. Their cash-flow calculations aimed to strengthen their bargaining power, and constantly referred

to the so-called deep-water blocks that were offered to the companies in the third round. Shell's arithmetic example⁴⁶ was built around a field of 300 meters' depth. This was more than four times the depth of the Ekofisk field and much deeper than any field yet found, let alone developed at that time in the North Sea. SAGA followed the same strategy by focussing on conditions in block 35/3 and other fields where they assumed that capital investment per daily barrel of peak production was above \$5000. By combining this with the view that a commercially acceptable project (one where the internal rate of return was not less than 25%, a figure never discussed by the oil companies), SAGA claimed that the suggested taxation laws would exclude "approximately 90% of the Norwegian North Sea".⁴⁷ Chevron was one company that in its submitted material distinguished between the conditions of different depths,⁴⁸ but the company then spent most of its letter to the Committee explaining the situation of the deep-water blocks, in all probability preparing the government and public opinion for its decision to withdraw from the Norwegian Shelf.

The letters submitted by the companies provide a valuable insight into the kind of arguments the companies at that time were using and in all probability had used in former negotiating rounds to extract the best possible conditions from the Norwegian state. SAGA in its submission to the Committee listed five factors of uncertainty which might affect the internal rate of return: among them a collapse in the price of oil.⁴⁹ The possibility that such risks might also swing the other way (oil prices might for instance increase even further) was never pointed to. Shell followed a similar bargaining procedure in the figures it presented to the committee,⁵⁰ except that the company also included as an uncertainty the possibility that the state set the norm-price above the actual selling price for each barrel produced.

It was then up to the Norwegian negotiators to claim that the companies were wrong in general, or more particularly were too cautious in their assessments of all factors which could influence the IRR. The Norwegians' bargaining position in this respect was partly a function of access to information, which Norway was acquiring at a rapid rate. It was therefore not surprising that the end result of the debate about the marginal fields and tax rate was that few of the points raised by the companies in February 1975 (while remembering that they had managed to stop the earlier and much more serious attack on their interests at the end of November the previous year) were accepted by the Norwegian Storting.

7.4.3 Information

Access to geological information and expected costs and prices was important for the Norwegian state's bargaining position, as this would help to evaluate the net present value accruing to each of the two actors. The key institution in evaluating geological data for the Norwegian state was the Oil Directorate created in 1972. The Directorate served as the main consultant for the Negotiating Office of the Ministry of Industry and, together with Statoil, participated in all meetings between the Ministry and the companies. The state will independently of access to such expertise also have some idea about the prospect of an area from old success ratios, the extent of company interest in a specific block etc. But no definite assessment can be made when negotiating on a block by block basis unless the state has access to more specific geological information. While it was a condition of any exploration licences in Norway that all seismic data was to be handed over to the state, the Norwegian authorities had little independent ability to adequately read geological data until Norges Tekniske Naturvitenskapelige Forskningsråd (NTNF) in 1969 was given the task of shooting seismic data off northern Norway.⁵¹ The 1973 annual report from the Directorate even pointed to the fact that because the Directorate was the only institution with access to all seismic institutions in the North Sea it could in certain cases warn prospective drillers in a block about special dangers like high pressure.⁵²

In 1973 the responsibility for seismic shooting north of 62° was transferred to the Petroleum Directorate, which in 1973 alone shot almost as much as NTNF had shot in the previous four years. The Directorate also started to receive all the seismic material from the North Sea. There can be no doubt that the Directorate with four petroleum geophysicists on its staff at the time of the third round was perfectly capable of interpreting the available geological data.

The Directorate also helped to evaluate the expected capital costs. From the early 1970s Phillips had to file information about the actual cost of investment in the North Sea with the Department of Industry. By the time phase II of Ekofisk was finished in 1974, which included the installation of five fixed platforms and one storage tank, the Directorate's knowledge of the ongoing investment conditions on the Norwegian Shelf was extensive. The Ekofisk costs became of great importance to the Norwegian state as a basis for assessing the likely

capital cost of installations in the North Sea, to the extent that the 1975 special tax proposal was nicknamed 'Lex Ekofisk'. In addition, the Oil Directorate had access to all the structural drawings of the installations⁵³ so that not only the costs, but also other and equally relevant information, was available to the Norwegian negotiators.

But present investment costs are not necessarily representative for future costs, and it was always possible for the company negotiators to claim that Ekofisk was 'unrepresentative' cost-wise. On this background it is understandable that one of the factors which in December 1974 made the Norwegian cabinet change its mind over the initial excess profit tax proposals was the news that the cost of the Frigg field had increased by \$600 mill.⁵⁴ On the other hand, the Department of Industry's negotiators from 1973 onwards started to gain access to the expertise of Statoil, whose representatives were present at all negotiating sessions. While in the very beginning this might have been of relatively little importance, at the end of 1974 Statoil had 118 employees, many of them with long experience in the oil industry,⁵⁵ and who if properly used, could have strengthened the Norwegian negotiating position.

To strengthen its negotiating position the state should also have had access to independent expertise for evaluating production possibilities from future fields. The Norwegian Oil Directorate provided such expertise, in the form of personnel who mastered production geology and reservoir technology.⁵⁶

By the end of 1974 the Norwegian state therefore seemed to have adequate information of their negotiating position in the North Sea. One of the state's major handicaps from the former negotiating rounds had thus been removed, and we can virtually eliminate the shortcomings of information as an important explanatory variable for the outcome of the negotiations of the third round.

7.5 DIVISION OF RENT

We will now turn to what the third round agreements of 1974/75 meant for the division of rent between the Norwegian state and the companies.

7.5.1 Exploration costs

The acreage on offer in 1974 was geologically of a more unknown quality than the Brent blocks had been in 1972. We have therefore chosen an average find-rate of one in ten, a figure also used by Chevron.⁵⁷ This is a very conservative average, both compared with the assumptions regarding the Brent blocks and the average find-rate in the Norwegian sector, which until then had been a remarkable one in five.⁵⁸

Because general exploration costs had increased and two of the blocks offered were in deep water, we have increased the assumed average cost of an exploration well to \$4.8m. or 20% up from the 1972 figure.⁵⁹ Any increase in costs beyond that must be set against the continuous technological development that was taking place in the North Sea at the time. Directional drilling had initially turned out to be difficult in the northern parts due to large holes and soft formations. But, according to OGJ, "Several years of work in developing new techniques and new drilling fluids have helped to overcome the hole problems."⁶⁰ Total average exploration costs would there have been an estimated \$48 mill.

7.5.2 Development costs

By the time the Norwegian third round of concessions was negotiated, much more was known about the cost levels in the North Sea as a result of the development of the Ekofisk and Forties fields. For the first time loading of oil directly into tankers on the field rather than transporting it through pipelines was seriously raised as a possibility of transport. One reason for this was that laying a pipeline was turning out to be extremely expensive, not the least because existing deep-water pipe-laying barges were in short supply at the time.⁶¹ It was therefore clear that the construction of a pipeline could only be economical for the very largest fields, unless smaller fields could be linked to existing pipelines.

We have assumed that on-field loading would be used for the 100m. to 400m. fields, while a pipeline system would be used for the 700m. and 1 billion fields. This is partly based on economic considerations, partly on security of supplies. The companies preferred not to rely on tanker loading for their larger fields, given the discontinuous nature of the production flows, especially throughout the winter. The

on-field loading development costs we have assumed to consist of one component which exhibits constant returns to scale and reflects the extra cost of the loading equipment. For a 200m. field this extra equipment consisted of two ELSEMs ('Exposed Location Single Buoy Mooring System') totalling \$8 mill.⁶² To this we have to add the second element of development costs, which existed whether the field was to be served by a pipeline or by field loading. Basing its derivation on costs per daily barrel we assume the final figure for a field with a maximum output of 40,000 bbls/d to have been between \$3,400⁶³ and \$4,025.⁶⁴ per daily barrel. We will bias our cost estimate towards the Lovegrove figure, as this was specifically constructed with offshore loading in mind. This yields a permanent cost component of \$145 mill. for the 100m. field,⁶⁵ giving total development cost for a 100m. field with on-field loading of \$150 mill. Development costs for all other fields with direct loading can then be computed.⁶⁶

Due to the new technology of concrete platforms that had just been introduced in the North Sea by 1974, we have to discontinue our former procedure of simply multiplying the constant development cost share by seven and adding the pipeline costs to find the total costs for a 700m. field. While steel platforms were still in use in the North Sea at the time, such a change in assumptions is necessary because the concrete platforms were a Norwegian invention, and any field developed in Norwegian waters would be under great pressure from the Norwegian state to order concrete platforms.

We assume an average pipeline cost of \$1.8 mill./mile. This cost was in line with the expected average cost of laying the Forties pipeline (\$1.6 mill./mile)⁶⁷ when we take into account that the market for pipelaying barges was tightening, and was also close to Baxendell's expectation of \$2 mill./mile.⁶⁸ But the distance from the allotted 1974 acreage to shore varied much more than in former rounds of concessions. The Måløy deep-water blocks were almost immediately adjacent to the Norwegian coast, while the southern blocks were almost 200 miles from any likely spot of landing. While an average distance of 150 miles for the pipeline may be on the high side, it may help to neutralize the higher expected development costs in the deep-water blocks closest to shore. Average pipeline costs were therefore expected to total 1.8×150 mill. = \$270 mill.

Lovegrove's study can again be used to find the expected platform costs. His 800m. barrel field example of a concrete platform has a

non-pipeline development cost of \$930 mill.,⁶⁹ which for a 700m. field would yield a cost-component of \$812 mill.

This would yield total development costs for a 700m. field of (\$270 mill. + \$812 mill.) = \$1082 mill. and the cost for a 1 billion field computed in a similar way to equal \$1440 mill. This latter figure was exactly equal to Chevron's total cost for a similar sized field.⁷⁰

Our total expected development costs range between \$1.50 and \$1.40 per barrel. This is slightly higher than aggregate figures presented by Brown in Smart and Sæter who assumed \$1.20/bbl,⁷¹ but towards the bottom of the range of the OECD figures of \$1.50-\$2.00.⁷²

7.5.3 Operating costs

The expected operating costs in 1974/75 were still uncertain because no field at the time was producing oil in the North Sea. There was a greater difference in expected operating costs per barrel than for any other cost category. Four studies gave operating costs as different as \$0.23/bbl, \$1.00/bbl, \$1.53/bbl and \$1.60/bbl.⁷³

We will use an identical operating cost per barrel for the two kinds of production systems and give a relatively large weight to the tanker loading system. Bearing in mind that two of the planned fields with tanker loading at the time had the higher than average expected operating costs between \$1.55 and \$2.10⁷⁴ per barrel we feel the average MacKay figure (footnote 73) of \$1.00/bbl should be biased upwards to \$1.50/bbl. This is also reasonable in view of the higher figure used by Statoil (footnote 73).

Given the particular uncertainty about operating costs we have as before carried out a sensitivity analysis with both higher and lower operating costs.

7.5.4 Financing and debt

As suggested by Aronsen,⁷⁵ we assume a continuous drop in the degree of self-financing from 1972 onwards as the capital needs for the development of new fields in the North Sea continuously increased. Some of the majors (like Shell and Esso) could still be expected to rely on their own self-generated funds. Other firms, however, relied on external finance for up to 90% of their investments.⁷⁶ We have therefore assumed an increased share of company debt compared with 1972 to 50%,⁷⁷ with Statoil showing a corresponding increase to 70%.

We assume that the interest rates obtaining for developing a field in the North Sea still were somewhat below the market rate,⁷⁸ but that they had increased in line with the general rise in interest rates as world inflation accelerated from 1973 onwards. As an average we assume a rate of 11% running over 7 years with 2 years' grace.⁷⁹ The easier repayment conditions in 1974 compared with 1972 can be seen partly in the efforts made by specialised bodies like the European Energy Bank to foster a higher degree of self-sufficiency in the European energy market.

7.5.5 Price

The export price of 34° Arab Light was 1/1/75 set at \$10.46 (the posted price was \$11.25). Assuming for simplicity a fixed transport cost per barrel from the Gulf to Europe of \$1/bbl independently of the world spot rate,⁸⁰ and sulphur-premium of 45¢/bbl,⁸¹ and a fixed profit margin per barrel of 22¢/bbl (introduced by the OPEC countries in January 1975), we arrive at a possible market price of crude around \$12.10/bbl, on the assumption that North Sea oil would not undersell Middle East oil. But this is not an absolutely correct price for North Sea oil, because of transport costs from the tanker-loading field to the refinery. We have previously not been forced to take this factor into account as we have only assumed pipeline transport. Also the size of the profit margin and transport costs from the Gulf make a price of \$12.10/bbl less certain. We have consequently chosen a conservative market price of \$11.50/bbl.⁸²

7.5.6 Development of costs/revenues

The OPEC countries' price rise of 1973/74 could have been regarded as a 'once and for all' increase which had restored the real price of oil to what it had been in the late 1940s. Disregarding the frequent predictions about the 'inevitable' break-up of OPEC, it would nevertheless seem a reasonable assumption at the end of 1974 that the main future battle for the OPEC countries would be to try to maintain rather than further raise the real price of oil. We will assume that this fight would only be expected to be partially successful and that the real price of oil would decrease by 1% p.a., i.e. the expected rise in costs in line with average world inflation rates of 7% would be paralleled by an increase in price of 6%.⁸³

7.5.7 Other assumptions

Participation-rate: In the 1974 concessions the principle of flexible participation rates depending upon the top level of production⁸⁴ were for the first time introduced. Little detailed information has been released about the magnitude of state participation except that Statoil's initial participation rate was to be 50% in four and 55% in the fifth concession, which were issued in 1974. The top level rate of participation was stipulated to be 75%.⁸⁵ We assume that a maximum level of participation is reached for fields larger than 1 billion barrels recoverable reserves (a gigantic field by any standards). Because it is stated "that in virtually all areas where commercial finds are made Statoil's participation share will be above 50%",⁸⁶ we assume that the participation rate starts at 55% for a 100m. field and increases by 2.5% for each 100m. barrel field until it reaches 70% for a 700m. field. It then reaches 75% for the 1 billion field.⁸⁷

Depreciation: Straight-line 6 years.

Corporation tax: 50.8% of net income before corporation tax which is defined as:

Income - depreciation - interest - operating costs - royalty - losses carried forward⁸⁸ - distributed dividends.

Special tax: 25% of 'net profits'.⁸⁹

Discount rate: The 12% discount rate is a compromise between the 10% used by WM,⁹⁰ and the 15% used by the Norwegian state,⁹¹ but we have also used a higher discount rate in our sensitivity study.

Assumptions 1974

Price \$/bbl		11.50
Price Escalation %		6
Total exploration cost (\$m.)		48
Development costs \$m.	100	150
	200	300
	300	450
	400	600
	700	1,095
	1,000	1,440
Discount rate		12
Operating costs (\$/bbl)		1.50
Cost escalation (%)		7
Percentage debt (i) Company		50
	(ii) Statoil	70
Rate of interest		11
Years grace		2
Years spread		7

PARTICIPATION

Scenario 1 - no repayment if exploration cost

	100	55
	200	57.5
	300	60
	400	62.5
	700	70
	1,000	75

7.6 RESULTS 1974

We can now estimate the likely division of the rent between the companies and the Norwegian state as they were expected to be when the negotiations for the 1974 blocks took place. The results are set out in Tables 7.1 - 7.9.

The price rise of 1973/74 was the one factor which overshadowed all others and which almost on its own redefined the exogenous circumstances under which both the companies and the Norwegian state operated. The total PV of all fields grew so much that new taxes as well as renegotiations of the old contracts were urged. The increased amount of rent had also important consequences for the depletion debate (see 7.7 below). Even if costs by the time the third round agreements were about to be signed had almost doubled compared with 1972, the PV

of the 700m. field had increased from \$699 mill. to \$2072 mill. or almost tripled (Table 7.1).

If the Norwegians had done nothing special to compensate for these fundamental changes, and simply continued with their 50% participation under the old tax rules, this would have left the companies with a very good return indeed (see p.224) and control over a large proportion of the rent. So again the Norwegian policy-makers reacted to changes in exogenous circumstances, this time by introducing a flexible participation scale and a new tax, the special profit tax. But the exact way this was done was a mirror image of the actions taken previously by the state, which tried to maintain the expected IRR of the oil companies at what the companies themselves claimed was a 'reasonable' level, i.e. 20-25%. At the same time the state tried to get access to a maximum amount of the rent by direct equity ownership (Table 7.6).

Even if the effects of participation on IRR in no sense could be said to be negligible, its effect rapidly diminished as the size of the fields grew, because the relative importance of exploration costs decreased. While participation decreased the IRR for the 100m. field by 12%, for the 700m. field the decrease was reduced to 2.9% (Tables 7.1 and 7.2). This is also seen in Table 7.6 where the amount of 'hidden' participation declines as the field size increases. In particular it should be noted that the companies in 1974/75 were earning their highest ever rates of post-tax return on new investment in the North Sea (expected post-tax returns ranged between 22.6% for the 700m. field and 31.8% for the 200m. field). At the same time as they were bitterly complaining in public that they were in the process of being squeezed out by the new Norwegian and UK legislation. At least from a financial point of view, their claim seems largely to have been undermined by our results. Turning to the sensitivity tests (Appendix F), we see that if the companies could have managed to accelerate their production, the post-tax, post-participation IRR would have increased to a staggering 72.1% for the 200m. field and 69.7% for the 700m. field. However, such an outcome should be counterbalanced by a possibility of even further increases in costs beyond our own estimates. But even a 30% increase in total development costs would have meant a relatively modest decrease in the expected IRR of 3.5% for the 200m. field (from 31.8% to 28.3%) and 3.5% (from 22.6% to 19.2%) for the 700m. field.

RESULTS 1974*TABLE 7.1 PROJECT APPRAISAL FOR EACH FIELD AS A WHOLE

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Pre-tax IRR (%)		58.2	61.8	50.2	43.8	36.5	36.0
Present Value (\$m)		401.7	765.1	1005.3	1238.7	2072.3	3054.8
Post-tax IRR (%)		39.5	42	35.4	31.3	25.5	25.4
Net Present Value (\$m)		132.2	262.1	347.2	426.3	637.1	982.2

TABLE 7.2 PROJECT APPRAISAL AS SEEN BY THE COMPANY

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Pre-tax IRR (%)		42.4	47.6	41.1	37.1	32.4	32.4
Post-tax IRR (%)		27.5	31.8	28.8	26.4	22.6	22.7
Net Present Value (\$m)		48.8	100.4	127.2	146.7	174.7	214.1

TABLE 7.3 STATOIL'S POSITION

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Pre-tax IRR (%)		145.1	125.1	79.4	62	45	42.7
Post-tax IRR (%)		109.2	90.3	59.1	46.3	32.4	30.9
Net Present Value (\$m)		87.3	170	233	269.9	497.2	761.3

TABLE 7.4 TOTAL STATE TAKE FROM BOTH EQUITY AND TAXES

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
As if no participation		67.1	65.7	65.5	65.6	69.3	69.6
Scenario No.1		87.9	86.9	87.4	88.2	91.6	93.0

TABLE 7.5 THE IMPORTANCE OF PARTICIPATION

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Scenario No.1		24.6	25.5	26.4	27	26	26.6

* For a clarification of the meaning of each table, see Chapter 5, pp.158-160
See also pp.107-109.

TABLE 7.6 THE PROPORTION OF PRESENT VALUE ACCRUING TO STATOIL

	<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
Statoil's proportion		61.1	61.0	62.9	65.1	72.0	76.6
Disguised participation		(11)	(6)	(5)	(4)	(3)	(2)

TABLE 7.7 TRADITIONAL MEASURE OF STATE PERFORMANCE (discounted)

<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
	69.1	66.6	66.3	66.5	70.5	70.8

TABLE 7.8 STATE'S SHARE OF RENT FROM ALL SOURCES (undiscounted)

<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
	85.3	85.8	86.8	88.0	91.0	92.6

TABLE 7.9 TRADITIONAL 'TAKE' (undiscounted)

<u>Field:</u>	100M	200M	300M	400M	700M	1 bill.
	65.4	65.8	66.6	67.6	69.8	70.3

Thus, even if costs had gone up further, all that was needed to counterbalance such a development would have been a modest increase in the speed with which a field was exploited. Cheaper operating costs by 30% would have only meant a marginal increase in the companies' IRR of 0.9% for a 700m. field.

Expected IRRs on the new fields were therefore by any criterion generous. When we examine the return on fields that had already been developed during the period when costs were much lower, returns were indeed staggering. Wood Mackenzie assessed as late as October 1975 the IRR on Ekofisk to be no less than 66%.⁹³

The introduction of the special tax in 1974 upset the marginally downward trend of the state's pure tax take, which had been observed from the second round onwards. So even if a large slice of total state income would originate from the state's ownership of Statoil (a maximum of 27% for the 400m. field - Table 7.5), this slice was less than in 1972, even if the rate of participation was at its maximum 25% higher. But despite this trend towards a levelling out of the importance of the equity share around 30% of PV, the state's total share of the rent when both taxes and equity income are included reached on average the high 80s in both discounted and undiscounted terms (Tables 7.7 and 7.9), with corresponding 'traditional takes' of 70.5% and 59.8% for a hypothetical 700m. field.⁹⁴

7.7 VOLUME

From 1971 onwards there had been continuous postponements in the allocation of new acreage on the Norwegian Continental Shelf, even if there was never any coherent or very explicit justification for such a policy. A full justification was finally presented in St.meld. no.25 (1973-74), which launched a debate on the optimal rate of Norwegian production which has continued ever since. Because the limit on output was probably the most controversial aspect of Norwegian oil policies, and a key factor in understanding the Norwegian state's negotiation position in 1974, it will be examined in some detail. The question of volume controls also threw up a number of problems in the relationship between nation states and oil companies, which at the time were unique to Norway.⁹⁵

First, the justification for a depletion control (to the extent that it has existed) changed over time. Initially such controls were seen in relation to the immediate and direct effects they had on the oil industry. As a result of the increase in the price of oil in 1973-74, this perspective changed and the indirect consequences became the main justifying force.

Evensen summarised the earlier reasons for the Norwegian state's initial reluctance to maximize the output from the North Sea as:

- " - a wish to gain experience and knowledge",
- " - a wish to develop a strict and independent oil policy",
- " - a belief that these areas (the Norwegian Continental Shelf - PN) will increase enormously in importance and value with the ever-increasing demand for oil and gas",
- " - the wish to reserve these potentials for coming generations".⁹⁶

The justifications⁹⁷ are fairly standard within the context of state/company relationships. The two first reasons were clearly related to the wish to increase the Norwegian state's bargaining position in relation to the oil companies, while the third simply constituted an attempt to apply the principles of the optimal conditions for the exploitation of a natural resource. The fourth represented a debateable general philosophical principle.

But what is important about these reasons is not what they say, but rather what they don't say. There is no mention of the indirect effects of oil production on the Norwegian economy, the element which later was to totally dominate the Norwegian oil debate. The first to point to such indirect effects was Seland (1973), who already in December 1971 speculated about the effects of an annual Norwegian oil production of 150m. tonnes. While no-one at the time seriously thought that Norwegian oil production would reach such levels, the substance of Seland's vision was interesting enough. He predicted that in such a case Norwegian exports would price themselves out of the world market,⁹⁸ and the Norwegians would end up "building for each other, teaching each other and shaving each other".⁹⁹ His prediction that Norway would become what amounted to a 'rentier state' had a lot in common with Mabro's analysis of the development in Libya.¹⁰⁰ But Seland did not choose an oil producing state as his example. Instead he used the structural changes in the USA between 1850 and 1870 when the huge production of grain for export from the US mid-west priced the traditional

US export industries centred on the east coast (like ship-building and shipping) out of the world market.

The indirect effects of oil production as described in St.meld. no.25 were mainly a result of the large amounts of oil rents which would accrue to the Norwegian economy from each produced unit of oil. The effect of this factor is therefore proportional to the price (or more correctly the profit margin per barrel) of crude, and were of relatively minor importance until the price of crude dramatically started to increase. It is on this background that Naustalslid's criticism¹⁰¹ that the Norwegian state did not adequately prepare itself for the full impact of the oil age, is partly misplaced, as this impact only became crucial after 1973/74.

The first indirect effect related to the deep-seated consequences of oil production on the industrial structure. It was initially estimated that the increase in aggregate demand from oil would make up to 80,000 workers, or one fifth of all workers in industries exposed to international competition, change their jobs in the period to 1980.¹⁰² The main mechanism for this process was the Ministry of Finance's estimate that for each Kr. 1 bill. in added income spent within Norway there would be a transfer of 8000 jobs from the internationally competitive 'external' sector of the Norwegian economy to activities which exclusively catered for the protected internal market in the 'sheltered sector'.¹⁰³

It is curious that the Ministry of Finance in its discussion explicitly ruled out a second indirect consequence of oil production, which would have operated through the exchange-rate mechanism. While it assumed that the Norwegian Krone would be in a stronger position as a consequence of the large income from oil,¹⁰⁴ it claimed that this "will not harm those industries exposed to competition"¹⁰⁵ because it would keep domestic price-rises down. Such an argument completely ruled out the crucial effect that a higher exchange rate would have on the competitiveness of traditional Norwegian exports on the world market. The stronger Krone would lead to the closure of a number of these industries, which helped to maintain a decentralised industrial structure. Given the peculiarities of the Norwegian social formation, with its emphasis on decentralization and regional balance, this was a development that no Norwegian government could have remained indifferent to. A particularly powerful element in the opposition to such induced structural changes, which especially were expected to hit the textile

and food-processing industries was found to be among women; as a disproportionate number of the workers expected to change jobs due to the indirect effects of oil would have been women.¹⁰⁶

Based on its analysis of the indirect effects of oil, the Ministry of Finance assumed that a yearly maximum of Kr. 6 bill. should by 1980 be added to Norwegian internal aggregate demand. While not justifying this figure in any detail, it is clear that such an injection (an estimated 3-4% increase in total demand) represented an upper 'tolerance limit' for structural changes in Norwegian society.¹⁰⁷ It is also possible to argue that an accelerated inflation could follow from a potential excess demand as a result of a decision to plough the proceeds from a higher volume of production back into the economy. The reason was that the amount of money earned in the oil sector from a given amount of oil bears no relationship to the value of capital and labour expended in its production, due to the high level of rent in the oil price.

But whatever the reason given at the time for not reinjecting all oil revenues into the domestic economy, it was clear that the difference between the expected oil income of Kr. 15 bill. per year¹⁰⁸ and the 'acceptable' level of domestic use of Kr. 6 bill. had to be disposed of through some kind of capital export. And there were legitimate questions asked why Norway should increase its oil production simply to increase this capital export. This was especially so if this exported capital would only realize a rate of return on the international money market which was below the current rate of inflation.¹⁰⁹

In addition to the indirect effects there were also other and more direct effects related to employment in oil production and the spinoff industries. By attracting, often in an unplanned manner, labour from peripheral areas, it was thought the oil industry would drastically accelerate the break-up of the traditional social and economic structures of the society.¹¹⁰

But there were (and still are) other potentially threatening direct effects from oil activities. The dangers of an environmental catastrophe in the North Sea is an element that constantly contributes to the opposition to a fast level of exploration. A full-scale blowout of a well under winter conditions in the North Sea could take 6 months to control, by which time 1½ million tons of oil may flow into the sea.¹¹¹ The consequences of a blowout could be disastrous for the environment in general and the fishing industry in particular. The

increased weight given to environmental and ecological consequences of Norwegian oil activities has also meant a general distrust towards further industrialization of Norway based on oil. This has for example led to vigorous opposition to the establishment of new petrochemical industries in Norway, with a corresponding decrease in the need for a high production volume in Norway.

To exemplify what is meant by an 'acceptable' rate of depletion in view of the indirect effects of oil production, the Ministry of Finance used an output of 90 mill. tons of oil equivalent. While the 90 mill. tons figure was only meant as an illustration, and in effect was at least partly chosen on the assumption that the equivalent of one more Ekofisk would be found on existing acreage on the Norwegian Shelf,¹¹² the figure soon took on an almost mythical character. Some political parties (SV and Senterpartiet) argued that 50 mill. tons per year was an acceptable output, while 90 mill. tons was too high, without specifying in any detail why this was so. But the suggested 'roof' on production was also attacked on more theoretical grounds by Norman,¹¹³ something that drew a quick and dismissive answer from the Ministry of Finance.¹¹⁴

The theoretical arguments just referred to had clear political overtones. Norman's objections were taken up by Conservative MP Arnljot Strømme Svendsen, who used his arguments to argue in favour of a higher 'roof' on Norwegian oil production. Apart from this, opposition to this aspect of Norwegian policies was widespread internationally. According to The Times such a restriction of output was "the most controversial aspect of Norwegian policies"¹¹⁶ which on many occasions were attacked by oil-company representatives outside Norway. The reasons for this opposition were manifold, but one important aspect was the international oil situation when it became clear both to Western governments and to the companies that North Sea supplies were extremely valuable to them. William Dullforce explained this when in response to a question of what the companies' interest could be in the Norwegian Shelf in the light of the stiff conditions of the third round, he wrote, "The answer is a reasonable, if modest, profit, but above all an assured source of supply in times of shortage".¹¹⁷ On this background it is understandable that the Managing Director of Norwegian Esso should call for an increase in the output from the Norwegian Shelf to an annual production of 120 million tons per year. He gave only two reasons for such a stand: "expectations of the rest of Western Europe"

and and the need for extra income to finance the further developments in Norwegian waters.¹¹⁸

A number of well-known oil economists got involved in the Norwegian depletion debate. Their theoretical justification for an increase in production differed. Adelman (1975) used a combination of commercial and political criteria in order to justify a maximum rate of output from Norwegian sources. His main economic argument was based on the assumption that the OPEC cartel would break in the not too distant future and that consequently oil prices were destined to drop dramatically. For Norway therefore to resist the rapid exploration of a resource which it would not be economical to produce in a few years' time was, according to Adelman, clear folly.¹¹⁹ Concerning the problem about the excess of revenues accruing to the Norwegian state, both Adelman and another critic of the Norwegian policies, Odell,¹²⁰ suggested the rational (and theoretically totally feasible) solution of exporting the excess revenues. Adelman claimed that this might be no problem "because the international capital market is a known territory for a number of Norwegians",¹²¹ and even went to the length of suggesting that Norway set up family planning clinics in India and Bangladesh (sic) to dispose of the financial surplus. Odell recognized the potentially disruptive aspects of a rapid depletion of the oil for the structure of the Norwegian economy, but as a suggested solution stated that "Surely it is not beyond the ability of Europe's sophisticated financial circles to devise appropriate means whereby these problems can be avoided".¹²² This could only mean capital export in some form or another. In line with this point of view, the Norwegian CBI urged that "a considerable part of future oil incomes ... ought to be made available for economic activity in other countries in the form of capital exports from Norway".¹²³ There is no doubt that there could have been a technical solution to the problem of rapid depletion on the Norwegian Shelf, in the form of capital exports. What made the Norwegian situation more problematic was that this solution was not politically acceptable.

Odell also advanced a number of other points in favour of increased Norwegian production which were more immediately relevant to Europe's situation, and which fell within his repeated calls for a policy of autarchy in the field of energy for Europe.¹²⁴ He argued that Norway, by increasing its production, could provide some guarantee against the OPEC cartel's strong control over supply of energy to Western Europe, and the ensuing possibility of political and social unrest on the

European continent.¹²⁵ But he didn't confront the awkward question of why it should be in Norway's interest to undermine the power of OPEC, seeing that Norway's interests in keeping high oil prices were virtually identical with OPEC's. It is also difficult to claim that say an extra 50m. tons output per year from Norwegian waters would make any crucial difference to Western Europe's energy supplies. So it is legitimate to guess that there were also other reasons behind Odell's argument. Perhaps the most likely explanation was that a loosening of the volume controls would lead to a corresponding decrease in the overall pressure on the individual companies. The two were seen to be interrelated because the cry for tight control of the companies was first voiced in a coherent manner by St.meld. no.25.

A final possible reason for Odell's stand could have been the argument that the development of Norwegian oil resources would enhance Europe's competitiveness vis-à-vis the US.¹²⁶

But all these arguments were basically irrelevant to the Norwegian state at that particular time in history. Norway could not be expected to feel much responsibility for European capitalism as a whole, especially in the aftermath of the Norwegian EEC referendum. And Norway was already planning to produce ten times as much oil as it needed for its own consumption, with the corresponding absorption problems. So not surprisingly neither Odell's nor Adelman's pleas for a faster rate of extraction got any kind of overt support from the Norwegian state.

It is interesting to note that an alternative way to decrease the expected excess revenues, but which was neither mentioned by Odell nor Adelman, was the purchase by the state of foreign industry in Norway. This policy was explicitly mentioned in St.meld. no.25 as a rational alternative¹²⁷ to capital exports, as it would have the same consequences with respect to aggregate demand within Norway. Presumably its political implications were too threatening to discuss in further detail.

7.8 SPINOFFS

Following the early disappointments of the Norwegian spinoff industries, culminating in the great majority of the orders for work on Phase III of the Ekofisk work being awarded to foreign firms, the situation began to change in 1973/74. Norwegian industry started to

make its presence felt in a number of key fields like rig-building, concrete construction and supply-ship building. On the other hand, Norwegian industry was still unable to penetrate a number of the more sophisticated industries related to offshore activities. In addition the period saw a clarification in the future of the Norwegian petrochemical industry. This whole process took place under the strict guidance and influence of the Norwegian state, whose role in relation to the national and largely private spinoff industry became more visible than ever.

The first Norwegian drilling rig was completed in 1967, but no large-scale production got under way until the Aker H-3 design won favour with the rig contractors. The H-3 prototype, a semi-submersible rig which was specifically designed to operate in rough water conditions on the Continental Shelf, was put on the market exactly at the moment the oil world's interest started to centre in earnest on the North Sea. The first H-3 was contracted in 1971 and delivered in early 1974. By mid 1974 Norwegian yards were contracted to build 18 semi-submersible rigs, 17 of which were of the H-3 design.¹²⁸ In addition Aker exported the H-3 design to other shipyards in Singapore, Japan and Finland.¹²⁹ The majority of the rigs built under the Norwegian flag were contracted to Norwegian ship owners, whose role in the drilling-rig market was akin to their former role in the tanker market.¹³⁰ By May 1975 a total of 65 rigs with a Norwegian ownership share representing 75% of all rigs in the world,¹³¹ were under construction or on order; 20 of these rigs were to be built in Norway.

We were thus witnessing a sudden and dramatic growth in the Norwegian share of the world's rig market. In addition to Norwegian ship-owners building H-3s at Norwegian yards, and thus supporting Norwegian spinoff industries, Norwegian yards also gained orders for direct export to other countries, even if these orders only accounted for one-eighth of the total value.¹³³ 10% of all Norwegian shipyard workers were employed in building rigs in 1973 and 1974.¹³⁴ On this background it is hardly surprising that one Scottish newspaper wrote, "Norway is emerging as a leading force in a field of expertise (drilling-rigs - PN) which was until recently largely dominated by the US".¹³⁵ But given the likely demand for rigs in the North Sea, it was already clear at this early date that not all Norwegian rigs could gain employment in home waters, but were forced to seek employment elsewhere.

The construction of the Ekofisk tank by Norwegian firms represented a breakthrough in the use of concrete in offshore waters. But it was the Condeep (from the term 'Concrete Deepwater Structure') design which was in this period to become the great success as far as the Norwegian spinoff industry was concerned.¹³⁶ The first Condeeps to be ordered were built by a group of Norwegian entrepreneurs - Norwegian Contractors, after specifications made by the Civil Engineering firm Høyer-Ellefsen. Each of the structures required around 500 man-years to be finished, and cost between £20 and £30 mill. (Kr. 3-400 mill.) including the decks, which were also made in Norway. The third order came in the autumn of 1974 for a booster platform in the Frigg field, and by 1975 the Condeep licence had been extended to the UK and Sweden, and a total of five platforms were on order.¹³⁷ According to Industriens Servickontor, these orders represented a total value of more than Kr. 3 bill., compared with Kr. 32.3 bill. for the total value of Norwegian exports in 1975, but the national/international division of the order was diametrically opposite to that of the drilling rigs. 84% of the orders represented foreign orders, while only one order went to Norwegian waters.¹³⁸

The final field where the Norwegian national spinoff industry did very well was in the field of supply ships. As the activity in the North Sea picked up, the demand for supply ships also increased. It is estimated that each rig needs on average 4 supply ships to function satisfactorily.¹³⁹ As was the case with the exploration platforms, Norwegian ship-owners often operating in consortia played an important part in this development.¹⁴⁰ Norwegian owners had by the beginning of 1974 a 50% share of all supply ships under order in Northern European yards; 50% of which again were built in Norway. The ships were often built at small or medium-sized yards along the Norwegian coast, and were thus very important for regional employment. In addition to Norwegian orders, there were foreign orders for 30 ships, worth Kr. 600 mill. at Norwegian yards.¹⁴¹ Again, Norwegian supply ships branched out to other parts of the world, as it was clear that the Norwegian fleet of 150 ships¹⁴² could not all be employed in the North Sea.

Despite the great success of Norwegian spinoff industries in a few fields, this was not a generalized phenomenon. In the supply of more advanced drilling technology Norway was without any possibilities of catching up with the more traditional suppliers. The same was the

case with production of pipelines and pipeline barges. So that total Norwegian deliveries as a percentage of total investment on the Norwegian Continental Shelf in the period up to the beginning of 1975 had been as low as 15%.¹⁴³ But this was an average figure, and therefore included, for example, the whole investment programme for the first phases of Ekofisk, where no major Norwegian order (except for the storage tank) was secured. As we have seen, the Norwegian record became progressively better as time went on. It also conceals the 40% export content of the Norwegian spinoff effort.¹⁴⁴ And when viewed in absolute terms, taking into account the relative smallness of the Norwegian industrial sector, we see that the total production for the spinoff industries totalled Kr. 2.5-3.0 bill. in 1974, increasing to Kr. 5 bill. in 1975. This compares with the total value of Norwegian exports in 1973 of Kr. 23 bill.¹⁴⁵

One of the key results of the negotiations concerning a pipeline to Norway conducted in the spring of 1973 was that Phillips guaranteed the Norwegian government sufficient quantities of NGL to produce 250,000 tons of ethylene annually over a period of 15 years, to be delivered to a non-specified point in southern Norway.

Such an agreement was very favourable for the establishment of a Norwegian petrochemical industry. It meant first a guarantee of long-run stability of supply for the new industry, a factor which should make the whole project more competitive compared with a number of other European petrochemical plants.¹⁴⁶ But in addition the deal also guaranteed very favourable prices for the NGL. There was a fixed price escalation factor of 3% p.a., well below the expected rate of inflation.¹⁴⁷ No freight would be charged for the transport of the NGL from Teesside to Bamble in Telemark which was earmarked to become the site for the new industry.¹⁴⁸ If the Norwegian state wanted to buy more than 250,000 tons p.a. it could do so at a price that would also decrease in relation to the world market price over time.¹⁴⁹

These price and supply conditions negotiated by the Norwegian state would automatically benefit whichever companies which in the end would control the petrochemical production. It is therefore hardly surprising that there was an intense conflict about which company was to exercise this control. A Negotiating Committee established to work this out failed to reach an agreement when it submitted its recommendations in October 1973.¹⁵⁰ Further discussions, chaired by Statoil, likewise failed to bring any solutions, but on 24 January 1974 the three main

firms involved: Statoil, SAGA and Hydro, accepted the government's proposed solution. The final solution was much less than the private sector had hoped for. A cracker was to be built in Bamble, and to be operated as a joint venture, Hydro having a 51% interest, SAGA 16% and Statoil 33%. A separate joint venture will be responsible for the polyolefines plant, where each of the three firms would have 33% of the interest. The total investment cost was estimated to be Kr.1.6 bill.¹⁵¹ and the majority of the products would be sold within Scandinavia.

In their attitude to the petrochemical industry, the political parties reflected an almost 'normal' attitude in their relationship to state/private industry. SV on the left wanted SAGA excluded from the projects, and advocated a 50/50 division between Statoil and Hydro. The Labour Party supported the final proposition; the centre/right parties, with the exception of the Conservatives, wanted to restrict Statoil's role to 10% in both instances; while the Conservatives wanted only a cooperation between Hydro and SAGA.¹⁵²

7.8.1 The state's role

To understand the development of the spinoff industry, we will concentrate on an explanation which highlights the policies and intervention of the Norwegian state in this process. The tightening of the rules guiding the use of Norwegian goods and services in the Royal Decree of December 1972 was to a limited extent important. But this essentially 'passive' means of controlling the purchase pattern of the companies met with a number of difficulties, which the Norwegian government could do little to redress. Norwegian firms complained about the very short time period given to them before answers for tenders had to be given, as well as the very demanding and extensive tender documents that had to be completed by the firms.¹⁵³ It therefore seems that this approach which in theory might have done a lot to increase the Norwegian share, in practice turned out to be less than fully successful.

The key importance for the Norwegian spinoff industry during this period was the formation of Statoil. Norwegian policy-makers were in this respect placed in a real dilemma about Statoil's role. While there could be no doubt that Statoil was meant to actively promote the supply of Norwegian spinoff industries,¹⁵⁴ Norway's offshore industry would also have to export its products to the rest of the world. There was

a familiar and potential contradiction between moves towards Norwegian protectionism and Norway's needs for non-restricted export markets. The solution which was found highlighted the ideological nature of the problem under discussion. The government stated that the production of supply ships and drilling rigs were exempted from the provisions of the Royal Decree of December 1972, because "as a leading shipping nation we must be careful with regulations which can be perceived to be discriminatory policies".¹⁵⁵ (Discrimination was thus excluded from the part of the spinoff industry where Norwegian industry had been most successful and consequently needed it least.) At the same time Statoil and the Ministry of Industry were engaged in a supply policy which to all intents and purposes were discriminatory, and which actively served to safeguard the interests of the Norwegian industry. We are here referring to the consequence of Statoil's presence on a number of operating committees. While in the cases where there was no state participation (as in Ekofisk), Norwegian interests were taken care of by representatives of the Department of Industry and the Petroleum Directorate, this role was taken over in a more direct and active way by Statoil in the cases where state participation had been negotiated. There can be little doubt that Statoil's membership of the operating committees could partly explain the much better Norwegian share in the Statfjord field.¹⁵⁶ On the Statfjord field Statoil as the biggest single partner exercises a veto power over the subcontracting (but not necessarily a decisive voice). With Statoil on the operating committees the chances of pushing Norwegian firms to enter the bids for orders, or simply discriminating in their favour, was much greater than when this role was only fulfilled by the Oil Directorate.

7.9 STATOIL

Our next task is to analyse the increasingly important role of Statoil in Norwegian oil policy and the reaction to this growth both from the companies and from the Norwegian bourgeoisie. When Statoil was formed on 1 January 1973, it was a completely open question what kind of company it would become. The two approaches to the future of the company, outlined in Chapter 6, stood strongly against one another. But by the end of 1974 it had become increasingly clear that Statoil

was in no sense becoming a passive and subservient state oil company, but was developing into an autonomous vertically integrated company. Full vertical integration for Statoil was an explicit aim of the Norwegian government.¹⁵⁸ By 1974 Statoil was rapidly becoming involved in exploration, exploitation and transportation projects on the Norwegian Shelf. It was further set to enter petrochemical production while wanting to buy a share in the refinery which was being built by Hydro and BP on the Western Coast near Mongstad.¹⁵⁹

Because of the political weakness of the Korvald government of 1972/73, which was fully preoccupied with the EEC question, Statoil received few detailed instructions during its first year of existence, and the company had a relatively free hand to engage in all 'suitable' projects related to oil activities (as stated by its first charter voted by Stortinget in June 1972). Following its creation Statoil immediately started to prepare itself to become an active participant in the search for oil. The company first took over all the state's 'carried-interest' agreements in the North Sea. As a consequence the company needed more capital, which it obtained from Stortinget.¹⁶⁰ As a result of the stipulation in the participation agreements Statoil became directly represented on the operating committees in the Frigg field and participated from the very start in the exploration of the Brent blocks. But no direct representation was obtained on the Ekofisk field.

In the spring of 1974 it became clear beyond any doubt that Statoil would actively be favoured by the Norwegian state in the field of operation. 9 blocks (2 of which however were only 1km² and 12km²) had been given specially to Statoil in 1973, and Statoil's plans about how to exploit them were presented to the Ministry of Industry on 8 February 1974. They were all located in the vicinity of or were actually border blocks with the UK; but some of them were earlier relinquished acreage which probably was of bad quality simply because of the way that relinquishment had taken place in the past. Statoil was given a relatively free hand about how to develop these nine blocks; for example, whether it should choose major companies as partners. But it was still made clear by the Norwegian authorities that all the normal safety rules would have to be obeyed. The productive upstream role of Statoil was further confirmed when Statoil became operator in three blocks offered in November 1974 and announced that it was planning to drill itself in the southern part of the North Sea in 1975.¹⁶¹

In addition to these activities, Statoil acquired the expertise to interpret seismic data during the summer of 1974, and set up a commercial geological data bank (STATEX) together with another state company, Kongsberg Vapenfabrikk.

While there can be no doubt that Statoil was planned to become an operative company from the start, there were nevertheless shades of differences among the advocates of an active role for the company. The Oil Council in a letter of 17 November 1973 stressed the high risk and heavy capital commitments that an operative role for Statoil implied, and advocated that initially Statoil should concentrate on "especially promising blocks which can be satisfactorily explored by a relatively simple work programme".¹⁶²

7.9.1 Statoil and the Norwegian oil companies

St.meld. no.30 (1973-74) was a final confirmation that the small Norwegian oil companies such as DNO and Norse would get no cooperation from the Norwegian state, either in the form of concessions or in financial or technical help. Despite intense lobbying from some quarters,¹⁶³ there was a fairly unanimous opinion that these companies, to quote the Director of Statoil, A. Johnsen, "are only oil companies in name",¹⁶⁴ which contributed nothing to the development of Norwegian technical and commercial expertise. The Labour Party faction of the Industrial Committee of Stortinget in the spring of 1974 further rejected the small companies because their lack of technical expertise would make them more likely to be subject to pressure from the international oil companies.¹⁶⁵

But in opposition to the state's hostile attitude towards the small companies, there was a continued sympathy for the position of SAGA. The government made it clear that even if Statoil was seen as the main instrument of Norwegian oil policies, SAGA still had a role to play even as operator on the Norwegian Shelf. The roles of Hydro and SAGA were explicitly taken into account when Statoil was awarded the nine key blocks in the beginning of 1974. The exploitation of these blocks should aim "specifically at promoting further development of the Norwegian oil industry and coordination within that industry, giving it the desired concentration and efficiency" (PN emphasis).¹⁶⁶ The state's attitude towards SAGA in the field of exploration must also be seen in relation to the development of the Norwegian spinoff industries.

SAGA was given a foothold in the new petrochemical industry and it is therefore important to evaluate SAGA's involvement as a whole.

Finally, there was an informal 'division of labour' worked out between SAGA and Statoil concerning the international involvement of the companies. During the discussion about the formation of Statoil, no principled position had been taken by the Norwegian state on whether Statoil should engage itself in non-Norwegian activities. But in an interview in 1974 Statoil's managing director Arve Johnsen said that, "We have such great tasks on the Norwegian Continental Shelf within the next one, two and three generations that we have no temptation to go out (beyond the Norwegian Shelf - PN).¹⁶⁷ He added: "I regard it as natural that such groupings as SAGA have to look beyond the national boundaries.... It is only Statoil which has no need to do this, given the formation of Norwegian oil policies."¹⁶⁸

The fact that SAGA received the full political support of the Norwegian bourgeoisie, in particular represented by the Norwegian Conservative Party, made Statoil's relationship to SAGA more complicated. Because the development of Statoil into a dynamic state oil corporation was thought to fit badly with the wishes of the Norwegian bourgeoisie, this social class fought a defensive 'holding' operation to slow down the growth of Statoil.

The initial strategy of the Norwegian bourgeoisie had been to make Statoil into a non-operative holding company. This was advocated by members of the Norwegian business community as well as by the Knudsen Committee. The director of Norsk Brendselolje (BP) claimed in 1972 that the necessity for any company to be fully integrated would force the Norwegian government to invest Kr. 8-15 bill. into the venture, which he strongly argued against.¹⁶⁹ While this led him to totally reject the concept of a state oil company, the idea was nevertheless promulgated at a later stage by the Conservative Party, who at the time had come to grips with the idea of a state company, but nevertheless fought against it becoming a powerful commercial entity.

Once Statoil was in operation, the Conservatives made a concerted effort to limit the strength of the company. Like a sizeable group of the centre parties they opposed the full vertical integration of Statoil.¹⁷⁰ SV, on the left of DNA, also took a similar stand, but this was based on completely different assumptions. While the party was fully in favour of full state ownership of downstream activities, SV thought that a system where other State companies undertook this task was preferable

as it would give greater powers of control over the company to Stortinget.¹⁷¹

But the Conservatives wanted to go even further than the centre parties to limit the power of Statoil. They opposed all independent exploration activity by Statoil, opposed Statoil's creation of STATEX, and at one point suggested that Statoil should sell part of the state's rights acquired by the state through the 'carried interest' agreements that had been taken over by Statoil. It was argued that such a move should be undertaken to decrease the capital requirements of Statoil.¹⁷²

When it became clear that Statoil would become a fully fledged vertically integrated company, the Conservatives finally tried to ensure that Statoil obtained no special competitive advantages. The opposition parties' objection to the presence of Statoil in the Department of Industry's negotiations with the international companies in connection with the third round must be seen as an expression of their fear that Statoil would be put in a favourable competitive situation compared with SAGA and Hydro.

So the centre/right parties first sought to make Statoil into a passive holding company. When this turned out to be impossible, they tried to prevent Statoil becoming a fully fledged vertically integrated company with a considerable capital base of its own. When Statoil finally became such a company, the Norwegian bourgeoisie, politically represented particularly by the Conservative Party, tried to minimize Statoil's 'crowding-out' effect on the private Norwegian oil sector, and tried to ensure that Statoil had to compete on an equal footing with firms in the private sector, and in particular SAGA.

SAGA also knew that it could not be totally disregarded by the Norwegian state in the long run. According to its Managing Director: "SAGA can never become a junior partner (in Norwegian oil policies - PN) because SAGA represents a too large part of the Norwegian economy."¹⁷³ But SAGA was at the same time highly dissatisfied with the specific role it had been given on the Norwegian Continental Shelf. The company explicitly blamed this on the political authorities when it stated in a report to its shareholders: "It gives rise to worry that SAGA petroleum this time (during the third round of concessions - PN) will not get the space (armslag) on the Norwegian Shelf which is commensurate with its financial strength and technical competence."¹⁷⁴ And despite being given the operator status on block 35/3 in 1975, as late as 1977 NH&ST summed up the situation in the following terms:

"Norwegian privately owned oil companies have been given a very meagre chance of involvement on the Norwegian Shelf. The Norwegian authorities have given the state-owned Statoil clear preference and forced the private companies to invest abroad."¹⁷⁵

Statoil's relationship with Hydro was both easier (both being state firms) and more difficult (as potential competitors in the downstream market), than its relationship with SAGA. Johnsen even described the two companies as half-sisters expecting no particular difficulties to arise in their relationship with one another.¹⁷⁶ Hydro was at the time criticised for investing abroad,¹⁷⁷ when an MP argued that the maximum number of experts and capital was needed in the North Sea. Hydro retorted that it was not for the politicians to interfere in the running of the company, and that if Hydro was to take notice of such sentiments a whole new principled change had to take place in the relationship between Hydro and the government.

7.9.2 Statoil and the international companies

We now want to analyse in more detail the relationship between Statoil and the Norwegian state on one hand and the international oil companies on the other.

No such analysis can be complete without understanding the situation of the international oil industry at the time. This makes abundantly clear that the relationship between a state oil corporation and the international companies could range from virtual 'cold war' to full cooperation. An international overview is also important at this point to trace the development of what in Chapter 2 we called bargaining factor No.3, 'the international context'.

7.9.21 The international dimension: prices and participation

The period after 1970 saw a definite acceleration in the demands from the producer-states for a change in the structure of the oil industry. This expressed itself both in relation to prices and participation, two factors which are closely interrelated.

Due to the damage of the TAP-line in May 1970 and a general tightening of demand in the European markets, the Algerian and Libyan producers became crucial in supplying Europe's oil after 1970. Sensing that their bargaining strength had increased, and being spurned on by the more radical nationalist sentiments of the two countries, a meeting in May 1970 between the oil ministers of Iraq, Libya and Algeria for the first time hinted that the producer-countries would take unilateral action on the question of price increases. Later in the year Libya and Algeria obtained an increase in their relative crude prices, Libya only after having fought for it in a classic confrontation with Occidental.¹⁷⁹ The confrontation took on a new dimension because the majors refused to back up Occidental with alternative sources of crude and hence indirectly condoned a price rise.¹⁸⁰

The perceived increase in bargaining strength spread quickly throughout the OPEC countries, and the OPEC meeting in Caracas in December 1970 decided to press for a tightening of taxes to a minimum of 55%, demand an increase in prices, and eliminate all discounts. The Teheran meeting of January 1971 was the forum where these demands would be discussed as far as the Gulf states were concerned. Little will be gained by discussing in any detail the background and actual bargaining at the Teheran meeting, which for the first time saw all companies officially negotiating together after having obtained anti-trust clearing from the US government. The Teheran agreement was announced on 14 February 1971, and saw an increase in the posted price of 35-40¢/bbl, an elimination of discounts, and a yearly fixed increase of 2.5% in posted price to guard against inflation. Since the Teheran agreements only concerned the Gulf states, Libya and Algeria had to negotiate separately. Libya achieved an increase of 90¢/bbl in April and a number of the standard conditions from the Teheran agreement were also made to hold for the North African producers.

Throughout the lead-up to the Teheran conference the companies seemed to fight any price increase bitterly. But then there suddenly seemed to be a change of mind. According to Rafaï:

"The attitude of oil companies vis-à-vis claims for higher prices changed strangely during the crisis period. In the early Libyan negotiations in January-February 1970, a top executive of a leading major oil company stated ... (that) all it could afford would be about a 5¢/bbl increase,

beyond which the company would incur losses in its Libyan operations. A few months later, the same major company spontaneously announced unilateral price increases of a much greater magnitude, not only in Libya but also at the Eastern Mediterranean, where it was not subject to any specific claims."¹⁸¹

We will analyse in more detail the reasons for this increase of prices in Chapter 8, but just point out that according to one interpretation the increase was related to a definite change in the attitude of the US government to the price level of oil. Furthermore, the companies had no difficulties in passing on the higher taxes to the consumers. In Britain the 28¢/bbl crude price increase was comfortably covered by a petrol price increase of 52¢/bbl.¹⁸² In addition, the Teheran and Tripoli agreements gave the companies breathing space and a long-run guarantee of stability and predictability, a major advantage for any corporate planner.

But whatever hopes the companies might have had about long-run price stability, these disappeared during 1972 and 1973. The upward pressure on prices continued as the tightness of supply was accentuated by the actions taken by the Algerians and Libyans who implemented cut-backs in their output for reasons of 'conservation'; the fall in the value of the dollar accelerated; and the sale of participation-crude to a number of independent refiners and companies fetched steadily increasing prices. In May 1973 the Saudis sold their participation-share at 'record prices',¹⁸³ market prices exceeded posted prices, and the autumn of 1973 saw prices of up to \$5/bbl¹⁸⁴ being paid on the spot-market.

A meeting to discuss a revision of the posted price was therefore called for October 1973. It was only by historical accident that this meeting was to coincide with the start of the Yom-Kippur war. Partly as a result of the war, partly as a result of market pressures that had been building up since 1970, the OPEC countries on 16 October for the first time ever set a unilateral posted price. The price was increased by 70% to \$5.12 for Arab Light, while an embargo on pro-Israeli states was asked for by the 'radicals'. 22 December 1973 saw a further increase in the posted price to \$11.65/bbl. What President Giscard d'Estaing chose to call "the revenge on Europe for the nineteenth century"¹⁸⁵ had been completed. During the March 1974 meeting in Vienna it was clear that a majority of the OPEC countries wanted a further 15%

rise in the posted price, but this was vetoed by the Saudi Arabian oil minister in a move not to further upset US interests and desires.¹⁸⁶

In Chapter 8 we will further analyse the broader importance of this price increase and how it relates to the question of state participation.

As in the question of oil prices, it was the radicals, Algeria, Iraq, and to a certain extent Libya, that from the late 1960s started to press for an increased state role in the form of demands for participation. Their demands had both political and economic overtones. Politically, they felt that foreign control over the volume, price and investment of their most important industries was unacceptable. Economically, the alternative of national control could mean both that a larger part of the total oil-rent went to the countries in question, and also that the absolute amount of rent could be increased. The latter effect could arise because output from the national oil-fields would be determined in relation to the needs of the individual country and not in relation to the global output-maximization of the individual oil firm. The question of volume had again become an important point of confrontation in the late 1960s when the companies preferred to lift an increasing proportion of their total output from North Africa, due to the higher differential rent they could earn from that region. This led to a relative decline in production from countries like Iran, which had demanded a higher share of the output in order to finance its increasing industrialization and military programme, and also had been shocked to find that until 1967 there had been an informal and secret understanding among the members of the Consortium to set the level of Iranian output.¹⁸⁷

Iraq had paid an even higher price for its nationalism throughout the 1960s. The Wall Street Journal in March 1974¹⁸⁸ quoted a secret US government report which stated that IPC actually drilled wells to the wrong depth and covered others with bulldozers in order to keep a low output from the Iraqi fields.

In addition to these reasons, the Algerians especially saw an increased rate of state intervention as a prerequisite for an increased government income which was seen as necessary to finance the ambitious industrialization plans of Algeria (See Chapter 8, p. 266).

In connection with the OPEC resolution on participation passed in 1968, Yamani sought in July 1971 a 20% participation share of the Aramco fields in Saudi Arabia. Both the OPEC resolution and the Yamani

initiative must be seen in relation to the alternatives that were presenting themselves at the time. In December 1968 Algeria took over 51% of the Getty operating assets, and nobody believed that they would stop at that, especially as the retaliations taken by France did not make Algeria change its mind. Simultaneously the constantly tougher attitude of Iraq was making itself felt. Iraq relied mainly on the French and the Russians to implement its increasingly nationalistic oil policy which if generalized could spell disaster to the Western companies' long-run access to crude.¹⁸⁹

Yamani therefore presented his version of participation as a direct challenge to developments of the kind outlined above, and as the best possible solution for the Western companies once some kind of change was regarded as inevitable. Given the political situation in the Middle East, he argued that nationalization with all its pitfalls and dangers would become inevitable unless 'participation' was launched as an alternative.¹⁹⁰ His arguments for continuing the close cooperation with the companies (the early Yamani version of participation included only a 20% state equity in the producing company, while all other aspects of production would continue as before), were however justified in a very sophisticated manner. According to Yamani the oil industry is potentially extremely unstable unless it is strictly controlled. As long as the international cartel maintained its prominence such control over markets would be ensured, and hence the price of crude could be maintained at a relatively high level. The companies would in short serve as a necessary 'buffer' between the producer-states and the consumers. But if the OPEC countries nationalized their oil (and got rid of the companies), they would according to Yamani immediately start to undercut each other and the whole price structure would collapse. One possible solution to such a scenario, namely production-sharing agreements between the OPEC countries where the Saudis would inevitably have been the main element, was dismissed for unspecified "practical and realistic reasons".¹⁹¹ The companies were not immediately convinced by Yamani, but also held out as long as possible to get the best possible deal with respect to the level of compensation for their equity, and also, it is suggested, to give some 'credibility' to Yamani's demands.¹⁹² The producer-states decided at the 36th Conference in Abu Dhabi in October 1971 to meet the companies in early 1972 to discuss the problem

of participation. Following the usual bargaining process of threats and counter-threats, the companies finally accepted the principle of participation and in October 1972 a 'grand' agreement was agreed whereby the producer-states would obtain a rising participation share reaching 51% in 1981. But the agreement did not specify exactly what kind of participation should be implemented.

The problem for Yamani's notion of participation was that it had partly been overtaken by events. While Iran claimed it did not need participation because its oil had been nationalized since 1954 and Saudi Arabia got some support from the Gulf states, Algeria had jumped the gun and in February 1971 had taken 51% control of the French oil interests in Algeria and offered to buy out all other companies. By the end of 1971 only Getty and Elf/ERAP were left of foreign companies in Algeria. Libya had by then also nationalized BP's relatively modest share of Libyan output. The outlook for Yamani's plans did not become brighter when the Kuwaiti National Assembly in December 1972 refused to ratify a participation agreement along Yamani's lines and wanted 60% participation straight away. Venezuela also refused to support Yamani's initiative. In August 1973 Libya finally took over 51% of Occidental's concession, which left Libya in control of over around 40% of its total output.

Following the war in 1973, the trend towards increasing participation rates accelerated, so the oil industry is today (1978) nationalized or in the process of being nationalized in the most important exporting countries. Only Gabon of the 13 OPEC countries has less than 50% share of the ownership of its oil. Otherwise ownership ranges from 55% in Nigeria, 60% in Abu Dhabi, to 100% in Indonesia, Iran, Iraq, Qatar, and Venezuela. Kuwait has also fully nationalized its oil when we disregard the marginal production from the Neutral Zone. In Saudi Arabia, although the Aramco owners still retain a 40% equity share, in fact they operate as though the long-awaited 100% state takeover terms, already agreed in principle, have been implemented.

7.9.22 The Norwegian connection

Given this rapidly changing international situation, it was hardly surprising that there were some disagreements among Norwegian policy-makers about the exact form that the relationship between the international companies and the Norwegian state should take. Some, such as the Director of Statoil, thought there should be a drastic redefinition of the role of the majors in Norwegian waters. Others thought that Norway should continue its policy of 'carried interest' which seemed to conform more directly to the Yamani notion of participation outlined above rather than move towards the more aggressive policies of majority state holdings and nationalizations pursued by Algeria and Iran.

According to the prevalent view expressed by Norwegian policy-makers, the basic role allotted to the oil companies was as contributors of risk capital and technological expertise.

One parliamentary report from the Ministry of Industry stated that "For the oil companies, the principle is that no matter what the type of agreement (PN emphasis), they contribute the necessary risk capital and technological experience".¹⁹³ What is interesting in this respect is not the standard reasoning given for accepting the presence of the multinational companies. It is rather the implication that the department had not yet decided what was the appropriate long-run type of concession agreement, i.e. whether this should continue to be on a 'carried-interest basis', service contracts, or production-sharing contracts. But in the short to medium run there was no doubt. It was explicitly stated that "So far it seems that 'carried interest' agreements are the most appropriate for realizing the objectives of government participation."¹⁹⁴ This attitude partly clashed, however, with the sentiments expressed by St.meld. no.25, which stated:

"So far foreign oil companies have held extraction permits on the Norwegian Continental Shelf. In the future they should instead come into the picture as consultants, contractors, and minority partners."¹⁹⁵

While this formulation from the Ministry of Finance still left the door open for foreign equity interests, when seen in the context of the rest of the report there was no doubt that sectors within the Ministry

preferred an organisational pattern which was along contractual or consultancy lines.¹⁹⁶ For instance, the report explicitly stated that, in connection with the control over volume, "... it is preferable to directly administer the rate of extraction, so that possible large strikes are exploited no more rapidly than deemed desirable by government bodies".¹⁹⁷ Such a direct administration is extremely difficult to achieve within the context of a traditional carried-interest organizational framework, a point the Ministry made when it stated that "once extraction concessions have been awarded, the possibilities for administering the extraction rate are limited."¹⁹⁸

Statoil's basic attitude to the question of the role of the oil multinationals was best summed up by Arve Johnsen when he stated that in five years' time he doubted that there would be any parts of the world where the traditional concession system would be in operation. Instead he believed that there was a trend where "the state keeps the full property-rights to the resources and instead enters into service contracts with well-established companies".¹⁹⁹ There can be no doubt that this statement at the time indirectly constituted a clear recipe for the future course of Norwegian concession policies and Statoil's role in them as the Director of Statoil would have liked to see it.

Johnsen's comment to the effect that foreign oil companies would be excluded from exploration north of 62° strengthens such an interpretation. This was after all not a very surprising stand. It had indirectly been referred to on several occasions in the past. The Oil Council had already hinted that an operator role for Statoil might be the most appropriate policy in the north-eastern areas north of 62°.²⁰⁰ It was also a stand which was anticipated in international oil circles because "when activities move north, Norway will have come to an understanding with the USSR", and it was thought that foreign oil companies would be excluded from the strategically delicate areas of Barents Sea.²⁰¹ But Johnsen's reported statement drew an immediate and angry response from the Minister of Industry, partly, it was thought, because he did not want to rule out the use of 'carried interest' concessions, but also because he wanted to establish that the oil policies were formulated by the Ministry, not by Statoil. It was later stated that Johnsen had been 'misquoted',²⁰² but the whole episode still pointed to important conflicts in Norwegian oil policies at the time.

Arve Johnsen's relatively critical attitude towards the companies was mirrored by and partly sprang from a fairly genuine general scepticism towards the private international companies within the Labour Party. The LP faction in the Finance Committee pointed in 1973 to the fact that the multinationals had a dominating position concerning production and distribution of oil in the Western world. It then continues, "This can have many unfortunate aspects as such companies get too great power and influence."²⁰³ Similarly, St.meld. no.25 stated that "The fact that the multinational oil companies exercise such extensive control over production and marketing makes it a task of international interest to place them under public control".²⁰⁴ When such opinion is compared with the much more docile official attitude in the UK to the international companies, it is clear that the ideological and political climate in Norway was much more sceptical towards the companies than in other European countries. Within this period the Labour Party was also constantly being pushed from the left. SV had a considerable influence at the time with a parliamentary group of 16 members, but while it advocated nationalization of the oil industry in the long run, SV did not put forward any short-run policies that were qualitatively different from those of the Labour Party.²⁰⁵

The situation in Norway was finally characterised by the fact that the international oil companies did not have the same domestic backing as they could count on for instance in a number of other oil-exporting countries. This was especially due to the position of the Norwegian Conservative Party, which clearly had as its main aim the building up of a national oil expertise, and in no simplistic sense could be said to represent the interests of the international oil companies. The Conservatives made this absolutely clear when they said, "The aim (of Norwegian oil policies - PN) is not the greatest possible state activity.... The aim is the greatest possible national effort."²⁰⁶ Concretely this meant, as we have seen, a constant defence of and encouragement for SAGA. On several occasions the Conservatives also clearly defended the interests of the major companies (cf. the special taxation case). But at such times this could be interpreted to have been a necessary by-product of the defence of SAGA, which, despite its political blessing by the ruling Labour Party, because it was in its formative stage still enjoyed a weak position compared with the major companies. The Conservatives' main historic role was therefore as defenders of the (however weak) Norwegian bourgeoisie represented by SAGA.

7.9.3 Summing up Statoil

On the basis of the above analysis, there can be no doubt that 1973/74 saw the determined start of Statoil as a productive, vertically integrated oil company which was seen by Norwegian policy-makers as the very backbone of Norwegian oil policies. A number of issues had not yet been clearly sorted out, like Statoil's final attitude to the multinationals or to Norwegian industry. On these points Statoil inevitably got involved in the political disagreements within the Norwegian state apparatus. But there were strong indications at the time that Statoil would in general adopt a fairly 'aggressive' stance on all the above-mentioned issues. And, while the Norwegian policies constituted no fundamental threat to the continued presence of the companies on the Norwegian Continental Shelf (a point further elaborated in Chapter 8), the companies, partly as a result of Statoil, nevertheless had to modify their mode of operation in Norwegian waters.

Since Statoil did not have any major share in the earlier fields that would come on stream in the Norwegian sector of the North Sea, most of the government's revenues would initially come from taxes and royalties. But once Statfjord would get on steam in the early 1980s then, according to Ministry of Finance estimates, "A considerable proportion of the public revenues may be expected to be derived from the government's direct participation in oil production".²⁰⁷ Norwegian oil policies had come a long way since 1965.

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CHAPTER 8

ECONOMIC DEVELOPMENT AND POLITICAL CHANGE: THE REASONS FOR THE INCREASED ROLE OF THE STATE

This chapter will bring together and attempt to explain the developments of Norwegian oil policies in the period 1965-74. To do this we will first summarise our basic results, and will start with the division of oil rent between the companies and the Norwegian state and the form this division took. Our comments will concentrate on the 200m. and 700m. fields.

8.1 BASIC TRENDS

8.1.1 Division of oil-rent

According to Table 8.2 there has been a clear and unambiguous increase in the overall undiscounted amount of rent which has been accruing to the Norwegian state. For the 700m. barrell field the undiscounted total government take increased from 54.4% in 1965 to no less than 91.0% in 1974. For the 200m. field the tendency was equally clear, albeit somewhat less accentuated. In 1965 total state take totalled 56.9% but by 1974 it had increased to 85.4%.

The form which this increase took is very important. The variation of the total undiscounted state take is almost fully explained by variations in the rate of equity share (Column 6 in Table 8.2). What made the difference to the state's increasing aggregate share was the increase in the participation ratio, and not (with the exception of 1974) a tightening in the rate of taxation. The percentage share of rent going to the state which accrued from taxation stayed until 1974 surprisingly stable; in the 700m. example it fluctuated between 49.2% and 54.4%, only to increase to 70.1% in 1974 mainly because of the introduction of the excess profit tax (Column 2, Table 8.2). The tendency is equally clear for the 200m. field.

It is interesting to note that to the extent that a trend existed at all for the traditional tax-take, there was even a slight decrease between 1965 and 1972.

According to the above results it seems as if the Norwegian state has been very efficient in its policies of capturing the rent from the North Sea; furthermore this process has been a gradual one and, most importantly, the 'tightening', with the exception of the

1974 round, has been one of an increasing equity share. This first conclusion coincides with the traditional view of the Norwegian policies. However, we shall see that when we now move towards a discounted analysis of rent division, even if the basic position remains the same, it becomes less straightforward and subject to more qualifications. In particular our results will have to be seen together with the discussion of how this overall take responded to changes in exogenous conditions (see Section 8.2.1 below).

Column 1 of Table 8.1 shows that the discounted version of all rent going to the state has also increased from 1965 to 1974. For the 700m. field this development is clear, showing an increase from 86.6% to 91.6%, while for the 200m. field the take remained relatively constant from 1969, fluctuating around 85%. In interpreting the data we must throughout bear in mind that the discounted 'take' is intimately related to the profitability, so when the 1965 high 'take' is related to the low expected profitability (see Chapter 3, pp.106-107) we have a more clear-cut case with a clearer trend, especially for the 700m. field.

But it is again a more detailed breakdown of the aggregate data which gives us a better insight into how this process of increased state access to rent has taken place. From Table 8.1 Column 5, it is clear that taxation, both from the private company and from Statoil (which pays taxes like any other company) over time played a relatively less important part in the state's appropriation of rent. This meant that, as in the undiscounted case, the role of equity in the same process played a correspondingly increasingly important part (Column 6 in Table 8.1). As a maximum, equity accounted in 1972 for 30.3% of the state's access to the rent of the 700m. field.

This meant that the state was getting increasingly important as a controller of the oil industry's oil-rent surplus, not merely as a tax collector, but also as a capitalist in its own right. This trend is set out graphically in Figures 8.1 and 8.2 for the discounted and undiscounted figures respectively.

When recent trends in Norwegian society are taken into account this development should not be too surprising. In the period from 1970 to 1975 the Norwegian state increased its ownership from 30% to between 45% and 50% of total equity in the Norwegian industry. Statoil is only one, albeit the most important, part of a tendency towards 'state capitalism' in Norway. (For a further reference to this trend, see Chapter 9.)

We have so far looked at an ignored concept within the oil industry, the overall amount of rent going to the state. Not even by singling out the taxation element of this 'take' have we been able to revert to the 'normal' practice in oil economics of talking about 'government take'. This is because we have included Statoil's tax burden within the total amount of rent, which may marginally change the figure due to Statoil's different debt structure compared with the international companies. We will now revert to the 'normal' practice by only concentrating on the state's tax share of the company's present value.

For the 700m. field we see (Column 4, Table 8.1) how in discounted terms the 'state take' has fluctuated between 56.8% and 86.6%. But for the same field the undiscounted state share until 1974 showed a clear stability of around 50% (Column 4, Table 8.2). It only increased sharply due to the introduction of the special profits tax. The latter results are broadly in agreement with official Norwegian pronouncements about the conventional 'state take'. For example the state's undiscounted post-special-tax fiscal share was expected to be in the region of 57-67%,¹ while ours was 65.8% and 69.5% for the 200m. and 700m. fields respectively. Parliamentary Report no.11 (1968-69)'s assessment that the initial 1965 terms represented an undiscounted state take of 56%² is also in line with our results. And while we are primarily interested in the discounted figures of rent division, comparing our undiscounted results with the official estimates both gives a check on the latter and provides a general check for our own results.

We will now evaluate the effects of the different participation schemes on the IRR of the hypothetical fields. However imperfect, we assume that the IRR of a project is a key element in any company evaluation of a North Sea investment project. Any drastic fall in the expected IRR in the wake of the introduction of a participation scheme compared with a situation of 'no participation' could therefore be seen as a clear challenge to the companies and would constitute a clear validation for those who claimed that the Norwegian government was getting 'tough' with the companies, irrespective of the changes in the basic tax variables. But no such easy conclusion can be drawn from our results. One initial comment should be made in relation to the rates of IRR estimated in Table 8.3. While by no means constituting rates of return that could be said to be 'phenomenal' for the companies, when it is remembered that we have already incorporated all exploration costs and also consistently used conservative and cautious cost and

production estimates, the IRRs could by no means be described as 'insufficient'. Compared with the 10% minimum IRR expected by US domestic energy-production it could even be said to be generous.³ The expected IRRs also increased steadily throughout the period under study, even when participation has been taken account of; something that suggests that the companies were less than honest than they argued in large publicity campaigns towards the end of the period that their position in the North Sea was becoming increasingly untenable. Since the financial return seems largely to be unable to explain such behaviour, we must at least look for other complementary explanations.

The main rationale for the introduction of the participation agreements in the Norwegian sector of the North Sea does not therefore seem on the available evidence to have been brought about in order to reduce the companies' IRR or their post-tax percentage of the total present value of a field. The main consequence from the state's point of view seems rather to have been to get access to a larger percentage of the total rent originating from the North Sea. It is indicative for the way that a modern state tends to act that this was done by creating the least possible upset for the private sector, which in the process managed to maintain or even increase its IRR.

8.1.2 Spinoffs

The share of the total orders originating in the North Sea which were supplied by Norwegian firms increased steadily during the period. From an almost negligible percentage in 1965, the national content of spinoffs had increased to over 50% on new orders by the mid 1970s. There was also an increase in the national component of value added from the production of oil in the form of forward linkages like petrochemical production. Finally, a number of Norwegian firms increased their export of oil-related commodities to oil-producing areas outside the North Sea. The key element in this overall process was the role of the Norwegian state which by a number of methods cajoled the international companies to order more Norwegian goods. The state also pressed the Norwegian firms to become more efficient through mergers, while it encouraged Norwegian industry also to be more aggressive in the offshore tendering process.

TABLE 8.1: DISCOUNTED

	1	2	3	4	5	6
	Total state take	Of which: Taxation Equity		'Take'	Tax	Equity
<u>700m. field</u>						
1965	86.6	86.6	-	86.6	100	0
1969						
Scenario 4	71.4	64.2	7.2	67.7	89.9	10.1
Scenario 3	66.4	63.8	2.8	64.5	96.1	3.9
Scenario 2	79.8	64.3	15.5	65.3	80.6	19.4
1972						
Scenario 1	79	55.1	23.9	56.8	69.7	30.3
1974						
Scenario 1	91.6	67.5	24.0	70.5	73.7	26.3
<u>200m. field</u>						
1965	*				100	0
1969						
Scenario 4	85.7	78.3	6.7	83.2	92.1	7.9
Scenario 3	80.6	77.9	2.7	79.5	96.7	3.3
Scenario 2	92.7	78.1	13.6	86.3	85.2	14.8
1972						
Scenario 1	85.4	60.9	24.4	67.3	71.3	28.7
1974						
Scenario 1	86.9	64.6	22.2	66.6	74.3	24.7

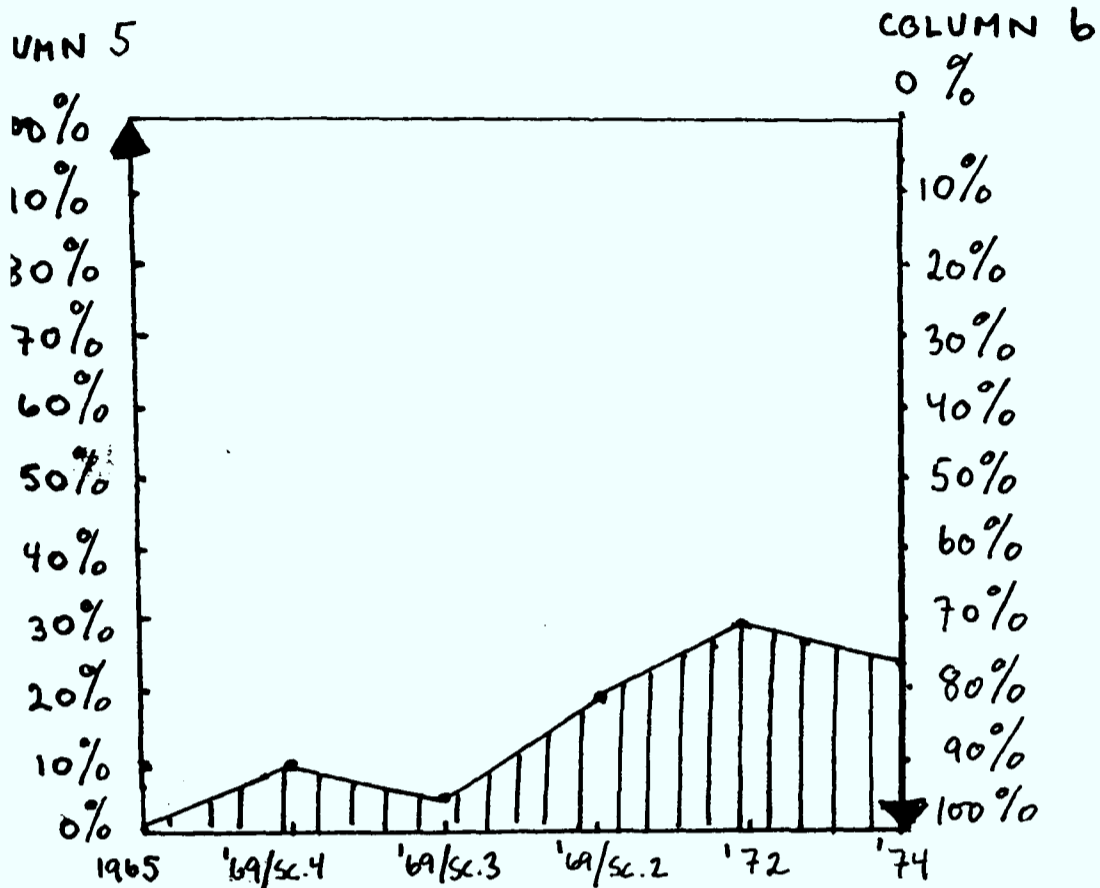
Explanation (number refers to column)

- 1 = Total state take: (Statoil PV + discounted value of state's tax income from company share) as a percentage of PV of the field
- 2 = Taxation share of 1: (Discounted value of taxes levied on Statoil + discounted value of state's tax income from the company share) as a percentage of PV of the field
- 3 = Discounted value of Statoil's net income from equity as a percentage of the PV of the field
- 4 = The traditional concept of 'government take' i.e. state taxation income from the company's share as a percentage of the company's share, discounted
- 5 = Column 2 as a percentage of column 1
- 6 = (100 - column 5)

All PVs are assessed on the assumption that both company and Statoil have debts.

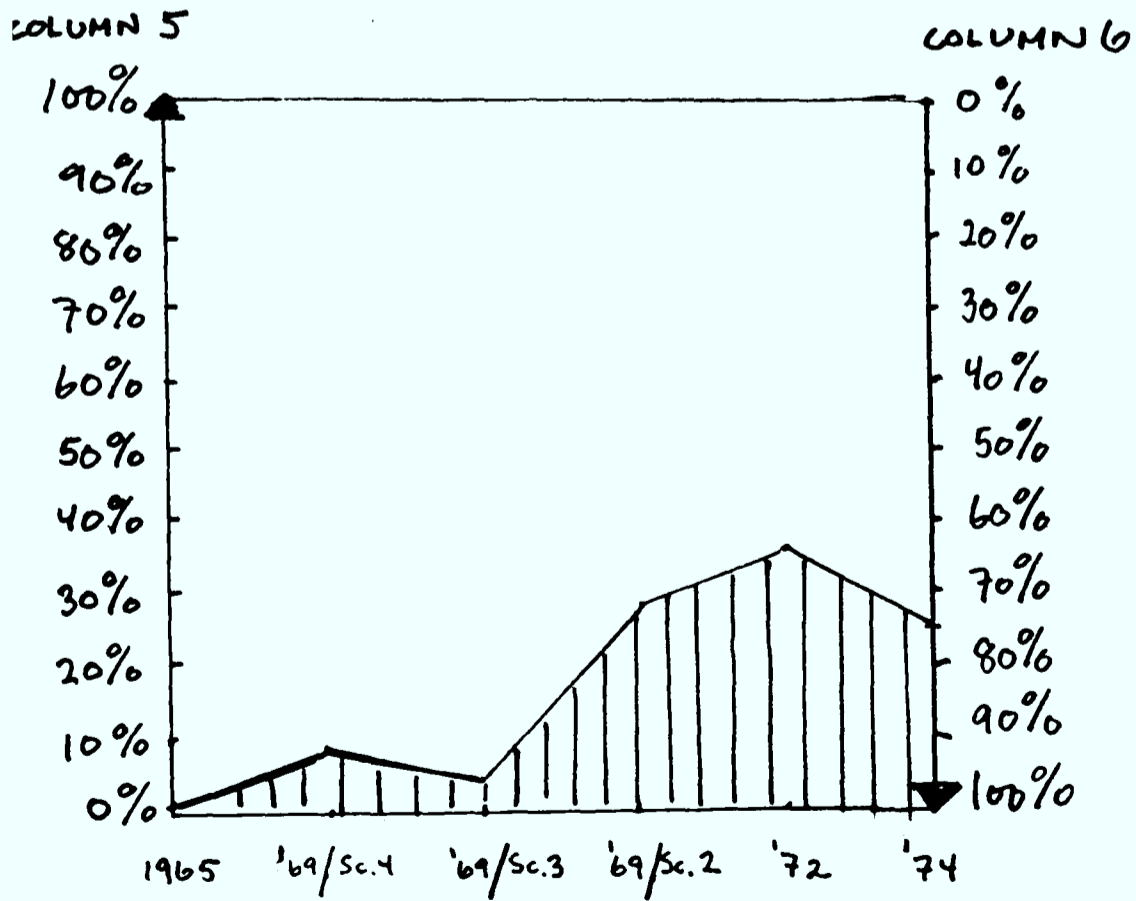
* uncommercial field

FIGURE 8.1
THE STATE'S ACCESS TO OIL RENT*



* The figures correspond to columns 5 and 6 in Table 8.1 700m. field

FIGURE 8.2
THE STATE'S ACCESS TO OIL RENT*



* The figures correspond to columns 5 and 6 in Table 8.2 700m. field

TABLE 8.2: UNDISCOUNTED

	1	2	3	4	5	6
<u>700m. field</u>	Total state take	Of which:		'Take'	Tax	Equity
		Taxation	Equity			
1965	54.4	54.5	-	54.4	100	0
1969						
Scenario 4	55.8	50.3	5.4	51.2	90.1	9.9
Scenario 3	52.4	50.2	2.4	50.2	95.8	4.2
Scenario 2	70.4	50.2	20.2	50.3	78.3	28.7
1972						
Scenario 1	71.8	49.5	25.3	49.5	66.1	33.9
1974						
Scenario 1	91.0	70.1	20.9	69.8	77.1	22.9

200m. field

1965	56.9	56.9	-	56.9	100	0
1969						
Scenario 4	57.8	52.5	5.3	53.6	90.8	9.2
Scenario 3	54.6	52.4	2.1	52.4	96.1	3.9
Scenario 2	72.6	52.3	20.3	52.7	72.0	28.0
1972						
Scenario 1	75.2	52.0	24.7	49.2	65.1	34.9
1974						
Scenario 1	85.4	68.1	18.2	65.8	78.0	22.0

Explanation (number refers to column)

- 1 = (Statoil's net cash flow + undiscounted amount of taxes from company-share) as a percentage of the net cash flow of field as a whole with debt
- 2 = Undiscounted value of taxes levied on Statoil and company as a percentage of the net cash flow of field as a whole with debt
- 3 = Undiscounted value of state's income from Statoil's equity as a percentage of the net cash flow of field as a whole with debt
- 4 = Traditional 'take' = taxes from the company's share as a percentage of the net cash flow of company's share
- 5 = Column 2 as a percentage of column 1
- 6 = (100 - column 5)

TABLE 8.3

	1965	1969: Scen.4	Scen.3	Scen.2	1972 Scen.1	1974 Scen.1
700M						
Post-tax IRR as if no participation	11.6	15.7	15.7	15.7	20.6	25.5
<u>With participation</u>	-	14.7	15.4	15.1	19.5	22.6
200M						
Post-tax IRR as if no participation	8.5	13.2	13.2	13.2	18.4	42.0
<u>With participation</u>	-	12.2	12.8	11.5	15.6	31.8

All figures assume that both Statoil and the private company have debt.

8.1.3 Volume

The need to control volume of production was until 1973 almost exclusively related to the strategy of negotiations between the companies and the Norwegian state. A slow rate of extraction would give the Norwegian state more time to increase its bargaining strength towards the companies. After 1973, however, the key element in the determination of an optimum rate of extraction became more related to the structural macro-consequences of the volume decisions. Based on the situation at the time, a policy of macro-regulations was introduced. But nowhere during this period was there any serious talk about instituting a policy which might interfere with the profit-maximizing output from a field.⁴ Norwegian policy in this field was therefore broadly similar to the one which was pursued for the rent division; achieve the objectives at a minimum cost to the companies. And even if the companies were considering the overall restriction of output as undesirable and consistently argued against it, there was at no time any indication that the 90 mill. ton 'roof' on future production in any way challenged the companies' continued existence on the Norwegian Shelf.

8.1.4 Overview

- The increase in rent going to the state, and in particular the increase in the state's equity share;
- The increased importance of volume control in the post-1973 period;
- The increasingly successful record of the Norwegian spinoff industry;

were all outcomes of policies that had at least one common element: an increase in information about the oil industry held by the Norwegian state. To this extent the increase in information was a prerequisite for the developments in the policies outlined above. The Norwegian state moved from a situation in 1965 where its knowledge of the particularities of the oil industry was extremely limited to a position where by 1974 it had access to its own geological experts working for STATEX, and could also call on expertise from Statoil, and the Oil Directorate.

We will now try to explain the main features of the Norwegian policy in the light of the theoretical framework developed in Chapter 2. In particular we will relate the outcome to the three key factors which

we singled out as being important in the Norwegian case: the exogenous change in rent, the nature of the Norwegian state, and the international situation.

8.2 TOWARDS AN UNDERSTANDING OF THE STATE'S ROLE

8.2.1 Exogenous change as an 'explanatory' variable

Throughout the period 1965-74 we have seen a clear confirmation of our basic theoretical insight that when the exogenous circumstances change, expressed by a change in the expected PV of a field, there tended to be a subsequent change in the policy variables used by the Norwegian state. (But note that the present discussion is different from our discussion in Section 8.1.1 above, where we only discussed overall trends of state 'takes'.

The PV of the fields therefore becomes one basic building block of our analysis. Because of the inflexibility of the traditional tax variables, the Norwegian state tried to adjust to the changing circumstances by using a number of other (and complementary) policy variables to keep its share of the rent to a maximum. By examining each separate round of concessions at a time, we can concretely see how this process took place.

The Norwegian 'take' in 1965 was as we argued the outcome of a very haphazard process. But once the PV of a field increased by 1969, there was a corresponding reaction by the Norwegian state, and an increase in the Norwegian state's share of the new PV. This increase did not necessarily take the form of increased 'take' in the traditional tax sense, but also expressed itself in its access to a larger percentage of the PV by means of participation. Similar adjustments took place in response to changes in the PV in 1972 as the oil market was tightening up, and with the cost explosion which was to come from the mid 1970s still unexpected. This process finally found its most dramatic expression in the post-1973 period when there was an important increase in the expected PV of our hypothetical field, and a subsequent introduction of both higher taxes and a progressive rate of participation.

Table 8.4 and Figure 8.3 show the development of the expected PV for a 700m. hypothetical field and the corresponding total state take if the tax variables had stayed at their 1965 levels, and as they finally turned out to be. The difference between the two then can be said to constitute the state's 'tightening'.

It has been clear throughout the case studies that the state's reactions to these changed circumstances were by no means instant and perfect. We therefore have a varying 'share' as far as the state is concerned, with significant 'lags' existing particularly in the 1969 round. But our main theoretical point that there would be a tendency towards a 'tightening' of some variables and changes in other policy variables as the expected PV increased, seems to have been amply supported. This is a different point from the one made in Section 8.1.1 above, which established that the percentage share of the PV of a field which accrued to the state had marginally tended to increase in the period 1965-74. The present insight stems from the realisation that there is a tendency for the state to change the value of its tax and participation conditions in response to changes in the PV conditions, but that this change can be 'swamped' by changes in the tax conditions which have nothing to do with the oil industry. This is clearly seen in the case of participation scenario 3, 1969, above, where the total PV going to the state actually decreased in comparison with what would have been the case if the 1965 conditions had remained unchanged. The reason was the new general tax laws introduced by the centre/right government in Norway at the time.

Our framework has so far said nothing about the form that changes in the state's role would tend to take. Nor have we made the point that the implementation of any new policies presupposes that such changes in PV are perceived by the state, i.e. it makes an important assumption about the state's access to information. Finally, there must be a political will to make such changes. We now hope to show that the solutions to these questions rely heavily on the two other explanatory variables outlined in Chapter 3, the international framework and the nature of the Norwegian state.

8.2.2 The international context

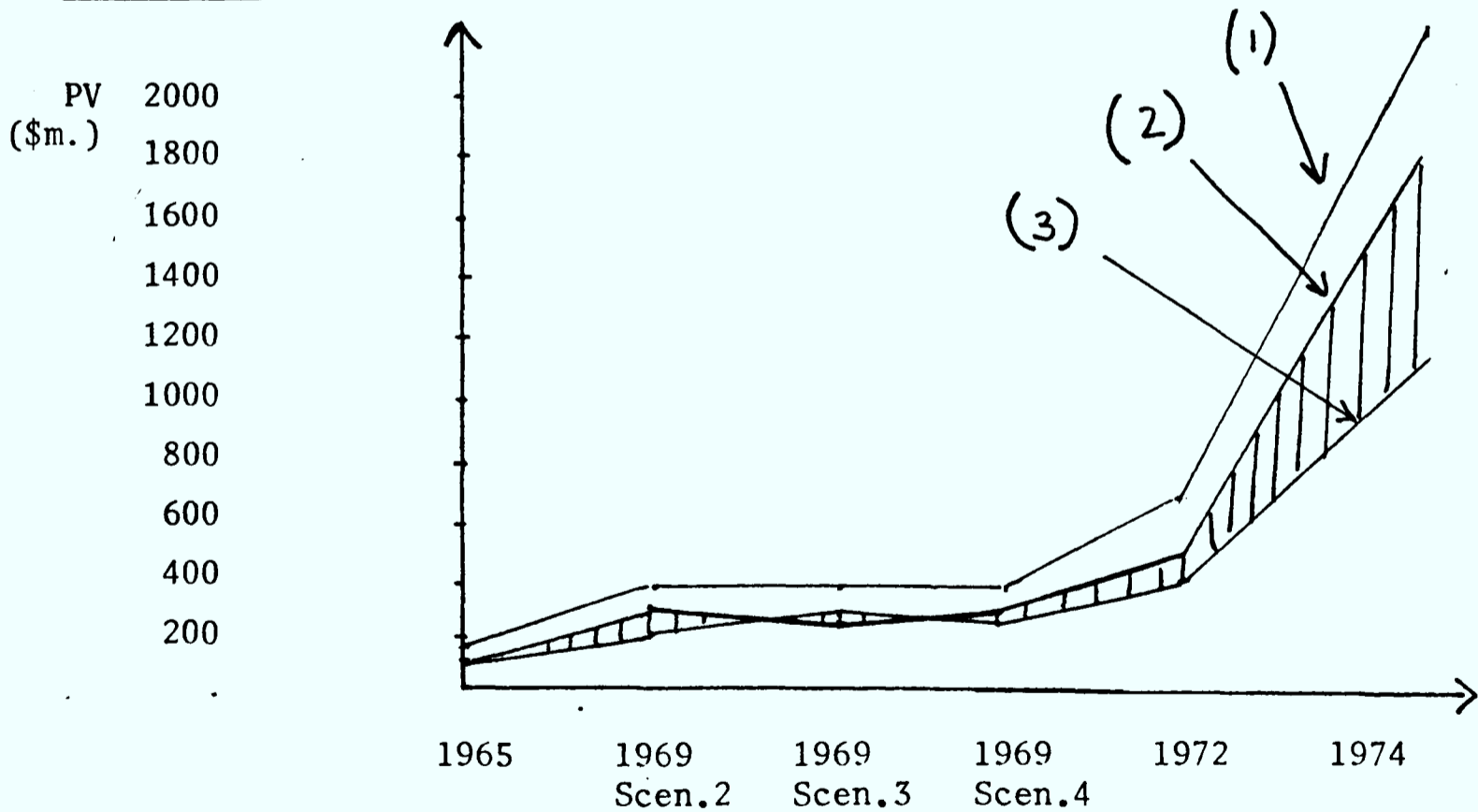
We have in the preceding chapters given an outline of the most important events which took place within the international oil industry throughout 1965 to 1974, and in particular have concentrated on the increasing importance of nation states in the industry internationally. This has been in response to our theoretical framework outlined in Chapter 2, which postulated that there would be three kinds of inter-relationship between developments in the international and the Norwegian oil industries.


TABLE 8.4

	1965	1969: Scen.2	Scen.3	Scen.4	1972 Scen.1	1974 Scen.1
PV 700m.field (1)	183.2	386.3	386.3	386.3	699.3	2072.3
Total state 'take' (\$m) (2)	150.2	307.2	256.4	275.9	552.4	1898.2
Total state take with 1965 tax conditions (\$m) (3)	150.2	269.1	269.1*	269.1	425.9	1196.7

* The fact that for Scenario 3, 1969, column 2 is smaller than for column 3 is due to the fact that the change in the general 1969 tax conditions which were unrelated to the oil industry 'swamped' the increased participation rate.

FIGURE 8.3



 Increased PV to the state as a result of tightening of terms in one form or other compared with the 1965 terms.

The first kind of interrelationship we postulated was one of example and influence. This was an important part of the development of Norwegian policies. From the very start the emphasis in the Oil Council was to learn from the oil policies of other countries. Extensive travelling took place during the first years of the Council's existence and the first suggestions made in 1968 about state participation were at least partly based on the Iranian organisational pattern. Evensen's (1971) major and influential overview of the different kinds of concession policies open to the Norwegian state towards the end of the 1960s was at the time a unique piece of work which set out in great detail the historical precedents of different policy options. The aims and structure of Statoil established in 1973 were clearly based on existing state oil corporations both in producer and consumer countries, while the possibility (not certainty as it turned out) of using service contracts in the nine blocks allocated to Statoil in 1973/74 was an idea that had its origin in new kinds of concessions originally pioneered in Indonesia and Venezuela. These were increasingly being used on a world-wide scale in preference to the old 'carried interest' contracts.

The second interrelationship between Norwegian policies and the international situation was based on the degree of interest from oil companies towards Norwegian acreage. This interest was in the last analysis a result of the companies' global strategies, which again was largely a result of the situation in the world oil market. The more confident the companies were that alternative sources of oil were available outside the North Sea which could guarantee them a reasonable profit margin and security of supplies, the less was their interest in the North Sea. Similarly the companies might want to deplete their deposits in other parts of the world before moving into new exploration areas like the North Sea, even if this strategy could clash with an alternative strategy which sought to maintain their access to any new resources that were discovered. This would be to keep any competitors out of new and promising areas, and to maintain an 'inventory' of non-exploited supplies for themselves.⁵ It is possible to argue

(see p.170) that the companies had no immediate interest in exploring the centre/northern parts of the North Sea when the first concessions were given in 1965. This lack of interest did not come about because the area was uninteresting from a geological point of view, but because the companies had enough on their hands in the southern

part of the North Sea. And in any case the companies did not have to fulfill their work programmes until the early 1970s and so didn't have to start any large-scale drilling until then. Superimposed on this situation was an expected general surplus of oil on the world market and a continued company access to the fields in the Middle East which yielded large amounts of differential rent. Against this background it is telling that it was an independent crude-short company, Phillips,⁶ that was perhaps the most consistent explorer for oil and gas in the North Sea. On the other hand BP, the most crude-long of all the majors, was the company which rejected Norwegian acreage back in 1965.⁷

From 1970 the companies' interest in the centre/northern parts of the North Sea increased dramatically. This increase has been largely related to the Ekofisk find, but was also a result of the predicted world-wide shortage of fuel with an expected accompanying increase in prices (already predicted by Shell in the late 1960s - see Chapter 5, p. 151). The increased interest was also a result of the political instability of the Middle East and the suspicion that no (or negligible) upstream profits would in the future be earned in the Middle East.⁸

It is instructive to make a comparison between the UK and Norway at this point to show that it is also important through which political structures such basic forces are mediated. In the UK between 1969 and 1972 the newly elected Conservative government imposed what amounted to more lenient concession terms instead of perceiving (as did the Norwegians) that a fundamentally new situation had arisen, which should have warranted a tightening instead.

After 1973, the above calculations changed because the companies changed strategy in relation to the producer-states. Following the widespread moves toward nationalizations their aim was now to shift their profits downstream. As a consequence the companies got more interested, at least temporarily, in long-run security of supplies for their downstream activities.⁹ The Norwegian state tried to take advantage of this new situation. For instance it was widely believed that the German quasi-state company Denimex, which represented a state that was primarily interested in obtaining long-run secure supplies to the German economy, was after 1973 willing to accept stricter terms than were other companies.¹⁰ But this 'variance' in the different companies' positions was less in the Norwegian sector than in other comparable North Sea countries due

to the longstanding Norwegian policy of mainly giving concessions to major companies.

This overview shows concretely how the situation in the international oil industry provided the overall framework within which Norwegian policies were formulated. So it continuously gave the Norwegian state new possibilities to act and ask for new terms from the industry. But being linked to the international oil world also presented Norwegian policy-makers with major problems by acting as a barrier as to what was possible to achieve. This is the third kind of interrelationship between Norwegian policy and the international oil situation.

One of the main reasons why state participation became increasingly important in the North Sea was its growing acceptance by the oil companies. Nowhere in our case study do we see a clearer example of how the international situation acted as a constraint on the development of Norwegian oil policies. We have shown in earlier chapters that from around 1970 onwards a growing state role by the OPEC countries was, if not actively encouraged by the companies, then at least accepted as 'inevitable' and something the companies themselves would have to make as good a use of as possible. The tendency had clear repercussions for Norway, as it opened the way for a general change in the Norwegian concession terms. So while the majors in 1969 were opposed to the very concept of participation, their attitude had changed by 1972, and by 1974 there were no objections to the concept of participation per se. The reason why participation was finally accepted can only be understood by reference to a combination of the international situation which we will discuss here and the form which participation finally took in the North Sea (see Section 8.3 below).

It is only by surveying in more detail the period as a whole that we can further understand why there was a continuous pressure towards an increase state role in the OPEC countries which culminated in the recent nationalizations of the industry. What follows is therefore an extension and a more in-depth treatment of the problem than was presented in Chapter 7.

8.2.21 The increased role of the state in the international oil industry

The background to the recent nationalizations must first be seen as a distributional confrontation for the appropriation of a given amount of oil-rent between the producer-states and the oil companies. (We will disregard the importing states' potential claim to part of this rent for the moment.) Secondly, it was a confrontation

at the level of production as the producer-states, the companies and the US government struggled to increase the total amount of rent in the oil industry as a whole. Both of these objectives were achieved by what we choose to label a process of reorganisation of the industry in the shape of increased state involvement and eventually nationalisation. (The term reorganisation is preferred to 'restructuring', which implies a change in the actual process of production.)

The exporting countries wanted a reorganisation of the industry first because they felt their share of the rent was too low. Only 8%¹¹ of the final cost to the Western consumer of a gallon of petrol was in the late 1960s made up of taxes received by the exporting countries. During the late 1960s and early 1970s we also saw how the OPEC countries continuously fought for an increase in the general price level of oil. A price rise would have increased not only their absolute share, but also the absolute amount of oil-rent to be earned from oil production. The desire by the producer-states to increase the rent that they controlled became particularly clear around 1970. The countries which initially pushed hardest for nationalisations and which first secured a larger share of the rent: Iraq, Algeria, and to some extent Libya, also had the most explicitly development-oriented ruling classes. Hence they had an urgent need for additional oil revenues.¹² The complex relationship between a higher absolute price of oil and a process of nationalization will be explored in more detail below, but a direct link was thought by some to exist between the Algerians' fight for higher prices in the early 1970s to provide development funds, and their quest for nationalizations of the oil industry.¹³

The above 'instrumentalist' view of nationalizations goes against official OPEC statements which stressed that nationalizations did not take place for fiscal reasons, but rather for reasons of 'control'. But 'control' is an open-ended and ambiguous concept. If it means 'control over volume of production', this is simply a prerequisite for a maximization of the present value of oil production from an oil-field, computed in social terms. Hence it can be identical to the aim of maximizing the state's share of the surplus profit.

For the oil companies an increase in the general price level of oil was also of great importance, not the least because they had seen their distributional share steadily diminish over time. This was partly as a result of a higher level of taxation by the oil-exporting countries which it was difficult to pass on to the consumers in a

situation which throughout the 1960s was characterized by a global excess supply. The diminished share of the companies was also due to a threefold challenge to the majors in the oil market; the rise of the 'independents' following the US import quota system in 1958; the emergence of important state oil corporations in Europe like ENI, which tried to outbid the concessions offered by the majors; and the increase in Soviet oil exports to the West. The combined expression of all these factors was a drop in the profit per barrel for the majors.¹⁴ The reduction was only partly overcome by a sharp increase in total production. Profit rates for US direct foreign investment in the petroleum industry dropped from a 30% return in 1955 to 14.7% in 1965 and to an all-time low of 11.1% in 1969.¹⁵ The majors' return on net assets in the Eastern Hemisphere dropped from above 18% in 1957 to level out around 11-12% from the mid 1960s onwards.¹⁶ These figures are apparently partly contradicted by a number of studies of the majors' profitability in the Middle East.¹⁷ But the Middle East studies may be partly unrepresentative because the companies had an incentive to transfer their profits upstream, showing a high rate of return to crude oil production. The incentive was the provision that the total amount of tax which was paid to exporting countries could be subtracted from total corporate profits and thus decrease the companies' tax burden in their home countries.¹⁸

The shortcomings of these rates of return for the companies first became clear when oil exploration and production moved into high-cost areas (Alaska, the North Sea) from the late 1960s. The industry was used to a very high degree of self-financing, but the profit rates earned at the time were insufficient to finance these new investments internally. As a result the companies had a clear interest in re-organising the industry in such a way as to increase the price of oil, and hence profits, from the early 1970s.¹⁹

But for our explanation of the nationalizations to make sense it is necessary to explain why the companies were so opposed to price increases before 1970. It is possible to argue that the companies changed their pricing strategies partly at the instigation of the US government. The interest of the US government in higher oil prices from 1970 is discussed in more detail below. Such an 'external' explanation for the companies' change in policy seems reasonable when it is remembered that the companies in principle are not concerned about the absolute price of a good, as long as it is sold. Companies are

more worried about profit margins. According to the chairman of Shell Transport and Trading: "Pressure from the producing countries on costs is something we can learn to live with, provided we are not at the same time denied freedom to move prices in the market, so as to maintain a commercial margin of profit."²⁰

In sum, by the early 1970s there was a widely perceived recognition that higher crude oil prices were needed. In this context nationalizations became necessary. Increased state involvement and nationalizations can be understood as a necessary by-product of an increase in prices. The companies knew that if they raised prices on their own, the reaction in the West would have been politically intolerable. The producer-states therefore had to be seen to raise the price of crude. For this reason the companies were willing to accept higher state ownership and in the process to formalise a de facto change in the upstream fiscal structure. In return, the companies could get higher prices and were guaranteed a stable business environment. The Teheran and Tripoli agreements and their aftermaths in 1972 did exactly that. As far as the companies were concerned the nationalizations were therefore partly a result of an already existing crisis in the oil industry. A director of Shell wrote later about this period: "It was becoming clear that the role of government in oil matters must necessarily grow if a crisis was to be avoided."²¹

It is possible that there was also a more 'defensive' corporate strategy behind the actions of the companies. They understood that to achieve long-run stability to supply their downstream activities and to provide a guaranteed outlet for their technological expertise, the companies might have to get out of direct ownership altogether. Such a move would have the additional advantage of removing the politically sensitive question of 'ownership' as a source of friction between the companies and the producer-states. By the legal device of ownership the demands of the economic nationalists in the oil-exporting countries appeared to be satisfied.

The companies' actions furthermore fit in with the general re-orientation of the oil companies, which were gradually turning into 'energy corporations'. This move which was anticipated in the late 1960s²² has recently accelerated. The purchase by the oil companies of other energy sources such as coal, atomic energy, and oil-shales, will ensure them future access to sources of energy.²³ A number of these resources are to be found in politically 'secure' areas, which could

yet again provide the companies with the prospect of controlling the whole integrated production structure. For instance, 60% of all present US coal reserves are owned by the US oil industry.²⁴ The purchase of such new interests requires substantial amounts of internal finance, which may explain the time pattern of the oil companies' rent maximization. A short run maximization of rent in present activities may signify a wish to get out of crude-production with a maximum amount of money to finance new investments in other sources of energy.

The third 'actor' with an interest in increasing prices was the US government. From 1970 onwards the US clearly pressed for an increase in the general price level of crude. Oppenheim shows how the US government's actions were interpreted by the oil producers as a desire for higher prices;²⁵ a point of view that has also been forcefully put by Chevalier.²⁶ It was thought that such a rise would make a number of indigenous production wells in the US commercially viable and therefore help the US to achieve a higher degree of self-sufficiency in oil as well as in a direct way help the profitability of the US oil companies. The push towards higher prices was also related to inter-imperialist rivalries. The US government saw how an increase in crude-prices would deliver a serious blow to its industrial competitors in Western Europe and Japan.²⁷ The problem for the US was that prices finally increased far more than originally anticipated, but this can to some extent be ascribed to exogenous events, notably the Yom-Kippur war.

Due to the peculiarities of the oil industry - both its extremely high capital/labour ratio and the high rent element in the final price - it has been relatively easy for the companies to 'buy off' oil workers with high salaries and create a type of aristocracy of labour. Therefore oil workers have played a relatively minor role in demands for a reorganisation through nationalization.²⁸

We have sketched why there was a simultaneous drive by the producer-states, the oil companies and the US for a reorganisation of the oil industry. It is important to see that no 'conspiracy' brought oil prices to their present levels, or opened the way for the reorganisation of the industry. Rather these events were partly outcomes of the historically specific circumstances outlined above. This interpretation of the rise in the state roles in the rest of industry goes some way towards explaining why the companies which operated on the Norwegian Continental Shelf gracefully gave in to the demands

for state participation that the Norwegian state was putting forward from the late 1960s onwards.

8.2.3 The Norwegian state and oil

The theoretical framework which helped us to understand the general behaviour of the Norwegian state can give no direct and unambiguous 'explanation' of Norwegian oil policies in the period 1965-74. State theory is thus not a methodological tool which in any direct sense can be 'applied'. But it can, when it is coupled with an analysis of the political and economic peculiarities of the Norwegian state, show how the general content of state action in the shape of an increased state control of the oil industry and the form it took, was related to the accumulation/legitimization functions of the Norwegian state. We emphasize the importance of the political and economic peculiarities in any overall understanding of Norwegian policies. This is in response to the failure of any pure and abstract theories of the state on their own to give such an understanding, a point we have developed in detail elsewhere.²⁹

Our first aim is to identify the factors which were at work on the Norwegian state structure and which in the end made state intervention seem so 'natural' and 'inevitable' in the Norwegian case. We have identified four such factors.

(i) Macro-economic defence and state control

The first factor which can help to explain the increased role of the Norwegian state in the oil industry is related to the kind of economic policies that the Norwegian state traditionally pursued in the post-war period. These policies were characterized by an extreme preoccupation with the equilibrium of the Norwegian economic system as a whole at the expense of the interests of individual Norwegian capitalists (see Section 1.2.2). This historical tradition was directly reflected in the attitude taken by the Ministry of Finance in St.meld. no.25 (1973-74). Norway was faced with three alternatives with regard to oil production which were largely similar to the portfolio choice which at the time confronted the OPEC countries with large reserves and small populations:

- Norway could produce oil and invest the proceeds in Norway
- Norway could produce oil and invest the proceeds abroad
- Norway could refuse to produce oil and invest in oil-in-the-ground.³⁰

Faced with these possibilities the Norwegian state advocated a compromise solution. As described in Chapter 7, Norway set a ceiling on the total annual oil production of 90 mill. tonnes oil-equivalent per year. The main reason for such a ceiling was the threat that a higher oil production represented to the stability of the Norwegian social and economic system as a whole, because of the economy's limited ability to absorb large oil revenues. And such control could best be implemented through a higher state involvement in the industry. We have earlier shown how a higher state equity share was a necessary (but not sufficient) prerequisite for such control.

While Parliamentary Report no.25 made the point that changes in production, employment, and settlement patterns continuously take place in every society, it explicitly stated that "these changes may be considerably accentuated through a rapid development of the petroleum activities or through an extensive domestic use of the increased revenues". The Report then went on to describe such changes as "the most important problem which must be considered in connection with the petroleum operations".³¹ A prerequisite for controlling these problems was that "democratically elected institutions must have full control of all important aspects of the petroleum policy".³² The Report even stated that "... in the future they (private enterprises, Norwegian and foreign - PN) should obtain the right to exploit these natural resources in exceptional cases only".³³ These quotes suggest that when the Ministry of Finance advocated a more important role of the state in the oil industry, this position was based on its preoccupation with the stability of the system as a whole.

We must however now move one step further and show why the threatened structural consequences of too high an oil production had such an important influence on Norwegian policy-makers. We will argue that it was because of the peculiarities of the Norwegian state structure that the concept of depletion control became important in a way which was unique in oil-producing states. We have seen how once the Norwegian state realized what importance oil would have for the economy

as a whole, and especially the threat it posed to the non-oil-related sectors of the economy, the state acted by restricting output. While the restrictions on the granting of new licences until 1973 were more part of the bargaining with the companies over control of technology (a slow rate of exploration would give the Norwegians time to 'catch up' technologically), after the price rise of oil it became increasingly clear how oil production would affect the industrial structure in general. The corresponding restructuring of Norwegian industry would not be accepted by large sectors of the Norwegian national bourgeoisie who owned the industries that were likely to be most seriously affected, nor would it be accepted by the workers in the same industries. The contrast between Norway and the majority of oil-producing states which often have a desire to break down instead of preserve the traditional economic structures in the name of 'development', should be clear.

This action is only understandable if it is accepted that the Norwegian state intervenes on behalf of the capitalist class as a whole in its attempts to induce a balanced process of capital accumulation, and does not represent or directly articulate the interests of only one fraction of this class or one industry.³⁴ This view goes against Naustdalslid's analysis which predicts a closer link between the Norwegian state and the oil companies as a consequence of the oil activities.³⁵ The control over volume was also specifically related to the important legitimising role of the state, given the particular political situation in Norway in 1973. So the restriction in output was not only an automatic and inevitable aspect of Norwegian policies, but was also a result of political struggles which must at least partly be ascribed to popular attitudes following the EEC referendum. The Labour government and the traditional Norwegian political machine had just been defeated in this referendum and was seeking measures to counteract the growing left-wing drift in Norway, in order to legitimize anew its own position. The stipulated production ceiling of 90 million tons oil equivalents a year (however arbitrarily the exact amount was originally fixed) was such a measure. The important antagonisms within the Norwegian state apparatus on this question further weakened a traditional "united front" on the part of the civil service and facilitated the acceptance of a policy of volume control.

When we put forward the above explanation why Norway implemented a policy of volume control we should also bear in mind that there was a unique overlap between what could be regarded as a 'rational' micro-economic portfolio choice by a landowner (the Norwegian state), and the historical factors which put such a weight on the overall stability of the Norwegian economic system. Norwegian policy-makers in choosing their optimum portfolio of assets were, like their OPEC counterparts, forced to consider the implications of a rising or a falling real price of oil on the choice between keeping the oil in the ground or investing it abroad. And Norwegian policy-makers did not think there would be any long-run collapse in the real price of oil. On the other hand the risks of using the oil revenues to increase Norway's foreign investment could be said to be high. There were at the time negative real rates of return to be earned in the international financial markets; threats of exchange-rate losses; and even possibilities of nationalizations of the oil-producers' foreign holdings. All these factors further supported a policy of relatively slow production from the Norwegian Continental Shelf.

But the state did not only try to increase its control over the volume of production. By 1974 Statoil also seemed set to intervene at the expense of both the Norwegian private sector and the international companies at the level of extraction. The state was becoming a capitalist in its own right which sought parity with the foreign firms. The explanation for this must as in the case of volume control partly rely on the peculiar nature of the Norwegian state. And again we will first turn to the state's role as 'macro-regulator' in Norwegian society.

We have throughout this thesis stressed how an increased state participation was a way for the state to increase its control over the oil-rent. This higher guaranteed income was necessary in order to maintain the Norwegian state's high degree of legitimacy, especially in a situation where the rest of the world was heading for a major recession. A higher income would provide higher subsidies for Norwegian industry in order to maintain full employment. A higher income would also provide funds for the large transfer payments which were so necessary to keep the relatively equitable distribution of income and wealth that Norway enjoyed.

But this urge for a higher income could not be pursued at the expense of all other policy aims. Section 7.7 shows how at the

time there was thought to exist clear limits to the overall amount of oil production that the Norwegian social structure could tolerate. So the need for revenues had to be satisfied within certain volume constraints. There was therefore a short-run trade-off between the two. But this trade-off could be improved within certain limits by an increased state participation.

On a more theoretical level, but within the same problematic, one can interpret an increased state intervention and ownership in the oil industry as a solution to the 'fiscal crisis' of the Norwegian state. This is to adopt O'Connor's paradigm where state action is mainly determined by a drive to cover the gap between state income and expenditure, a gap which according to him tends to increase over time.^{36 37} Such an understanding of the problem at hand becomes especially tempting when we know that Norway in the early 1970s was one of the highest taxed OECD countries.³⁸

At an even higher level of abstraction the explanation for the state's involvement in the oil industry becomes an extension to our theoretical perspective presented in Appendix D, whereby state intervention takes place in direct response to a crisis which threatens to stop the accumulation process.³⁹ Alternatively, state intervention can be seen as a necessary prerequisite for a total restructuring of capitalist relations in order to lay the foundations for a renewed period of capital accumulation.⁴⁰ Any of these lines of argument can then be employed as an explanation for a direct state intervention in any industry. For instance, the post-war state takeover of steel, railways and coal in the UK can, according to this argument, be seen as a response to the low profitability and the need to restructure these industries.

At first glance such explanations may seem irrelevant in our case because initially there was no Norwegian extractive oil industry. But the argument can be made relevant if we interpret the trend towards Norwegian state intervention mainly as a response to a crisis in the international oil industry (see Section 8.2.2 above). An alternative and more general explanation along the same lines could attribute the need for a reorganisation of the oil industry to a response to a wider crisis of Norwegian capitalism. One way to argue this is to claim that heavier state involvement was a result of a threatened crisis springing from the structural dislocations which could have followed the increase

of oil prices in 1973, and therefore represented a kind of 'preventive' intervention. In this way we have again returned our explanation to the Norwegian state's crucial role as macro-regulator in Norwegian society, the historical origins of which we outlined in Chapter 1.

But within the above framework that primarily sees the state in 1973-74 as representing capital in general, and therefore largely disregards whether it deals with private or state firms, we do not claim that the more traditional functions of the state had been completely dispensed with. The state's role as coordinator and guarantor of private capital accumulation was also maintained within Norway. The success of the Norwegian private drilling and platform construction firms, extensively outlined throughout this work, as well as of the other spinoff industries, would have been unthinkable without the active intervention of the state. And, as we have seen, the state's direct intervention as a capitalist within the spinoff sector was minimal.⁴¹

This intervention was of course not always unproblematic. The aim of increasing the absolute amount of spinoffs could (and in the 1976/77 period clearly did) clash with the constraint of a maximum volume of production. The seriousness of this contradiction increased as the threat of unemployment, especially in the engineering industry, started to loom. But the key in this context was to understand the crucial role that the Norwegian state played in supporting Norwegian private capital accumulation. Contrary to the case of extraction, the Norwegian capitalists were capable of taking advantage of such an opportunity once the state had prepared the ground for them.

(ii) Control of foreign investment

One powerful factor which decides if a policy is to come into operation springs from historical precedence. If a proposed policy in any way can be said to be a follow-up of previous policies, it is often easier to put forward and get accepted. Oil policies are no exception to this. It is on such a background that the history of restrictions on foreign investment and its subsequent significance for capital accumulation is an important contributing factor to an understanding of the development of the Norwegian oil policies. The Norwegian 'Concession-laws' from the beginning of this century set a precedent for any politician who argued in favour of exercising the

strictest control over the oil companies. In many cases this history was directly used in justifying tight control over the international oil companies.⁴²

Even the exact historical pattern of events can be of more specific value in establishing a policy precedent. For instance two aspects of the historical 'cycle' of foreign investment in Norway later 'reappeared' in Norwegian oil policies.

First, the decrease in foreign ownership between 1909 and 1918 was partly due to the Norwegian position as a net capital exporter during the latter part of the First World War and the subsequent purchase by Norwegian interests of foreign interests in Norwegian industry. Thus, once the external situation was favourable, representatives of Norwegian capital increased their ownership-share of Norwegian industry at the expense of foreign industry. The analogy about what could have been done with the expected oil surplus is both tempting and relevant. The main difference is that today it is the state which has been more or less willing to buy out foreign interests in the Norwegian economy (hjemkj p), while during the First World War it was representatives of the Norwegian bourgeoisie who took such steps.

Secondly, the state's historic attitude towards rapid structural change in Norwegian society is of relevance when it comes to assessing the views that surfaced on this subject during the formative years of Norwegian oil policies. One of the reasons put forward in favour of the 'Concession-laws' was the negative effect they were expected to have on the pace of the industrialization process in Norway. According to some of its proponents, a slowing down of this process would minimize the social costs associated with a rapid industrialization. The analogy with the reasoning underlying the limit of 90 million tons oil production per year in the mid 1970s strongly suggests that there was an important continuum in Norwegian policies towards industrial policies in general, and foreign capital in particular. This later made it easier to argue for restrictive policies towards foreign oil capital.

The willingness to argue against foreign investment in general was strengthened by the nationalist and anti-centralist/anti-authoritarian streams in Norwegian political tradition. These were probably at their height just after the war, and surfaced again in connection with the EEC referendum. In between, the pro-foreign investment school

carried the day; the reasons for which are complex.⁴³ These pro-investment attitudes initially dominated the Norwegian state's handling of the oil question. Arguments put forward in favour of increased Norwegian control were invariably opposed by reference to 'realism', and the 'inevitability' of relying on the companies. But once the objective chance came for Norway to partly break away from the 'realism argument', especially as Statoil developed, the Norwegian state tried to increase its relative autonomy from the companies. This transformation, which took place between 1972 and 1974, coincided with the outcome of the EEC referendum. The referendum result further undermined the general liberal belief of free mobility of capital which, in the last analysis, underlay foreign investment in the oil industry. The contrast between Norwegian and UK policies can in this respect be very instructive. Britain was a country where no tightening took place from 1970 onwards in relation to the companies. One important explanation for this was the lack of historical precedence of controlling foreign capital which existed in Norway.

(iii) Socialisation of production

The third reason why there was an increase in state involvement in the Norwegian oil industry is related to the high socialisation in the process of production. Concretely this meant that the demands for capital necessary both to explore and develop the fields in the North Sea were far in excess of anything that could ever be obtained and managed by Norwegian private capitalists on their own.⁴⁴ This was particularly the case until 1972, because oil-in-the-ground, according to Norwegian legislation, could not be used as collateral by oil companies to obtain finance. But the situation remained virtually unchanged after that. This is clearly seen when we consider that total gross investment in Norwegian industry and mining in 1974 totalled Kr. 7.4 bill.⁴⁵ compared with a total yearly expected investment of Kr. 8.25 bill. (\$1.5 bill.) on the Norwegian Continental Shelf in the late 1970s.⁴⁶ To raise such amounts of finance and undertake investments on this scale was simply beyond the organisational capacity of the Norwegian bourgeoisie.

But we must take this argument one step further once it is realized that the international companies had access to sufficient capital to carry out an investment programme in the North Sea. (This is not to claim that they had enough capital to carry out such heavy investment programmes everywhere; nor that they didn't want the right kind of participation by the state to decrease the burden of finance.) Why did the Norwegian state overcome its traditional attitude of non-involvement in productive industries and intervene directly if indeed there was enough finance available elsewhere? The reason is that the Norwegian state is first and foremost a national state with a strong nationalist tradition. Once it was clear that Norwegian private capital was not able to develop the North Sea itself, the choice was whether accumulation of capital in the North Sea should be undertaken by the state or by the international companies. The Norwegian state then opted for a partial state capitalist solution centred around Statoil; and not one that exclusively gave the job to the international companies. Statoil thus became a surrogate and a substitute for the weak Norwegian bourgeoisie in a way that is similar to the productive role of the state in a number of third world countries.

(iv) Strategic goods and general conditions of production⁴⁷

A fourth reason why the state has increasingly tended to intervene in the oil industry can be put forward once it is accepted that oil is no ordinary commodity. It is the most important source of energy in capitalist societies and therefore plays a distinct and crucial role in the process of capitalist accumulation. From supplying 21.5% of the world's energy supply in 1940, petroleum accounted for 67.2% in 1974.⁴⁸ It is indeed possible to argue that the post-war boom has been based on the fact that ample supplies of cheap energy have been widely available. As Barraclough says, "If communism ... equals Soviet power plus electrification, neo-capitalism equals US power plus cheap oil."⁴⁹ One set of figures is sufficient to indicate how the accumulation process during the post-war period became increasingly energy-intensive, which meant an increasing reliance on oil. Whereas between 1870 and 1950 GNP per capita in the US rose sixfold for a mere doubling of per capita energy-use, between 1950 and 1973 energy growth per capita actually exceeded the per capita growth in production.⁵⁰

The operation of a modern capitalist system is thus totally dependent in the short to medium run on a steady supply of oil because of the way capital accumulation takes place in these economies. A total cut-off in the supply of oil will bring the accumulation process to a halt with the same certainty as if the supply of labour-power was withdrawn. It is for these reasons that we label oil a 'strategic' commodity. Based on this we claim that analytically speaking not all goods are equal. A commodity which is an input to more than a critical number of goods, and for which there are no short- to medium-run substitutes, must be categorized as a different kind of commodity: a strategic commodity. It is our argument that the state takes a particular interest in 'strategic' commodities because of its central role in the accumulation process. A capitalist state, preoccupied with supporting the process of 'capital accumulation', has little choice but to ensure the 'security of supply' of such a good.

When defined in this way, oil can feature alongside other basic inputs into the production process like roads, canals, railroads, as well as steel, electricity and gas, which all traditionally have been publicly owned in Western European countries, and which are all absolutely crucial for the overall process of accumulation in society. An increased state involvement and control of the oil industry would thus be a 'lagged' response to a basic and historically verified trend within modern capitalism firmly based on the theory of the state put forward in Chapter 2.

Unfortunately there is an important problem connected with the use of 'strategic commodities' to explain state intervention in the Norwegian oil industry, which arises because most of the Norwegian oil is exported. Consequently, there will be no need for state intervention on a large scale to ensure capital accumulation in the Norwegian capitalist system. However, if we use an international explanatory framework we can postulate that a worldwide tendency towards a higher state involvement in the petroleum industry, will also in the end lead to a higher state involvement in the Norwegian oil industry (see Section 2.5.3).

Section 8.2.3 has outlined how an understanding of the nature of the Norwegian state can help to explain Norwegian oil policies. This way of arguing goes beyond and is largely unrelated to the more traditional explanatory factors such as net'expected present value and the international

context. Concentrating on the state in a historical manner represents a complementary insight into the already existing theories of bargaining. At the same time it is logically prior to them in explaining why the state should intervene in the oil industry at all. The arguments of this section finally make it clear that such state action in the last analysis can be related to the basic force at work within any capitalist economy: the over-riding need to accumulate capital.⁵¹

8.3 CONSTRAINTS

While in theory a state has a 'free choice' to pursue any oil policy it likes, we shall now see that the form of the Norwegian push towards an increased involvement of the state (outlined in the last section) was not necessarily the most effective way of accomplishing the aims of the Norwegian state. It is for example quite possible that a process of full nationalization could have been more effective than the principle of 'carried interest' in fulfilling these aims. But full nationalization was not chosen, because Norwegian policies operated within a number of well-defined constraints. The chosen policy can only be understood and evaluated if these constraints are understood. The Norwegian policy-makers successfully implemented a set of policies that maximized its share of rent, spinoffs, and volume control, but which at the same time did not break with two constraints. Norwegian policies did not in any real sense threaten the existence of the (international or national) private oil companies; and secondly they stayed within the general confines of Norwegian foreign policy.

8.3.1 Constraint 1: Statoil and the nature of the participation agreements

We have shown in Chapters 6 and 7 how Statoil did not in any meaningful or apparent sense become directly subservient to the international companies or the Norwegian private sector, but was rapidly expanding into an independent and dynamic vertically integrated state oil company. There were even indications that Statoil felt its interests to be opposite to those of the international companies, and also did its best to avoid being subject to full control from the politicians.

We want to show that even with this background the final form the participation agreements took on the Norwegian Continental Shelf constituted no basic threat to the companies. This is, in the last analysis, why they were chosen by the Norwegians and accepted by the companies. The Norwegian policy packages stayed within the constraint that the very existence of the private companies should not be challenged. Their conditions of accumulation were guaranteed.

There are many ways to explain why such a constraint existed. First, there were virtually unanimous statements by Norwegian policy-makers throughout the period that the Norwegian state wanted the services of the international companies. (The only exception was the Socialist Electoral Alliance, SV, which pressed for full nationalization of the oil industry.) In these circumstances it was extremely unlikely that the companies would be subject to a policy that threatened their very existence on the Norwegian Continental Shelf.

But given the tendency for politicians to say one thing and then do the opposite, the above argument should be reinforced along more general lines. If we assume that a challenge to the very existence of the private companies in the North Sea would also challenge capitalism in its present form in Norway, then an examination of Norwegian history shows that no such basic challenge has ever come from within the Norwegian state itself. It is therefore extremely unlikely that this would happen in the oil industry. And even assuming that there was a wish to break with the companies, the foreign policy constraint outlined below would make any such break extremely difficult to achieve.

Finally, the constraint that no capitalist state will actively challenge the very existence of private capital (as opposed to regulating it, or even achieving parity with it) has been chosen as a basic assumption for marxist or neo-marxist works on the modern state. We will not go into the complexity of this debate here, but merely point out that adopting such a methodological starting point is common within a certain analytical tradition of modern social science.

8.3.11 IRR

The most direct confirmation of the argument that the form that the increased state involvement took in Norway did not fundamentally challenge the companies, is provided by our cash-flow results. They have unambiguously shown that the effect of participation on the IRR of the companies was

relatively modest and that their expected post-tax IRR continuously increased throughout the period, despite continuous state 'tightening' of terms. And while the change in the system of participation from 1972 onwards (Scenario 1) represented a worsening as far as the companies were concerned (they had to pay a larger percentage of total costs to get access to a lower percentage of the final production of oil), the relative 'cost' which arose from this kind of participation decreased over time. This happened because since 1972 the relative importance of exploration costs compared to development costs decreased at the same time as the success ratio of wildcats increased in the North Sea.⁵²

8.3.12 Finance

Secondly, participation 'Norwegian style' may under certain conditions turn out to help the financial situation of oil companies, and can therefore partly explain its ready acceptance by North Sea oil operators. It is the break with the commonly held, but unreasonable, assumption that an unlimited amount of capital at any time is available for exploration and development in the North Sea which lies at the heart of such an assessment.

In order to analyse this aspect of North Sea policies, we must differentiate between different forms of finance, and see how different firms have different financial requirements. But first, the scale of the undertaking must be put in a proper perspective. The investment needs in the North Sea are huge by any standards. The total investment needs in the Norwegian sector for the period 1976-83 was in 1976 expected to total \$14.8 bill.⁵³ This figure must be seen in conjunction with the up to \$45 billions which could be needed in the UK sector during the same period,⁵⁴ because there is no way we can separate the two sectors from one another. When talking about finance, banks tend to assess financing problems on a sectoral (here North Sea) basis.⁵⁵

These \$60 billions over the next eight years will come from three sources. Internal funds of the oil companies will still continue to play an important part in the financing of new investments in the oil industry. But as exploration moves into high-cost areas ever-increasing investment funds have to be found. Largely because of this development, the degree of self-financing of the major oil companies have dropped from 85% in the mid-1960s to 73% one decade later.⁵⁶

Secondly, export financing from different government sources had until 1976 accounted for 35-40% of total investments in the North Sea. Such credits were often given at very reasonable interest rates which served to induce the companies to order equipment from particular countries.⁵⁷

Finally, the Eurodollar market and other banking sources could provide the funds which would be issued in the form of medium-run (2-10 years) loans with flexible interest rates. The combined size of the Eurodollar market and other sources of finance was quite sufficient to finance North Sea oil development.⁵⁸

There were three broad kinds of consortia/groups that operate in the North Sea, if we exclude the state oil corporations.

First, the international majors, which operated alone or in cooperation with other majors. Secondly, the consortia where majors operated together with a group of minor companies. This was the most common kind of consortium in the Norwegian sector. Finally, there were consortia that consisted of minor companies on their own. This solution has on the whole been rejected on the Norwegian Shelf.

The major companies at the time still tended to finance their investments from internally generated funds, even if there were significant exceptions. BP raised the money for the Forties field in the financial market; the total worth of the investment equalled the total world-wide capital investment of the corporation for one year. But even in the cases where the majors had to enter the market, they offered little problem for the financial system as their borrowing was based on the strength of their company's assets. And as long as the major oil corporations managed to maintain an acceptable debt/equity ratio (they are in the foreseeable future expected to be far above the critical limit), they would have enjoyed a de facto privileged status in the financial markets.

The second kind of consortium was faced with greater, but not insurmountable, difficulties. In such cases the banks tended to evaluate the prospect of the particular field which needed finance, and give loans subject to completion guarantees. But it was often problematic for banks to give loans to the consortium as a whole, due to the weakness of the minors' balance sheets.

The third kind of consortium would only get loans if the banks obtained "some substantial concessions in equity".⁵⁹ Such concessions would normally take the form of guarantees in the form of royalties, often of the order of 3-5%.

Loans in the last two categories are off-balance sheet loans, tied to the prospects of the particular field that needs financing. Such loans which take as collateral the oil in the ground were not allowed according to Norwegian legislation prior to 1972. But following the publication of the Royal Decree in December 1972, this changed so that in case of serious default the banks will have the possibility to take over the licence and continue the production or appoint a company to undertake such a task. This, according to Gulnes, represented "a true off-balance sheet financing without a guarantee from the parent oil company".⁶⁰

The consequences of this pattern of financing in an imperfect world where capital is difficult to obtain, was that Norwegian state participation by its very presence helped to secure and guarantee loans. Initially, the state participation schemes gave quantitatively little help to the companies (in 1969 only scenario 3 committed the state to capital outlays). But all later concessions have without exception committed the Norwegian state to directly contribute towards the development costs of the projects.⁶¹ To make a full analysis we must now distinguish between the state's relation to the major and the smaller companies. As shown above, for the smaller companies the role of the banks is crucial. But while banks have historically played a conservative or 'cautious' role in the North Sea,⁶² their attitude has been much more ambiguous when it has come down to state participation in the financing of projects. According to one banker, the state's participation in a project may even strengthen a bank's overall credit assessment of a particular project's request for off balance sheet loans, because the state is viewed as a strong partner "that will have both the financial power and the incentive to keep the project moving forward, even if difficulties are encountered".⁶³

Another banker simply stated that majority state participation "may well save the North Sea as a major producing area". In this context the banker in question did not only mention the financing of the investments, but also referred to the government as guaranteeing a minimum rate of return on investments.⁶⁴ A third banker stated (less surely) that "the doubts about the possible effect of government participation (on financing - PN) may sometimes have been exaggerated".⁶⁵

It should therefore be clear that state participation in a consortium could have clear consequences for off-balance sheet finance especially if the loans were given to a consortium as a whole. This

conclusion is strengthened when it is clear that Statoil is not borrowing on the strength of a specific prospect, but is regarded within financial circles as being backed up by the Norwegian state,⁶⁶ and as a consequence has had ready access to international long-run finance via the state.

But if the banks in general were not displeased by the existence of state participation in the field of financing, the reactions of the companies were much more mixed. The smaller and medium-sized companies were for the outlined reasons more positive towards the idea of state participation than the majors that did not need the state's intervention. The managing director of the small UK oil company Tricentrol stated in relation to state participation that "We, Tricentrol, welcome the British government as a partner."⁶⁷

It can be argued that Tricentrol at the time was in a very vulnerable situation in relation to the British state, which had just bailed it out of its financial difficulties.⁶⁸ But the company's graceful acceptance of a partnership with the state in financing expresses in a very coherent manner the not very often heard voice of the smaller and medium-sized companies to whom the state today is of an altogether different importance than for the majors. And the more even the majors are forced onto the financial markets for future loans, the more important Statoil's participation in a consortium becomes from a financial point of view.⁶⁹

8.3.13 Rationality and Statoil

But participation Norwegian style was about more than financing. The companies as well as Norwegian capitalism in general had to come to grips with the creation of Statoil. In this section we will follow up and synthesize the discussion in the last chapter and assess what Statoil meant for these sectors. However much Statoil's creation initially was lamented by the national and international oil industry, the subsequent discussion should make clear that Statoil cannot be assessed in black and white terms. It represents no absolute threat to the companies (nor indeed to Norwegian capitalism). But neither is Statoil in any meaningful sense controlled by the companies.

The main question which can bridge a 'national' and an 'international' evaluation of Statoil is the extent to which Statoil follows the same criteria of rationality as a private firm. Private industry

initially feared that if Statoil was not forced to take 'normal' commercial considerations into account with respect to its investments or other corporate policies, this could then play havoc with the stability and competitiveness with the rest of the industry operating in the North Sea. Statoil could undercut their prices, not being subject to the same strict profitability criteria as the private sector, and also gain an 'unfair' advantage over all other firms if it obtained privileged access to information which had been lodged with the Norwegian state by the companies. This included all the geological information from the Norwegian Shelf, while each company on the other hand had to be satisfied with the interpretation of its own experts. But fortunately for the private sector no price cutting has taken place. And Statoil's advantage from the second factor has been limited.⁷⁰ While Statoil can still be given concessions outside of normal licensing rounds and is present at all negotiations with the private companies, it can nevertheless be argued that these privileges represent no fundamental break with capitalist rationality for Statoil. Statoil is anyway a member of each new concession so their presence in the negotiations is to be expected. Statoil's privileges can rather be seen as 'reasonable' moves to protect an infant industry. Because all private oil companies expect that Statoil will be specially favoured, they fight a continuous battle to make Statoil's position as much equal to their own as possible. But as one director of Shell said: "As long as we play the same game, we are not afraid of Statoil."⁷¹ And all indications are that Statoil is indeed playing according to the rules.

However, oil-men often claim (in private) that the existence of a slightly inefficient state oil corporation (if this indeed is a correct characterisation of Statoil) helps to set the standard of 'good practices' slightly above what they would otherwise have been, thus easing the burdens on the private oil corporations.

8.3.14 Decision-making procedures⁷²

Participation can be a direct threat to the oil companies if it affects the optimal micro-economic way of exploring an individual field. This may happen if a combination of operator status and a majority holding gives Statoil what amounts to a 'carte blanche' when it comes to choosing the appropriate technological subcontractors, deciding the

optimum production profile of a field, etc. But, as we shall now see, the situation is nowhere as bad as that for the companies.

The state participation agreements negotiated after 1972 gave Statoil a place on the Policy Steering Committee (also called the 'Operating Committee') from the very start of exploration.⁷³ The Policy Steering Committee is the main executive and decision-making unit of the 'interesentskap', the company that is formed once a commercial find is made and consists of all the equity partners of the concession. Day-to-day decisions are taken with simple majority in the Committee, but key decisions require a 'qualified majority', which ranges from 52% to unanimity of all partners.⁷⁴ This is why Statoil, even with a majority share of equity, only has a veto power during the exploration phase and for key policy decisions during the development phase.⁷⁵ It is only fairly straightforward decisions during the development phase which can be made by using Statoil's majority.

In addition to the voting powers associated with the equity situation, the question of operator is crucial. The operator is in charge of the day-to-day activity of a concession. This entails negotiating investments, developing specifications of equipment to be used, drawing up the overall plans for the development of the field, and negotiating drilling contracts with independent operators. All these functions give the operator a key coordinating role and an extremely important indirect decision-making role even if all decisions in principle have to be taken by the Policy Steering Committee. The company which acts as operator will, by shaping the decisions according to its own premises, have a much greater importance than what its equity share should suggest. The degree of this influence is clearly seen in the Statfjord case which exemplifies the ease with which the formal decision-making structure can be bypassed and the de facto power given to the operator of the field.⁷⁶ This case study also is an excellent example of how a large equity holding does not guarantee the state access to vital information.⁷⁷

It thus seems that a mere majority share of equity, or even the maximum 75% equity share agreed in 1974, in itself is less threatening and efficient as a means to ensure effective state control over the operations on the Norwegian Shelf than what might immediately be thought. (On the other hand, the situation is still much better as far as the Norwegian state is concerned compared with the initial 1965 and 1969

agreements. It is also widely believed that Statoil has used its weight on the Statfjord Policy Steering Committee to increase the Norwegian share of spinoff from that field.)

The real possibility for Statoil to become a threat to the micro-economic rationality of the private firms will therefore only appear if Statoil, in addition to being a majority equity holder, also becomes an operator. This would in particular make it easier for Statoil to regulate production profiles and select national suppliers of goods and services. But whether Statoil would follow such a course depends on to what extent Statoil will obey political as opposed to commercial directives. And even in the cases where the companies have accepted Statoil as both majority partner and operator (as in a few of the 1974 agreements),⁷⁸ it was on the explicit understanding that the private companies should provide technological 'back-up' and thus in reality perform some of the functions undertaken by the present operators. The realisation that 'technological independence' is important for our discussion now leads us to a more detailed discussion of that topic.

8.3.15 Technology

The key problem for any oil company which tries to develop a field on its own is to coordinate the different tasks during the exploration and production phases. It is because the majors have a considerable experience in such a supervisory role that they often claim they are 'irreplaceable' from a technological point of view, and not because the companies develop the fields themselves, or because the technology itself is particularly demanding. Up to 80% of all technology used in the North Sea has indeed been described as 'conventional'.⁷⁹ The great majority of single tasks in connection with oil production in the North Sea are undertaken by specialist firms. Such firms can be drilling operators, or can be hired as responsible for the overall engineering development once a field is found (NPC and Brown & Root for Statfjord). Only in exceptional circumstances (like deep-water technology) will the companies themselves directly control access to crucial technology.

Once Statoil acquires the overall capacity to direct such developments, it could in principle become the sole operator of a field in the same way that Exxon or Shell is today. The key variable is whether Statoil will have a sufficiently large engineering staff

of its own to direct such a development. According to Lavik, a spokesman for Statoil, the company had by 1976 no plans to develop such a capacity within its own organisation beyond a relatively limited 'key personnel' (nøkkelstab). But Statoil "had taken the initiative and managed to achieve cooperation between Norwegian expertise through the foundation of Norwegian Petroleum Contractors".⁸⁰ The idea was then that Statoil could make use of the expertise developed by NPC. Thus the possibility of making Statoil more independent from the majors presupposed a strengthening of its links with Norwegian private capital. Historical experience strongly suggests that freeing a producer-state from technological dependence is very much a political problem.⁸¹ Consider three examples. A country like Mexico has managed to run its oil industry including downstream activities since the 1938 nationalization largely by using Mexican equipment. Romania is one of the world's most important producers of sophisticated drilling equipment and recently India has developed the offshore Bombay High oilfield by using Indian technology.

It is within such a context that Statoil's relationship to the problem of technological dependence must be seen. Statoil is on the one hand an expression of the political will of the Norwegian state to become technologically independent from the companies. But still there are clear limits to how far this tendency will go. One of them is the companies' control of crucial deep-water technology.

But there also exists a political barrier for Statoil to develop fields on its own. The existence of this barrier was confirmed in the interview with Lavik. When asked whether, once the overall expertise was acquired, it was not possible for Statoil to completely dispense with the services of the majors, he stated: "If it is politically acceptable (PN emphasis) this is a possible solution in the North Sea."⁸² It is the breaking down of this barrier that more than anything worries the companies in the long run.

On the other hand the private companies seem to confront the short to medium run situation with confidence. The openness which Statoil technical personnel on secondment to the companies have experienced both with respect to the learning programmes and with respect to gaining full access to the internal disagreements within the companies, is a good indication of this confidence.⁸³ The companies clearly hope not to antagonise the Norwegian state authorities, while at the same time expect that their technical services will continue to be required.⁸⁴

It can thus be said as a conclusion that, while Statoil's increasing acquisition of technical knowledge potentially can threaten the very rationale for the existence of the companies on the Norwegian Continental Shelf, this threat has not so far materialised.

8.3.16 Renegotiation

The final reason why Norwegian oil policies met with little opposition from the companies stemmed from Norway's scrupulous adherence to the principle of 'sanctity of contracts'. No agreements have been renegotiated; only taxes have been changed. This aspect of Norwegian policies was clearly appreciated by the international companies which on several occasions have favourably compared the Norwegian policies with for instance the UK efforts (however feeble) to suddenly 'catch up' with existing terms.⁸⁵ It is hardly surprising that the companies have been grateful. A guarantee of no renegotiation provides for increased predictability in the investment environment for the firms, a major advantage for any corporate planner. Such a guarantee also leaves the companies with very favourable operating conditions from the earlier concession agreements, which were very favourable to the companies. Finally, such a behaviour from a producer-state has no claim to universality. Renegotiation is normal, and Norway has taken an unusually 'soft' line in this respect.

We claim that the reason for this is the existence of a definite ideological barrier in Norwegian policy-makers which overshadows what in broad terms can be described as 'the reality of the situation'. The origin of this ideological belief is the general principle of non-retroactive legislation in Norwegian law. To the extent that such a belief is based on rational (non-ideological) criteria, it is related to the ability of the oil companies and their home-countries to impose sanctions on Norway in case of retroactive legislation.

Norway's position of no renegotiation has also been fully appreciated by the West in general. It showed that however many threatening noises might come from Statoil and individuals concerning the future of the private oil firms on the Norwegian Continental Shelf, Norway was still fully abiding by the 'rules of the game' and staying within the Western camp.

8.3.2 Constraint 2: foreign policy⁸⁶

The second broad constraint within which Norwegian policy had to operate was set by Norwegian foreign policy. This topic is too vast to examine in any detail in this thesis, and will therefore only be mentioned in passing. Here we will concentrate on the question of volume control which became the main source of contention between Norwegian policy-makers and the West in general. While there was an understanding in the West about the reasons for the relatively low level of Norwegian production, there was no automatic acceptance for such a view. As the chairman of IEA, Dr. Ulf Lantzke, stated in a speech in 1975: "In the North Sea Norway and Britain are under a certain pressure to decrease the EEC's import of crude from non-European sources."⁸⁷ A non-identified US civil servant expressed it somewhat less diplomatically: "If the Norwegians think they can sit on their oil for ever they must be crazy."⁸⁸ Kissinger's special advisor in the field of energy, Thomas Enders, was very "impatient" with respect to the Norwegian position on rates of depletion during the Washington summit meeting on energy in January 1974.⁸⁹ On this background it is possible to postulate that the ultimate external limit for a truly independent Norwegian oil policy would only show itself the day that Norway drastically cut its production, or alternatively point blank refused to open up new and promising acreage like the area north of 62°.⁹⁰

If such a scenario were to come true, it is highly probable that the pressures for an increased output from bodies like the International Energy Agency (IEA) where Norway has been an associate member since 1975, would increase.⁹¹ Such general pressures would also be transmitted through all the traditional channels that tie Norway to the West, be they of an economic or of a more political nature. We have for example already seen the importance that the Norwegian trade negotiations with the EEC in 1973 had for the development of Norwegian oil policies, to appreciate the potential strength of such a connection.

But to recognize such pressures from the Western political system in general with respect to the overall volume of production is not to underestimate the direct political pressure which e.g. a single government could exert bilaterally against Norway. Were for example all the major US companies forced to withdraw or to be barred from

future participation on the Norwegian Shelf following, for example, a move by Norway to nationalize its oil, then the US government could impose severe penalties on the Norwegian economy. This kind of pressure would exist and be of maximum efficiency as long as Norway remained a member of NATO. Hypothetical pressure of this bilateral kind would probably be linked mainly to a changed form of Norwegian state involvement in the North Sea (nationalization). This contrasts with the attitude of IEA which, according to all indications, is less interested in the specific form Norwegian energy production takes, as long as oil is produced for the OECD countries.

Finally, the oil companies would historically have been able to bring direct pressure to bear on the Norwegian state if Norwegian policy had changed drastically to their disadvantage. Because the companies were the main charterers of Norwegian oil tankers on the world market, they possessed a strong bargaining card in their dealings with the Norwegian state. The threat to stop using Norwegian tankers constituted, as Norwegian policy-makers were well aware, a powerful last argument for the companies in any confrontation with the Norwegian state. But with the decreasing dominance of the shipping industry in the Norwegian economy from the early 1970s onwards this bargaining card has quickly been losing some of its former force.

CHAPTER 9

CONCLUSION

Chapter 8 showed in what sense there was an increased role of the Norwegian state in the oil industry in the period 1965-74. It also outlined the reasons for this development, concluding that there was no single or unicausal 'explanation' of why this was so. An explanation must be found in a synthesis of the three explanatory variables we singled out for scrutiny in Chapter 2. While the change in exogenous circumstances in the form of increases in the expected PV from fields in the North Sea, and changed international circumstances, opened the way for the developments we have outlined and made them easier to achieve, the particular form and manner in which these changes were grasped by Norwegian policymakers can only be understandable with reference to the historical and political peculiarities of the Norwegian state. In particular, the Norwegian state's relationship to the weak national bourgeoisie can explain both the state's passive involvement in the spinoff industries as well as its more active behaviour upstream in setting up Statoil. The state oil company acted upstream as a historical substitute for a Norwegian bourgeoisie which for a number of reasons was unable to undertake the task of producing oil on its own. But in the sector where the bourgeoisie was capable of taking advantage of the possibilities offered to it, as in the spinoff industries, the state followed a more traditional policy which gave a much larger role to the private sector. By emphasising the historical peculiarities of the Norwegian state, we also gain an insight into why the state was seeking to maximize some variables and not others; a definite advance on orthodox economic theory which simply takes the aims of a nation state as given. By proceeding in an interdisciplinary manner, we have shown that a pure economic analysis which concentrates on the changes in the expected PV of a field has been necessary, but not sufficient for a satisfactory analysis.

Our approach has also shown that a Norwegian social democratic state could (and did) go further in its confrontation with the international companies than for instance was the case in the UK. It is indeed difficult to classify the Norwegian state's position in relation to the companies as in any way 'subservient' or 'dependent' in the way that the relationship between raw-material producing states and international companies traditionally have been described in part of the

critical literature. Norway clearly came to grips with the traditional forms of surplus extraction from the North Sea such as transfer pricing and took a number of measures to try to control what was a vertically integrated industry. It also managed to control the larger part of the rents earned. There was likewise a rapid growth in the expertise accumulated by the Norwegian state to maximize its bargaining position in relation to the companies.

There nevertheless remained a set of barriers beyond which the Norwegian state could only proceed with the utmost difficulty. Norwegian policy tried to go as far as possible in its challenge to the companies without breaking the unwritten rules of the game. This meant that once the Norwegian state knew what the bargaining game was about, the policy-makers at any one time squeezed the companies down to what the Norwegian negotiators thought was the minimum acceptable rate of profit for the companies. And once the parameters of bargaining changed, either with respect to the international situation or the expected PV from the North Sea fields, the Norwegian state tried to react to the new situation by changing its terms.

But, because of the companies' control over technology, especially for deep-water exploration, because of the companies' control over the downstream activities in the Western markets where Norway's oil would have to be sold and because of Norway's allegiance to the Western alliance, there was no way that it was thought possible to make any definitive break with the companies even if it is assumed that this was desired.¹

A basic challenge to international capital could also have put into question the Norwegian state's commitment to protecting the accumulation conditions of Norwegian capital, and hence possibly open up a period of political instability in Norway itself. So even if we have shown that where possible the Norwegian national bourgeoisie was the benefactor of Norwegian state policies (and undoubtedly also would have been so had the international companies' role been drastically reduced), the political consequences of such a policy made it much less likely ever to have taken place. The links between the Norwegian and the international bourgeoisie were in any case being dramatically strengthened as a result of the oil activity,² something that would make a challenge to international capital even less likely.

It is the existence of these barriers and no crude assumption of Norwegian state negotiators being outmanoeuvred by the companies which

in the final analysis helps to explain both the general outline of Norwegian policies as well as the recent failures that the Norwegian oil policies have experienced. The period until 1975 gave Norwegian policy-makers an exceptional possibility to pursue a set of nationalistic and independent oil policies. But these opportunities have not been taken full advantage of. Among the most important failures have probably been the state's inability to control the operating micro-environment in the North Sea, which later was, at least partly, responsible for accidents like the Bravo blowout in April 1977³ and the widespread use of subcontracted labour which continues to fall outside the Norwegian labour legislation.⁴ Furthermore, the companies are continuing to earn substantial rent from their earlier investments like Ekofisk and Frigg. Finally, no further steps have been taken to develop the concession systems towards 100 per cent state ownership.⁵

In summary, the Norwegian policies in the period until 1975 were a tribute to the technical competence of Norwegian civil servants who probably negotiated the best general achievable set of terms while staying within the clearly defined limits of a social-democratic policy. It is the latter qualification which makes this at all a meaningful statement. When representatives of the Norwegian Labour Party revealed an almost naïve belief in the state's ability to control the development of the oil industry, an attitude which was well expressed by Jens Evensen when he bluntly stated: "The organisation of Norwegian oil activity which is now taking shape will give Norwegian authorities full control over the whole activity",⁶ this was not because he was trying to deceive Norwegian public opinion. It was rather that he took these external limits as being so natural and eternal that any evaluation had to take them as their given point of departure. In particular, Norwegian policies tried to increase the state's share of the total rent by a process of participation which did not imply any fundamental confrontation with the companies and which left the profitability of both the private national and international firms virtually intact.

We have throughout this thesis stressed that the main instrument of Norwegian oil policies in its dealings with the international companies was the creation of Statoil. The move away from what was a traditional (and partly subservient) relationship between a producer-state and a raw-material producing country was only achieved by the development of a strong state capitalist sector in the Norwegian economy spearheaded

by Statoil. The dominance of international capital on the Norwegian Continental Shelf was tempered (but, as repeatedly argued, not transcended) by the emergence of this single unit of state capital, which probably will become the dominant force within the Norwegian economy in the coming years.⁷

The oil economy has also accelerated a general trend towards a drastically increased role of equity state ownership in the Norwegian economy. This heralds a 'state capitalist phase' of Norwegian capitalism whereby the state becomes the most important accumulator of surplus value in the economy.⁸ An important long-run by-product of this development is that it will dramatically increase the general political power of the Norwegian state.⁹

It is the meaning of these developments, and in particular what they may signify for the future of Norwegian capitalism, which will provide the most interesting perspectives for an understanding of Norwegian society during the coming 'oil age'. Unfortunately a completely new thesis is required to satisfactorily analyse these developments.¹⁰ It is however hoped that this thesis, which has sought to explain why the state became so important in the Norwegian oil industry in the first place, has cleared the way for such an analysis.

APPENDIX A

HISTORY OF THE OIL INDUSTRY¹

This historical overview of the oil industry will take us to 1959. When seen together with the discussion in Chapter 1, it will provide a necessary historical background to the Norwegian first round of concessions.² It will also help to concretize our discussion in Chapter 2 about the particular features of the oil industry.

Until World War II (WWII)

The history of the oil industry was, until WWII, characterized by an extreme inequality between the producer-states and the oil companies as the companies reigned virtually supreme in their dealings with the oil-producing states. The agreements were of long duration, covered vast areas and were subject to few, if any, methods of control by the producer-states. The very first agreement to be concluded in the Middle East clearly bears this out. In 1901, a 60-year agreement was signed between the Persian state and the British entrepreneur W.K. d'Archy where the latter got the right to explore for oil on four-fifths of Persia's territory (the northern provinces were excluded as they were regarded as being in the Russian 'sphere of influence'). In return the Persian Shah received a bonus of £20,000, and the British company was to pay 16% of their profit to the Iranians. But because the Iranians de facto had no possibility of inspecting the company's books, the latter stipulation was somewhat ineffectual.

The later (largely unsuccessful) attempts by the Iranians to renegotiate this contract (in 1933 the agreement was extended by 32 years, but the concession area was cut by four-fifths) led to great and lasting bitterness between the company and Iran.

This first agreement serves as a good example of the kind of conditions that the companies generally obtained in the Middle East. The only general change that took place in the period up to WWII was a move away from the fixed percentage profit-tax to a system of fixed tax per physical unit of output, normally 4 golden shillings per ton. Government income thus came to consist of royalty payments plus some bonus payments.³

One of the main explanations for the inequality between companies and producer-states was that the companies were directly under the

political protection of their home governments in a more direct way than was later going to be the case. They operated in producing states which, if they were not outright colonial territories, at least could be described as being extremely 'weak' states both from a political and an administrative point of view.⁴

The structure of the industry remained highly concentrated, even if the national origin of the oil companies changed over time. 1928 saw the basic breakthrough for US interests in the Middle East. Until WWI only British firms had been producing oil in the area; since then both French and Dutch interests had been let in. Despite their initial lack of success in the Middle East, US firms were already firmly implanted in Mexico (at that time one of the world's three largest oil producers), and in the East Indies. A consortium of seven US firms was in 1928 allowed to take up a share of 25% in PRC (Turkish Petroleum Company), from 1929 called IPC (Iraq Petroleum Company) after the US government had pressured the British to accept an 'open door' policy. But this was not an unqualified victory for the US. No US companies were to be allowed inside 'the red line' (an imaginary red line drawn around the former Ottoman empire) except in cooperation with IPC. The IPC agreement exemplified an increased contact and cooperation between the major oil companies at that time, which in turn led to a more formalized cooperation between the major companies. Faced with a declining world market during the depression, a formal cartel agreement (the Achnacarny or 'As is' agreement) was concluded in 1933 between the three major companies in IPC to try to keep market shares constant and to protect the overall price level. This agreement represents the 'apex' of the importance of the oil companies of the period. The fact that a new US company, Socal, managed to gain access to the Middle East at that time did not drastically upset the companies' opportunity to control the market by formal or informal cartel agreements. Socal, strongly backed by the US government, signed a contract to look for oil in Bahrain in 1930 after Gulf as a member of IPC had been forced to withdraw from such a deal. Gulf likewise won access to the Kuwaitian territories together with BP in 1934, by which time Socal had found oil in Bahrain and was also in the process of expanding its Middle-East operations by negotiating a deal with the Saudi Arabians.

Thus by the end of the 1930s the world oil industry was firmly controlled by a small number of oligopolistic firms that were colluding either in an explicit or a covert manner. These firms had negotiated

extremely favourable agreements that often covered large areas, and which were meant to last for a long time, not the least because of the almost unqualified support they enjoyed from their home governments. This pattern was particularly clear in what was to become the main producing area, the Middle East. But it also extended to the other producing areas of the world, as well as to the consumer markets.

Only one incident during this period somewhat 'mars' the picture of company omnipotence presented above. This is the nationalization of the Mexican oil-fields in 1938, which, when viewed with hindsight, was the first warning to the companies of what was to come some 40 years later.⁵ Ever since the 'Mexican Revolution' of 1912-15 there had been an uneasy relationship between the oil companies and the government, which in principle was committed to controlling the companies. Despite such an attitude, the US influence in the industry grew and Mexico was during the beginning of the 1920s temporarily the world's largest exporter of oil. But throughout the 1920s the production started to decline parallel with the decline of the productiveness of the oil wells. At the same time US interests became focussed on the newly-found fields in Venezuela. This development accelerated when President Cardenas nationalized the oil industry in 1938, by which time the run-down fields were in an extremely bad state of technical repair. The immediate result of the nationalization was a complete embargo on all oil lifted by the newly created Mexican state oil corporation PEMEX.

As far as the US was concerned, the problem soon ceased to exist. The US oil companies quickly compensated for the loss of Mexican oil by expanding their Venezuelan operations; Mexico eventually paid compensation for the nationalized fields, and the embargo on Mexican oil was lifted in 1942. There was also another characteristic of the Latin American oil industry which foreshadowed what was to come on an international level. This was the existence of state oil corporations. The first, YPA, was created in Argentina in 1927, and by 1940 there were also state oil corporations (albeit not particularly efficient ones) in Uruguay, Chile, and Brazil, most of which only dealt with the distribution and refining of oil.⁶

Apart from the abortive challenge from the Latin Americans, the international oil cartel had little to worry about either from the producing states or from potential competitors as the Second World War started. The oil-producing states (with the exception of Mexico)

played, in revenue terms, a thoroughly subordinate role as tax-collectors, while they played no role whatsoever in any pricing or quality decisions for oil produced in their own territory. They got extremely little value-added from processing oil at the point of production and did not manage (for fairly obvious reasons related to the size and distribution of the oil income) to lay any foundation for a process of economic growth based on oil. The cartel was in full command.

The war

WWII brought no drastic changes to the industry's structure. In the Allied effort to quickly maximize the output of existing fields, there was very little room for new entrants to the industry, who could upset the relatively stable framework of the international oil industry (a framework which, in the US, was taken over in December 1942 by the Petroleum Administration for War). Neither was there any point in investing resources in finding new fields if the time-perspective for winning the war was less than what it would take to get new fields into production. But the war had other influences within the industry. The respective governments took much more interest in the workings of the industry. The already existing emphasis on 'security of supply', illustrated by Britain's purchase of Anglo-Persian Oil Corporation, now became of paramount importance to the war effort. As a consequence, individual members of the American administration started to toy with the idea of taking over parts of the US interests in Saudi Arabia, both with a short-run view of the war, but also with the long-run perspectives of an after-war period. The US authorities were concerned, as they had been just after 1920, about the size of US oil reserves, especially in the light of what must have been a realization that their quasi-isolationist world role of the pre-war period was a thing of the past. A 'Petroleum Reserve Corporation' was actually set up, chaired by the Secretary of the Interior, Harold Ickes, but due to intense lobbying by the oil industry the whole project was eventually shelved. There was however an understanding that the crucial area in the oil industry would be the Middle East, so the US government tried to further strengthen the US presence in this part of the world.⁷ On a more immediate level, this was achieved by giving special Lend-Lease status to Saudi Arabia instead of channelling all aid through (the

rival) Britain. But the emerging dominance of the Middle East also brought home another point to the Allied states which reinforced the considerable scepticism that existed towards the oil industry during this period. The Allied military commanders challenged the Gulf-plus pricing system for oil which had, in the pre-war period, been the basis for industry pricing (and played a substantial part in explaining its handsome profits). Receiving the oil products in the Persian Gulf directly from a refinery and then being charged as if the oil originated in the Gulf of Mexico was something the Allied Navies, with good reason, objected to. But discounting this episode, the pre-war dominance of the cartel remained unchallenged. Thus in the words of one observer:

"The technical and governmental forces which conditioned the structure of the industry had, at the end of World War II, placed seven companies in a position to supply the overwhelming bulk of the foreign non-Communist world's petroleum requirements."⁸

1945-1959

Once the wartime regulations were dismantled, the continued dominance of the major oil companies asserted itself. We can somewhat arbitrarily set the end of this era of unchallenged dominance to 1959 with the introduction of the US import quotas. The period 1945 to 1949 saw in the major consuming countries an intense government preoccupation with control over the oil industry. This was the day of rationing, fixed import quotas, continued worry about the 'dollar shortage' and hence the balance of payments, especially in the Western European countries. All these regulations were in the end dismantled (in the name of 'free trade' and to some extent aided by the larger 'fiscal space' opened up by the Marshall Aid scheme). But a historic precedent had been set for exerting a tight control over the oil industry in the consumer countries, an experience that was later not to be forgotten by policy-makers.⁹ The period from 1948 to the late 1950s saw the emergence of what can be labelled the 'energy-intensive' Western society. The relative importance of oil as a source of world energy increased from 24% of total energy consumption in 1949 to around 31% in 1960,¹⁰ with Western Europe as the market with the highest percentage growth. In absolute terms, total world consumption of oil increased from 9.1 millions of barrels per day to 24.8 millions

in 1962, an increase of 180%. At the same time, there was a move towards an increased relative reliance on residual fuels and distillates in the Western markets. This 'explosion' of demand had one important consequence for the structure of the oil industry. Studies have shown that historically it has been notoriously difficult to maintain effective 'barriers to entry' in an industry if the market is rapidly expanding.¹¹ Consequently there was in the medium run an influx of new entrants to the industry, even if in the short run the increase in demand was satisfied by the same major firms that dominated the industry at the end of the war. Their control over the world oil remained undisputed in the immediate post-war period, something that in 1952 led the US government to file an anti-trust suit against them. That year a Federal Trade Commission (FTC) report, The International Petroleum Cartel, was published. This was a staff-study which was never formally adopted by the FTC, but nevertheless became of crucial importance both to the Federal Government and to the oil-exporting countries.¹² The latter invariably pointed to the findings of the report each time they were called upon to substantiate their claim that the industry was to all effects and purposes an operating cartel. The US government's subsequent law suit against the companies for 'restrictive practises' turned out to be a very long drawn-out affair. Three of the five firms agreed to the entry of a consent decree, while the charges against the two remaining firms were dismissed in 1968.^{13 14}

A good indication of the effectively oligopolistic state of the oil industry in the 1950s was the companies' return on capital. In the period 1955 to 1960 the US oil industries' average rate of profit on overseas investment was 22.5%, while the average rate in manufacturing during the same period was a much inferior 11.5%.¹⁵ The world was in effect secure for the majors. In 1953 the 'Seven Sisters' controlled 87.1% of total crude production, 75.6% of concession areas, 92% of total reserves. Their downstream operations were not much less impressive. The 'Seven' controlled 72.6% of total refining capacity, 71.7% of total sales of petroleum products, but their control over the world tanker fleet was only a modest 29%.¹⁶

The dominance by the majors of the world's oil industry was equally well reflected in their position in Norway. Norway was during this period only interesting for the majors from a downstream point of view, and while Norway exhibited some peculiar characteristics with respect to the demand pattern for oil products,¹⁷ this had not prevented

a keen company interest in the market. Already in 1893 Østlandske Petroleums Kompagni which was later to become a/s Norsk Esso, was set up, and throughout the post-war period there were no marketing challenges to the established major companies. Esso had constructed a very small refinery at Valløy at the turn of the century, but increasingly had to import refined oil products, especially from Sweden (with a corresponding drain on the Norwegian balance of payments). This was not rectified until Esso opened its major refinery at Slagentangen in 1957.¹⁸

However, there were some ominous clouds on the horizon for the majors. Their rate of profit was high, but it was falling. The late 1950s saw the first quantities of Soviet oil sold on the Western market since the 1930s, and the number of new entrants into the industry was accelerating. The introduction of the US import quotas in 1959 would reinforce this development towards greater instability.

So far we have said very little directly about the US oil industry, despite the fact that it was the first country where commercial oil production took place. At the turn of the century the US, together with Russia, produced 90% of world output, and was a net exporter of oil until 1948. One of the reasons for this negligence is the somewhat 'atypical' nature of the US industry, where a relatively large amount of total output still originates from wells producing as little as 100 barrels per day. A second reason is that the main focus of our study is on the relationship between foreign companies and producer states, and finally that US internal policy with respect to oil did not have profound consequences on the oil industry in the rest of the world, except in the widest sense of ensuring that the US had access to oil. This quest for 'security of supply' on behalf of the US state could be said to have been one reason for the initial overseas expansion in the 1920s and 1930s.

All this changed, however, with the emergence of the US as a net importer of oil from 1948 onwards. The breakdown of the Gulf-plus pricing system and low-cost production from the Middle East which overtook the Caribbean as the world's most important producer-area, meant that the competitive edge of high-cost production in the Gulf of Mexico started to be eroded. Even when accounting for freight differentials, Middle East oil was becoming competitive with oil from the Gulf of Mexico on the East Coast of the US. US companies were therefore tempted to look for and produce oil in the Middle East while stopping exploration altogether in the US. The consequence of this development

could be nothing but a further increase in oil imports to the US while forcing a number of high-cost producers in the US out of business. This is why the US government in 1957 introduced 'voluntary' import quotas of oil, which in 1959 became mandatory. The consequences of this move, which in official policy statements was justified with reference to security of supply, but which may equally well be interpreted as a classic protectionist move,¹⁹ were to be far-reaching for the international oil industry.

The relationship between the companies and the producer-states in this period was starting to show some new features, compared with previous periods. But the overall relative strength expressed in access to oil-rents, remained very much on the side of the companies and the home governments that consistently continued to back them. One reason for this is relatively straightforward. The period in question coincided with an historic period when the US political and economic hegemony throughout large parts of the world remained virtually unchallenged; so for a producer-state at this time to challenge one of the 'majors' would mean to challenge either the US or the UK government.

The most important development of the post-war period in the company-state relationship stemmed from the Venezuelan demand for a 50/50 split of profits between the companies and the host countries. Venezuela was still regarding itself as a pure tax-collector, inasmuch as it still did not have a state oil company. But it aimed at being a better tax-collector. In a Decree of 21 November 1948 the Venezuelan government insisted that the total amount of taxes (including royalties and bonuses) going to the state should total 50%.²⁰ Between 1948 and 1951 the Venezuelan share fluctuated between 51% and 68%.²¹ The Venezuelan initiative was soon followed by producers in the Middle East, some of whom had become disenchanted by developments in the post-war period. By getting a fixed payment of gold per ton (22.5 ¢/bbl) of oil produced, the producer governments' share of the total rent were independent of the price of oil which had risen from \$1.28/bbl during the war to \$2.65 in 1948.²² Saudi Arabia was the first Middle-Eastern producer that followed the lead of Venezuela. After protracted negotiations this principle was accepted also for older concessions by ARAMCO on 30 December 1950. Kuwait followed suit one year later, then Bahrain and Qatar.

This historical incident is, however, more than an expression of the increased importance of nation-states faced with the international companies. It also says something about the relationship between foreign policy and the oil industry. The reason why the companies so easily acceded to the demands of the Middle Eastern states was related to the political situation in the Middle East. Given the overwhelmingly pro-Israel sentiment in the US at the time, it was very difficult for any American administration to channel aid to the Arabs, which from a foreign-policy perspective it had a genuine interest in doing. A '50/50' agreement would mean an increased transfer of wealth to the Arab states, which would have the same effect as an increase in aid. In order that this move would not be to the economic detriment of the oil companies, it was decided that the companies should deduct whatever taxes they paid abroad from their taxable income in the US.²³ This move, together with the 'depletion allowance' which historically has given all US companies a further tax credit of 28.5% of the value of all oil produced (ostensibly as equivalent to depreciation of capital goods so as to be able to finance the search for new oil) made the oil industry among the lowest tax-paying industries in the US.²⁴ The deduction of taxes paid overseas was later to be adopted by the UK, so as not to be 'out of line' in its treatment of the companies. Therefore a move which by some has been interpreted as indicating the strength of the oil companies in their ability to pass on any increased demands from the producer-states to the tax-payer,²⁵ also had much wider foreign policy overtones.

Iran introduced indirectly the 50/50 system in 1949 by declaring a 50% tax on net incomes, but this principle was not explicitly accepted until the 1954 Consortium agreement.²⁶ In the meantime Iran and the companies had gone through the most bitter conflict between a producer-state and the companies since Mexico nationalized its oil in 1938 and which was to influence company/state relationships well into the 1970s. Iran was dissatisfied with the 1933 agreement, partly because of the fixed royalty payment referred to above, and partly because the other taxation proposals offered to Iran at that time gave very little tangible results to Iran. As Iranian production increased after the war, Iranian income increased, but at a much slower pace than production. In 1950 the Anglo-Iranian Oil Company paid more in taxes in the UK than in Iran.²⁷ Some estimates put the Anglo-Iranian Oil Company's integrated profit at £180-200 million, compared with Iran's

share of £16 million.²⁸ AIOC furthermore tried its best to stop a national refining industry from being constructed by adhering to the Gulf-plus system for crude it sold to Iranian refineries, even if the oil came from the Persian fields. Furthermore, there was no systematic training of Iranian nationals as stipulated in the 1933 agreement. Superimposed on this situation was an increasing political unrest in the country, not the least due to a sharply deteriorating nutritional situation for the majority of the population, who had never seen any of the benefits from the oil production. After initial discussions about a new agreement (where AIOC claimed the Iranians wanted a 50/50 share of all activities of AIOC while AIOC would only give 50/50 on its Iranian operations), the negotiations broke down.²⁹ The assets of AIOC were nationalized by an unanimous act of the Persian Parliament in April 1951. All further negotiations between AIOC and Iran broke down in August the same year, and a number of sanctions were immediately put into force by Britain. All Iranian credits in UK banks were frozen and all special finance and trade concessions withdrawn. The UK Treasury threatened to apply sanctions to anyone who paid for Iranian oil in pound sterling. But this was more a pro forma measure because in the 18 months following the breakdown of negotiations between the two sides, Iran managed to sell a mere 103,000 tons of crude on the international market,³⁰ the equivalent of one day's output before the nationalization. The US, which originally had remained aloof from the confrontation, in 1953 joined the British after there had been promises to allow US firms into the Iranian oil-fields once the Iranian Prime Minister Mossadeq had been removed. The international petroleum cartel as a whole was also worried about the consequences for its position if Mossadeq was not properly dealt with. The Iranians could undercut the going price (and still earn more than before the nationalization), thus potentially wrecking the price and profitability structure of the industry. Mossadeq was finally deposed by a CIA-inspired coup in August 1953,³¹ the Shah returned to Iran, and the companies moved in again.

Because the majors at this time exerted complete control over the downstream activities, there was no way that a producer-state could get away with nationalizing or in any other way threaten the hegemony of the companies and their mother countries. The outcome of the confrontation was that while NIOC (National Iranian Oil Corporation) in theory became the owner of all the concessions, it transferred its

production rights to a consortium of BP, Shell, the French CFP and five major and nine minor (IRICON) US companies. This consortium had all the rights to determine prices, rates of depletion, refining policies, in effect to take all major decisions. A 50/50 profit-sharing agreement was also agreed upon. In the whole history of the industry there can be no better example of the crucial difference between a de jure and de facto nationalization.³²

So even if there were attempts to increase the importance of the producer-states in the period 1945-57, any successful moves from the producer-states were restricted to those of being better tax-collectors. All crucial decisions, especially about pricing and output, rested with the companies. But at the same time it was becoming clear that an effective state oil corporation, with its own downstream activities, was crucial if the producer states were to exert any important influence on the production process and hope to obtain a major share of the rent.

The hope that oil production was going to become the starting point of significant spinoff activities or even the basis of an industrialization process for the producer countries suffered a setback during this period. The major refining activities were transferred away from the production centres to the consumer countries.³³ There were a number of reasons for this. First, the European states realized that they could decrease their import bill of petroleum products by refining an increasing amount of crude on their own territories, and thereby capturing a larger slice of the 'value added' of the products. This process was particularly effective in Germany, parts of Scandinavia and Italy. Secondly, there were perceived political risks in keeping refineries in the producing areas in case there was going to be a repeat of the Iran confrontation. Finally, there were technological developments which made it relatively cheaper to transport crude rather than petroleum products over long distances.

Chapter 1 shows how as a consequence of the US import quotas which were introduced in 1959 the stable and highly monopolised oil industry we have described above came under pressure. But, as will be made clear, no fundamental changes took place. It was therefore in all respects a formidable opponent that the Norwegian state took on in the early 1960s when it invited the international oil companies to look for oil on the Norwegian Continental Shelf.

APPENDIX BMARSHALL VS. THE CLASSICS

Marx and Ricardo's development of differential rent is the most important contribution of the classical school if we want to define rent in the oil industry. The analysis of differential rent from natural resources has changed little since their writings. But the classical writers also used their concepts to show that there is a social dimension to what appear as pure economic problems. In this respect there is a fundamental difference between the classical theory and the neo-classical theory which was to follow. For the classical writers, the return to land is neither solely due to the scarcity of this factor of production, nor simply the 'objective' criterion of differentials in productivity of land. It is rather linked to the ownership of land, i.e. the ability of the landlord to impose his own claim as owner onto the economic agents as he confronts them in the market place.

The identification of rent with the 'unearned' income of one social class, the landowner, was also a powerful political tool in the hands of social thinkers who saw this specific social class as being an objective burden on the development of the productive forces at that time. If rent is linked to land, then there is no way one can characterize rent as being due to 'working, waiting, nor risk-taking'.¹ Such income is devoid of real costs, an important political conclusion. But while the theories of Marx and Ricardo share the above insights, including their definition of differential rent, they still differ on other counts.

If we use the standard interpretation of Ricardo, that production at the margin fetches zero rent (and all other land commands positive rent), we are withdrawing from reality as far as the oil industry in the North Sea is concerned. Here the marginal elements collect a substantial amount of rent unconnected with the formal ownership of land. Consequently for being of any use to us the Ricardo notion of rent needs to be extended and supplemented, as we need to discuss the existence of rent at the margin.

Marx turns Ricardo on his head by assuming that rent could influence the final price of a good in the form of absolute rent and monopoly rent.²

Absolute rent has its origin in the ability of owners of a natural resource to extract rent from capitalists even at the margin of production.

Monopoly rent was due to the exceptional value and scarcity of some goods like grand vin. Marx never followed up the discussion of this concept presumably because he operated on a level of abstraction which disregarded phenomena like monopoly.

Marx's theory as it stands is however riddled with problems if we want to use it as a theoretical basis for the oil industry. Most importantly, Marx claimed that absolute rent (the most important element in oil-rents) could only exist in industries with a low organic composition of capital. This prevents Marx's theory of absolute rent of being general, something that is clearly seen when analyzing the oil industry. Here absolute rents coexist with a high organic composition of capital (roughly speaking a high capital-labour ratio), an impossibility according to the marxian schema.

All marxist theory tells us is that surplus value flows in and out of an industry according to the organic composition of the industry and the differential rent of that industry. We also know that the ultimate limit of this flow is total amount of surplus value produced in the economy. But no classic marxist theory seems to be very useful to determine the amount of rent collected at the margin; or, to put it in other terms, what the difference between market price and price of production is likely to be. This difference depends upon factors like substitutability of the good in question, total demand for the good, its 'strategic importance' etc. But there is unfortunately nothing specifically marxist about such an analysis. It has however been argued by Desai³ that Marx was not particularly interested in determining relative prices. According to Murray,⁴ Marx first and foremost wanted to integrate his theory of rent into the general value-theory. This might have been why he paid relatively little attention to more concrete studies, and why his theories may be of little help for us in our specific case study.

Furthermore it should be made clear that the above interpretation of the theory of rent in Marx can be regarded as excessively 'economic'. While it shares its basic perspective with the works of Ball (1976), Edel (1975) and Murray (1977) (1978), it is possible to argue that according to an alternative reading of Marx the amount of rent that a landlord can collect at the margin is mainly an expression of the historical strength of the landlords as a social class.

When property in a capitalist economy is under the ownership of an individual, a revenue must be paid for the use of this property.

The extent to which that revenue is paid at the margin depends on the struggle between the owners of the property and the producers of commodities who want to make use of the property. We can therefore say there is a political element in the determination of absolute rent. This is a less deterministic approach to the theory of rent stressed by Clawson.⁵ Methodologically it opens up for an analysis which, instead of being deterministic in an economic sense, forces us to investigate the historical and political peculiarities of each case in which absolute rent is earned. This constitutes the key insight of classical rent theory with respect to rent at the margin.

The shortcomings of the marxist analysis in determining absolute rent and hence price levels for raw materials has opened the way for the neo-classical theory of rent. Marshall attributed rent to all factors of production. This represents his clearest break with the classical tradition. Even if he reserved the term 'rent' for the so-called 'free gifts of nature', his emphasis on 'quasi-rents' later became a methodological justification for extending the concept of rent to all factors of production. Returns in the form of rent are subsequently related to the concept of scarcity, so that returns on all factors of production "rest upon temporary or enduring limitations of supply".⁶ Quasi-rents are still price-determined, but that is all the concept could be said to have in common with the classical concept of differential rent.

One should not exaggerate the 'break' that Marshall made with the classics. As we have seen, there is an important element of continuity between the two modes of thinking on the question of rent. It is this continuity that makes it possible for us to use some classical, and some Marshallian, elements in our definition of oil-rent.

Marshall defined rent as the difference between the price a factor earns and the the return necessary to induce the factor to continue to be supplied. Its origin was threefold: - pure rent, - quasi-rent, - rent of ability. Rent, according to Marshall, has its origins in the fixity and scarcity of a factor of production.

Raw material producing land is clearly fixed in supply. It thus commands pure rent that normally accrues to the owner of the natural resource (in our case the state). The problem in our case arises because the government has, on a temporary basis, given the right to extract oil to a company as a concessionaire. The conflict between the two appears when the government tries to recover a part of the total rent earned.

But the amount of oil is not necessarily fixed in the long run. A higher price induces a more vigorous search for oil, and may lead to a renewed use of formerly 'dry' or abandoned holes. This increase in the supply of oil, which follows from an increased price, tends to undermine the earning of pure rent, in the same way as certain changes in demand conditions would bring about a similar effect.

Quasi-rent is earned by a factor of production which is fixed in the medium run. One clear example is an oil production platform with no alternative uses. Once it is installed (having no opportunity-cost except its scrap value), it will continue to operate as long as Marginal Cost is less than Marginal Revenue. The quasi-rent is the difference between Average Revenue and Average Cost of the factor of production.

The crucial difference between pure rent and quasi-rent is the time perspective. Pure rent is associated with the longer run, quasi-rent with the medium run. Quasi-rent on personnel (which strictly speaking should count as rent of ability), is in the case of Norway of little importance. In the short run, manpower in the oil industry is linked to oil-producing equipment, but the international oil companies can switch their personnel in a short time out of Norwegian territory into other parts of the world. Thus there is no quasi-rent on personnel that the government can attempt to capture in the same way as for invested capital goods.

Finally, Marshall's rent of ability is related to the technological skills of the oil companies in exploration, drilling and production. However, it is more fruitful to deal with this part of the question within the confines of monopoly rent (see Section 2,1,1).

APPENDIX C

DIFFERENT MEASUREMENTS OF PROFITABILITY AND THE OIL INDUSTRY

This appendix discusses the different methods of evaluating profitability in the oil industry.

Pay-out time and government 'take'

The pay-out time criterion suffers from the fundamental weakness that it contains no sophisticated time perspective. One dollar's worth of income is equivalent whether it accrues to a company tomorrow or just by the time a project breaks even. It is therefore in limited use in the industry.

Another undiscounted criterion for profitability is the closely related notion of 'government take'. This criterion has been extensively used in the oil industry by the producer-states to describe the division of rent between companies and producer-states. From a point of view incorporating the time-element this criterion is even less sophisticated than the pay-out criterion, which at least contains some notion of time. In the case of 'government take', there is no difference between one dollar accruing to the producer-state today or at the end of the project, which may lie 25 years into the future. Given this basic conceptual weakness of the criterion, one can legitimately ask why it is being used at all. One reason is that it may give producer-states the propaganda-value of claiming that they are taking a 'tough' line towards the companies (at times a very useful political posture to adopt), while at the same time ensuring that the companies' discounted variables (see below) remain as favourable as possible.

Internal rate of return

This criterion has widespread popularity as an indicator of the rate of profitability for an investment project. It "has become almost universally the method for evaluating producing properties".¹

The IRR (or 'the discounted cash flow rate of return' which it is also often referred to as) is the interest rate that will make the arithmetical sum of all discounted cash-flows equal to zero; or in other words the maximum interest rate which a firm could pay on the capital tied up in the project and still break even. One of the reasons for

its popularity has been because "management can easily relate a rate of return to interest and loan rates etc".²

The use of the criterion for pre-tax assessment is also completely independent of depreciation and amortization policies. Its extended use originates from the early 1960s when there was an increasing realization that a time element was needed in the evaluation of investment opportunities.³

But apart from the obvious step forward that a profitability criterion which included a time-perspective represented, scepticism of the IRR concept soon grew, even if it remains one of the most widely used criteria even today. References to it are constantly made in government publications⁴ and stockbroker reports⁵ when evaluating the oil industry. But even so, the concept is open to a number of weaknesses:

(i) This measure of profitability assumes that all cash-flow income will be reinvested at the computed rate of return when received. This is an extremely far-fetched assumption, especially in cases of the odd 'bonanza', which yields a rate of return in excess of any 'normal' rate. This is the most important criticism to be made of the IRR criterion.

(ii) The measure is very sensitive to errors in estimating initial investment and the very early cash revenues.

(iii) It abstracts from and ignores that finance may not be readily available for investment. Since the IRR says nothing about the magnitude of investment, this assumption is often easy to disregard.

(iv) The measure may give multiple IRRs if large investments take place late in the life of a project. It is similarly unsuitable if one is faced with accelerating projects.

(v) The criterion cannot incorporate uncertainties.

The IRR concept of profitability also shares one criticism with any criterion that is built on the notion of discounting. As the criterion stands, revenues received after 20 years are in fact valueless at discount rates normally used by private firms. But any firm which has the plan of staying in business must think in the long term, often with a time-perspective of more than 20 years. Trying to find measures that realistically reflect profitability for extended cash flows is one of the open questions in decision-making. As one observer has noted: "Investments made in the 1930s in East Texas that rewarded oil companies handsomely might not have been made had this method (IRR-appreciation - PN) been in vogue at the time."⁶

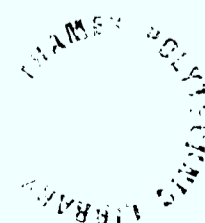
Firms may therefore be more willing to accept projects which are 'sub-optimal' by the IRR criterion, but which will secure a steady supply of oil 20 to 30 years hence.⁷ The consequences of such a way of thinking are important, especially for the discussion of the 'necessary return' for oil companies to enter and stay in the North Sea.

Present Value (PV)

Of all profitability criteria the maximization of Present Value, defined as the cumulative discounted cashflow, is most often compared with the IRR. The main difficulty with this criterion is how to choose the interest rate (z on p.80) to carry out the discounting. Because different investment projects can have PV schedules which cross, the choice of the most profitable project depends upon the rate of discount. For the private firm the discount rate can be defined in a number of ways: (i) as the weighted average of the cost of each type of capital used by the firm (equity, loan etc), (ii) the opportunity cost of capital, or (iii) a z which is independent of the capital structure, but which is the ratio of cash-flow to market value of equity. In addition to this problem, the private and the social rate of discount differ (see Section 3.1.2). Of other problems, two projects can have the same PV with hugely differing outlays of capital. Thus PV is not a completely adequate profitability criterion if there are limitations on the availability of capital.

On the positive side, the reinvestment criterion problem which was a problem in the case of the IRR criterion ceases to be a problem, because the private discount rate represents the firm's assessment of the average earnings rate at which future revenues objectively should be able to be reinvested.

In an overall evaluation between the IRR and the PV criteria, most observers agree that the second criterion is superior both when it comes down to ranking and choosing between different investment projects. It can also handle the problem of uncertainty. But the difference between the two investment criteria becomes of less importance if the projects that are compared have approximately the same total life and cash-flow patterns.



APPENDIX D*

NEO-CLASSICAL THEORY AND THE STATE

The orthodox (here used interchangeably with neo-classical) treatment of the state follows almost automatically from the general equilibrium model of economics.

Such an analysis yields a preliminary list of likely/permitted/desired activities of the micro-intervention of the state:

- (1) as a basic guarantor of private property;
- (2) as a redistributor of income in order to move along the production possibility frontier;
- (3) as a rectifier of the possible shortcomings of the market so as to get the economy onto the production possibility frontier.

Only in the event of a permanent breakdown of the market system as for public goods and natural monopolies will the state step in on a permanent supply basis.

These three state functions are the basic state roles as they can be deduced from the neo-classical paradigm. It is this vision that will now be critically examined.

The first and fundamental difficulty with the basic neo-classical vision of state action is that most of the intellectual energy that has gone into its elaboration concerns the conditions under which the government ought to intervene in the economy; the analysis has been dominated by the prescriptive or normative side of state behaviour which lays down rules for welfare to be maximized. But if we are interested in saying something about the size and dynamics of the state sector in a modern capitalist society, such an approach is not very useful. To say that the state ought to intervene because it ought to re-establish the market equilibrium or get onto the production possibility frontier, or that the state ought to intervene in order to move along the production possibility frontier, is no substitute for predicting what the state will actually do or analyse what kind of force the state actually is within contemporary society. Normative statements will only translate themselves into positive ones if governments act on the insights of normative economics. For orthodox theory to be useful at this level we must in short establish the link between the normative insights of economists and government action. If governments have no idea about welfare maximization and, even if

they do, do not act upon this insight, then normative economics have no explanatory power. Alternatively, it can be argued that unless governments actually get the market to function and implement 'optimal' policies from a welfare point of view, they will be thrown out of office.

It is enough just to list these conditions to understand that both of these possible links are extremely tenuous. We therefore have no choice but to agree with Peacock and Wiseman when they state:

"Governments have not in the past tried to achieve the aims that the welfare theories postulate for them, and however much we may deplore the fact, they are unlikely to do so in the future. Consequently the prescriptive theories are not operational."¹

The normative approach to the study of the modern state is therefore of extremely limited use for our purpose. The result of the profession's emphasis on welfare economics has been an extreme poverty in theoretical tools to tackle what the state is today.

One further consequence of this theoretical underdevelopment has been that emphasis has been put on the technical and instrumentalist aspects of public finance, in the form of questions like: "If the state does X what will happen?" Johansen claims this has led to the neglect of an approach which wants to understand state action as a result of pressure from social classes, while "... an understanding of the role of the public sector throughout the ages would require an analysis of the type mentioned above".² This shortcoming is admitted by a number of writers on the subject. Peacock and Wiseman again write: "It can hardly be said that he who wishes to study the subject finds the tools of analysis necessary for the interpretation of public expenditure data, laying ready at hand."³

Let us now examine, however, what tools actually do exist for an orthodox analysis of the state, and which may be important for an analysis of the oil industry.

Public goods

Once having shaken off its normative 'straight-jacket', the basic building block for orthodox micro-theory in dealing with a theory of the state is the concept of public goods which exist in the case when externalities cannot be internalized. Samuelson comments indirectly

(and negatively) on the concept: "... if a good can be subdivided ... it isn't a likely candidate for government activity".⁴

Because public goods in the last analysis is derived from the notion of market breakdowns and thus is intimately linked with the normative view of public finance, its predictive powers should strictly speaking be minimal. However, in this case Samuelson gives a statement with predictive implications ("isn't likely"). In this way 'public goods' becomes the basic concept of orthodox theory when dealing with the state on a micro-level. Peston comments pessimistically about the current state of the concept when he says: "It may be expected that what may eventually turn out to be a successful theory of the public sector will give a major role to public goods. But we are not there yet" (PN emphasis).⁵

Why the confusion is so great among orthodox economists should now be made clear. Public goods is first not a simple and unproblematic concept. While in the broadest sense it is possible to classify public goods as a subset of the concept of externalities, it still embraces three sub-categories. We arrange the concept according to the criteria of non-excludability (if the good is provided to one it is provided to all) and non-rivalness (the consumption by one does not impede the consumption of the same quantity by others).

The case of pure public goods exists when a good is both non-rival and non-excludable, as national defence. Such a good gives rise by its nature to the concept of 'free riders'. Any individual can profess that he/she does not want the good, yet will be able to enjoy the consumption of this pure public good. As there is no inducement for an individual to reveal his/her demand for such a good, the state which provides this good must employ coercion to get individuals to pay for the good.

As an explanatory variable for state action in general, and oil in particular, even the concept of pure public goods is of limited value.⁶ There are two reasons for this. There will not be a unique Pareto-optimal solution in deciding the distribution of public and private goods for two individuals with a given income distribution; as is the case with two private goods. Secondly the provision of a public good will not necessarily be undertaken by the state. Other bodies like voluntary organisations or even one large user may supply the good.

On a slightly different level, it is possible to argue that the concept of pure public goods can say very little in terms of welfare

propositions. The common welfare criterion of equalization of the demand and supply price of a good under perfectly competitive conditions becomes meaningless because there is no revealed market demand for a public good and consequently it is impossible to establish any price for such a good.

The final observation to make in relation to the pure public good is that very few activities a state undertakes can be referred back to this category. There are other and I would claim more plausible explanations for the provision of national defence by the state (oil is obviously irrelevant in this contest), so we tend to be left with the perennial lighthouse as an example.

In the category of quasi-public goods we include rival, non-excludable goods and non-rival, excludable goods. The latter concept is often extended to include cases where "there are increasing returns to scale with marginal cost much less than average cost",⁷ or goods with a decreasing long run average cost curve, often called 'natural monopolies'. It is readily seen that the two categories do not lend themselves to any easy prediction about state action. Even the latter concept which could give a rationale for state involvement in a number of nationalized industries (railways, airlines etc.) suffer from one obvious objection. There are a number of industries that also exhibit 'extensive economies of scale' (which is the more used criterion for nationalized industries), but which, like the petrochemical industry, are profitably thriving in the private sector. This further undermines the operational nature of the concept of private goods.

Apart from public goods Samuelson has also attempted to relate the state's provision of 'social overhead capital' (transport and other infrastructure, R & D etc.) to 'externalities in production'. The problem with such a category is that the 'cut-off' point beyond which an activity exhibits sufficient externalities for it to count as 'social overhead capital' is totally arbitrary and may vary significantly from society to society. As Lionel Robbins has pointed out, there are external effects in almost all activities we undertake: "There is scarcely anything which I can do outside the privacy of my home which has not some of the overtones of indiscriminate benefit or detriment..."⁸ His observation is related primarily towards consumption, but can equally well be generalized with respect to externalities in production. Thus the explanatory importance of externalities in production which give rise to Samuelson's 'social overhead capital' diminishes drastically.

The social welfare function

Despite the shortcomings of the concept of public goods, let us now somewhat heroically assume that public goods can be unambiguously defined, and that in our example oil production could be classified as a sub-category of a public good. Then according to orthodox theory the exact mix between public goods and private goods in an economy is determined by 'legislative action'.⁹ Thus an increase in the state's role in the oil industry might come about by such a shift. This leads to a discussion of the social welfare function which in principle must be said to underlie 'legislative action'. Because the social welfare function is presented in basic textbooks as a description of how a government arrives at any final equilibrium point, it has clear positive overtones.

The criticism of this approach must go back to the basic building blocks in orthodox economics, the individual. Because the individual is at the centre of orthodox economic analysis, the social welfare function cannot avoid taking this as a starting point. That this is so well expressed by Buchanan: "The state has no ends other than those of its individual members and is not a separate decision-making unit. State decisions are, in the final analysis, the collective decisions of individuals."¹⁰ The problem for orthodox economics is then how the state reflects the interests of every individual in the economy, i.e. how the state aggregates all individuals' indifference curves.

Even assuming the above way of looking at the state was correct, no such easy aggregation is possible. Arrow has shown how an ordering of preferences by majority vote (three individuals choosing among three different states of the world) is inconsistent with the basic assumption of transitivity of choices.¹¹ But even if this problem is recognized by everyone in public finance it is surprisingly not treated as a fundamental problem. Musgrave claims that theoretically a 'point-system' where every person can give different weights to a number of alternatives would do better than majority voting. But sadly, this result will not hold if strategy of voting which is a key question in the case of public goods (because benefits are distributed independently of the individuals' contributions to their acquisition) is allowed for. Musgrave therefore admits that: "... majority voting may be the better system, even though point voting would be superior in the absence of strategy",¹² and consequently lays himself open to Arrow's criticisms.

One further observation of Arrow's theorem should be made. If one assumes that among the three alternatives mentioned above there is one alternative rejected by all three individuals as being either the best, second best or worst, then Arrow's problem does not arise. The implication of this observation is more interesting than what may immediately seem to be the case. In a society characterized by consensus where for instance the alternative: "The dictatorship of the proletariat is desirable" is not wanted by any of our three individuals, then it is easy to show that Arrow's problem is no longer a problem. The aggregation problem in orthodox economics is solved if and only if we are in a harmonious society where the individuals want no 'extreme' solutions.

We have so far merely tackled a technical problem of aggregation. We will now critically examine the much more fundamental neo-classical claim that the state does what the individuals in that state want the state to do. Again a rejection of such a position will open for an alternative explanatory paradigm. Even if this claim is never made explicit in introductory texts, it is an absolutely necessary part of an overall orthodox theory of the state. The main orthodox theoreticians to inquire into the process of how state policies and actions are formulated are Buchanan and Downs. Their theories represent an attempt to apply an orthodox economic methodology to a more 'political' field and in this sense they are an extension of the orthodox model initially outlined.

Buchanan and Tullock claim that individuals minimize the costs of decision-making by electing representatives to vote on their behalf.¹³ Apart from the absurdity of the claim that parliamentary democracy is a result of cost-minimization in decision-making, their approach has the unfortunate consequence of destroying the basic orthodox vision of the state and thus to lay them open to a charge of theoretical inconsistency. It first makes, in the words of Bartlett, "the possibility of reaching Pareto optimality extremely limited",¹⁴ as it makes choosing between optimal points almost impossible. Secondly, politicians could not be described as acting with the full neo-classical rationality and self-interest if, once they got into office, they did not mainly start to look after their own utility functions (an objective which at least partially is contrary to those of the electors).¹⁵ Downs takes such a view to its logical conclusion when he introduces a government as an actor in its own right which simply has the aim of staying in office. Again the first victim is our basic neo-classical model of state

intervention with its basis of individualism. But in common with Buchanan no 'in-depth' analysis of the basic motives of the state has been attempted. Furthermore no inquiry is made within this theory to establish the constraints of government policies. It is as if governments have a 'free hand' to do whatever they like.

Ahistoricism

We have shown the specific inadequacies of the two basic tools of the orthodox theory of state involvement on the micro-level; public goods and the social welfare function. We will now be more general and ask why the present approach is so unsatisfactory. The answer lies first in the ahistorical nature of orthodox theory. The relevant point to make here is that the importance of the capitalist state has drastically changed over time. In particular this has affected the size of the state-owned nationalized sector.¹⁶ This should almost on a priori grounds make one sceptical of any theory of state involvement that lacks a historical or dynamic perspective and relies on ahistorical concepts like public goods. In particular orthodox theory says nothing about what happens to externalities (and hence public goods) over time. Such a theory would have been necessary to understand the development of Norwegian oil policies in the period 1965-74.

Until the 'marginalist revolution' in the 1870s there was intense debate among economists about the proper role of state activity. The consensus was well expressed by McCulloch who stated: "Perhaps with the single exception of the conveyance of letters, there is no single branch of industry which government had not better leave to be conducted by private interests."¹⁷ Adam Smith echoed this when he described the role of the state in the new stage of society which was characterized by 'natural liberty'. He wrote:

"According to the system of natural liberty the sovereign has only three duties to attend to ... first, the duty of protecting the society from the violence and invasion of other independent societies; secondly the duty of protecting, as far as possible, every member of the society from the injustice of oppression of every other member of it, or the duty of establishing an exact administration of justice; and thirdly, the duty of erecting and maintaining certain public works and certain public institutions, which can never be

for the interest of any individual or small number of individuals to erect and maintain."¹⁸

By "certain public works and institutions" he included religious and other education; care of the impoverished, the incapacitated and the unemployed; the construction and maintenance of ports, bridges, navigable rivers, aqueducts, and ports.

With the advent of the positivist philosophy, little further thought was given to this kind of thinking as economists interested in the state became mainly preoccupied with inquiries on how the costs of state activities should be financed. This is not to say that the normative statements lost their importance. On the ideological level they were used repeatedly as justifications of the laissez-faire economic model. But especially within the Anglo-Saxon tradition of the profession, the idea of state intervention and involvement was almost totally disregarded as a question being worthy of inquiry. The state's role remained indistinguishably linked to the operation of a free-market economy; the state was performing a 'door-keeper' function. It is the legacy of this vision that still dominates economists' thinking about the state. Superimposed on this approach has then been the whole tradition of welfare economics - the value of which we have already commented on.

It is indicative that even a casual glance at the actual state role in a number of Western European economies at the end of the last century would immediately have revealed a drastic difference between reality and the textbook vision of the state. The industrialization processes of France, Germany and especially Russia were intimately related to state action. It is therefore perhaps not very surprising that the Continental school of economists took the state much more seriously than the Anglo-Saxons. Indeed the work of economists like Sax, Wagner and Goldschied¹⁹ all shared the vision of the state as a historical entity which changed as history unfolded. They saw the state's role, not in relation to any timeless or ahistorical set of concepts like public goods, but on the contrary in relation to the needs of historical development. This approach, which is relatively close to an institutional approach, we find a much more interesting starting point. Not until the 1930s and the advent of the depression and Keynesianism were Anglo-Saxon economists forced to take the state seriously. But this was characteristically not done by changing the vision of the state referred to above, but by inventing a new branch of economics, macro-economics. The basic vision of the state's relationship to the market

remained virtually unchanged and orthodoxy held onto its ahistorical concepts. The main new element was that the state was now seen as an instrument for carrying out stabilization policies.

Ideology

As a final criticism of orthodox theory's treatment of the state, I claim its vision has clear ideological overtones. We have established how the model of general equilibrium based on 'free market' operations in theoretical terms can give rise to what is considered the 'best' solution for society. Consequently it becomes possible to challenge anyone who advocates any fundamental changes in the market system by pointing out that their solution will bring 'suboptimal' results; a significant ideological victory in itself. The rider that any economic system can be Pareto-optimal by planning, questionnaires etc., is normally hidden in a footnote with the observation that given the postulated high costs of operating such an alternative system in the form of bureaucratic inefficiencies etc., then the capitalist market system is preferable.

Furthermore the concept of 'market equilibrium' is partly an ideological concept with little real-world relevance in a world economy which is increasingly monopolized and dominated by vertically integrated firms. A genuine 'free market price' of oil has probably not existed since the end of the last century with the coming of the vertically integrated firms.

On a more general level of abstraction, the best indication of the ideological nature of the orthodox treatment of the state is something we have so far not faced head on, but which nevertheless has been a common underlying denominator throughout the analysis. This is the neutrality of the state. The state in orthodox economics is a neutral instrument which can be used by any political force to carry out its policies. At no point is this even presented as a problem to discuss, let alone is it problematized. For instance the recent attempts by the UK Treasury to influence the acceptance of an incomes policy²⁰ is seen as mere 'aberrations' rather than as an indication of the ability of parts of the state apparatus to pursue policies independently of 'political control'.

Conclusion

The exposition and criticism of the orthodox economists' view of the state is now complete. We have found it weak in its theoretical concepts and crucially wrong in its view of what basic forces influence state action. This sorry state of affairs is mainly due to

- the intellectual preoccupation with normative economics
- an ideological blindness in the profession
- basic shortcomings of the orthodox tools of state analysis, and in particular its ahistorical and individualistic nature, as well as its assumption that the state is a politically neutral institution.

We can in short logically ask whether a system of thought which according to Solo, "came into being as an argument against a government 'meddling', against 'political interference', a system of thought that is essentially an apologia for laissez-faire and a glorification of the market"²¹ can ever transcend itself and comprehend within its framework the workings of the modern state. Our answer is clearly no and that another approach is called for which is non-individualistic and historical, and where the state is not a neutral entity and instrument at the disposal of whoever wins parliamentary elections, but is an institution intimately linked to the capitalist mode of production and its preservation. It is this vision which will constitute the basis for a better understanding of the Norwegian state's oil policies as outlined in this thesis. We will thus go against the tendency among neo-classical economists that once their own theoretical framework proves inadequate then they leave any further search for understanding to the political scientists or sociologists. It is our aim to develop an analysis which tries to integrate these different levels of analysis.

APPENDIX ENORWAY AND THE CONTROL OF FOREIGN INVESTMENT¹

There is little indication that foreign capital played any significant role in the early and very limited stages of Norwegian industrialization up until 1890. But the degree of foreign ownership in the Norwegian economy accelerated with the development of industries from the early 1890s based on cheap hydro-electric power. These investments were undertaken by foreign interests according to Einarsen "because the Norwegian commercial banks at the time had neither the ability nor the desire to invest in such large risky projects".² This is the kind of reasoning that will be familiar in the oil industry half a century later. The end result of this development was that by 1909 38.8% of all capital stock in mining and industry was foreign owned. This was to be the highest degree of foreign ownership ever attained in Norwegian industry.

The attempts to curb this sharp increase in foreign ownership is closely related to the gaining of independence from Sweden in 1905 and the threat such a development represented to the weak Norwegian bourgeoisie. The question of a curb on foreign investment came to the fore in relation to the ownership of the waterfalls which were the basis for the electro-chemical and electro-metallurgic industries. The waterfalls were at the time bought both by Norwegian and foreign interests with a view of controlling the production of hydro-electric power. So in 1906 Stortinget enacted a temporary law (Concession-law) which prevented foreigners from owning any waterfalls or mines. In 1909 this first and temporary law was extended to Norwegian capitalists, and also widened to include forests, which today (1977) are still under national control. In 1917 the Concession-law was further tightened up whereby any applicant for the purchase of any 'natural estate' had to agree to a number of conditions, the most important of which was that the natural resource in question was to be returned to the state after a number of years (normally 50-60 years). If the applicant was a foreign company the majority of members on the Board of that company's subsidiary in Norway had to be Norwegian citizens.

The result of these policies soon became clear. By 1919 the part of total capital stock owned by foreign interests had decreased to 15.2%. This figure then increased again to 26.3% in 1930 as it turned out that the foreign firms were in a better situation to confront the world recession of the 1930s.

The immediate post-war period saw a sharp drop in direct foreign investment as a percentage of capital stock. This was partly because the Norwegian state took over German-owned firms as war reparations, but also because Norway financed important parts of its investment programme in the period after 1945 externally. It is important to note that foreign direct investments were not at the time favoured as a means of financing the considerable investments taking place in Norway during this period. Seen in relation to the very strict system of direct controls in force in the Norwegian economy until 1952 (see Chapter 1, p.21), this is understandable from a political point of view. As a consequence, the portion of capital stock held by foreigners dropped in 1952 to 9.6%. This is not to say that the dependence on the outside world in any sense diminished during this period. As long as Norway relied on external sources of finance for its investment programme (and in particular as this was the case in a situation where the Norwegian currency was nonconvertible and where the US was the main source of finance and capital goods), then this dependence was maintained; albeit in a different form.

From 1956 there was an increase in foreign direct investment in the Norwegian economy. By now the Norwegian state was actively seeking to obtain foreign investments. A direct expression of this shift in policy was the appointment in 1959 of the former General Secretary of the UN, Trygve Lie, as a special Norwegian ambassador in charge of raising direct foreign investment for the Norwegian economy, which among other results led to the building of Esso's Slagentangen refinery in 1957. The timing of this shift coincided with a sudden collapse in the savings ratio in the Norwegian economy between 1957 and 1958 when private indigenous savings decreased from Kr.3.1 bill. to Kr.1.8 bill.³ Private foreign investment can thus partly be seen as a compensation for such a shortfall. But it must also be seen within a more directly political framework where a renewed allegiance to the West followed the 1956 events in Eastern Europe was most clearly expressed in the Norwegian state's willingness to allow in foreign private investment.

As a result of this development the importance of foreign industry again increased in the Norwegian economy, so that by 1963 17.4% of total capital stock in Norwegian industry was foreign owned with up to 48.1% in sectors like electro-technique.⁴

APPENDIX F: SENSITIVITY TESTS

Results in percentage IRR (post-tax and with participation)

	1965		1969 Scen.2		1969 Scen.3		1969 Scen.4		1972 Scen.1		1974 Scen.1	
	200m	700m	200m	700m	200m	700m	200m	700m	200m	700m	200m	700m
DEVELOPMENT COSTS:												
+ 30%: New value (\$m.)	165	418	218	504	218	504	218	504	247	527	390	1423
New IRR	6.1	9.0	8.2	12.1	9.1	12.3	8.6	11.7	11.3	16.2	28.3	19.2
- 30%: New value (\$m.)	89	165	118	271	118	271	118	271	133	284	210	767
New IRR	12.7	18.5	16.1	19.2	18.3	19.9	17.6	?	20.9	24.1	48.4	26.9
OPERATING COSTS:												
+ 30%: New value (c/bbl)	59	59	72	72	72	72	72	72	98	98	195	195
New IRR	7.6	10.5	10.2	14.1	11.4	14.4	10.9	13.7	13.9	18.3	30.4	21.6
- 30%: New value (c/bbl)	32	32	39	39	39	39	39	39	53	53	105	105
New IRR	10.1	?	12.7	15.9	14.1	16.3	13.5	15.6	17.1	20.6	33.1	23.5
PRICE TRENDS:												
+ 2 percentage points:												
New value	4	4	6	6	6	6	6	6	8	8	8	8
New IRR	12.8	15.5	15.7	19.1	17.2	19.4	16.5	18.7	20.3	23.9	36.7	26.9
- 2 percentage points:												
New value	0	0	2	2	2	2	2	2	4	4	4	4
New IRR	4.9	7.6	7.5	11.0	8.5	11.3	8.0	10.7	10.8	15.0	27.0	18.2
EXPLORATION SUCCESS RATE:												
+ 50%: New value	1:10	1:10	1:6	1:6	1:6	1:6	1:6	1:6	1:3	1:3	1:5	1:5
New IRR	11.5	12.5	13.9	15.9	14.6	16.0	13.9	15.3	17.7	20.4	42.2	24.9
- 50%: New value	1:30	1:30	1:18	1:18	1:18	1:18	1:18	1:18	1:8	1:8	1:15	1:15
New IRR	7.1	10.8	9.8	14.3	11.4	14.8	10.9	14.2	13.1	18.4	29.0	21.7
MIT PRODUCTION PROFILE:												
New IRR	15.9	27.0	20.2	34.3	24.3	36.9	23.5	35.5	28.1	45.4	72.1	69.7

APPENDIX GTHE UK TERMS IN 1965

The UK ratified the Geneva Convention in May 1964, and passed the Continental Shelf Act of 1964 which extended the already existing right of the Crown to grant licences to offshore areas. Then on 12 May 1964 regulations were published which dealt with offshore oil and gas operations. This led to a virtual scramble for concessions in the UK sector. The granting of licences in the autumn of 1964 had to be temporarily postponed due to the unexpectedly good response to the Minister of Power's invitation for licences. The chosen concession pattern was one where the private companies were given a virtually 'free rein'. This was despite the objective possibility that a state oil company could rapidly have been created in the UK. The expertise and the capital were there. While such a company was building up its own expertise it could, like almost all the majors, hire rigs to do the exploration drilling. This procedure was also feasible as a way of exploring the area of a country that itself did not have sufficient technical expertise to undertake exploration. In 1963 there was even a UK-based oil-drilling company that could have undertaken such a task (Keir and Cawden Arrow Drilling Limited). Simultaneously Brown Bros. & Co (owned by a consortium of UK shipbuilders) was moving into the drilling field.¹ Alternatively, instead of setting up a whole new corporation (which was suggested later in a formal way by a working party of the Labour Party (see Section 5.1) the UK could at the very least have given exclusive rights to Shell and/or BP, where it had an effective majority shareholding, to ensure that a maximum of the potential rent from the Continental Shelf would remain within the UK.

With a certain number of guarantees concerning thorough exploration of the North Sea, to avoid a Dutch situation where two majors had a monopoly on exploration, and where nothing was found until an element of competition was introduced between the companies, such an alternative strategy could possibly have been pursued in the UK sector of the North Sea.

But to set up a strong state oil sector in 1965 there had to exist a political willingness to use public money for an undertaking that contained some element of risk. Furthermore the UK would probably also have had to pay a heavy international price for developing a strong state sector. Such a sector would have displaced a number of US oil companies from a very interesting area of exploration, a move that

could easily have led to reprisals from American financiers and investors.² The UK would at the time have been very unprepared to meet such a challenge in the light of its own weak economy.

But even so, the possibility of a major state involvement in the UK oil industry was indirectly expressed in the political disagreements over the state's role. Politicians are not likely to quarrel about something which is considered 'impossible'. Labour urged the Conservatives in September 1964 to withhold awarding the first concession until after the General Election that was to be fought in the autumn of the same year. The reason was that Labour wanted more state control over the activities. The suggestion put forward was that the state should keep control over some blocks, while other blocks should be auctioned to the highest bidders according to the Canadian 'chequer-board' system. But the Conservatives refused Labour's request and went ahead with the original plans that were to set the precedent for Norway. But despite Labour's election victory in 1964 and their former attitude, which one oil journal summed up as being: "the socialists consider that the Tory government acted unduly favourably towards the companies",³ nothing was done to rewrite or renegotiate the existing terms, which at least politically, if not legally, there could have been a mandate for doing. When the Labour Minister of Power was asked about nationalizing the oil in December 1964 - which showed that the issue was by no means dead - he avoided giving any clear answer. But on 6 April 1965 he declared that the existing licences were legally binding and that "it would not be in the public interest" to disturb the production licences already issued.⁴

In the second round of licensing in 1965, the Labour government tried to change the relative weight between the state and the oil companies by favouring the nationalized industries, whose shares compared with the first round of concessions increased by 8%.⁵ As a consequence the total UK share of the new licences went up from 30% to 37%,⁶ but the fundamentals of the old system remained. It was the inadequacies of this system that would make such a strain on the relationship between the UK and the companies in the mid 1970s and which also provided the basis for the Norwegian system.

APPENDIX H

'GENERAL CONDITIONS OF PRODUCTION' AND THE CONCEPT'S
RELEVANCE TO OIL

The concept of 'general conditions of production' (GCP) as it exists in marxist literature is of little help in understanding state intervention in the field of oil. It is for this reason that we have developed our own concept of 'strategic good' (see p.278).

Marx concentrates the bulk of his discussion of GCP on commodities whose value it is difficult to realise on the market.¹ In this category, which Marx explicitly labels 'general conditions of production', he primarily uses the example of roads and other means of transport which according to him "facilitate circulation or even make it possible at all".² The only other example he refers to is provision of goods which "increase the force of production (such as irrigation works etc.)."³

Since oil is manifestly a commodity which together with the other basic inputs in the production process can readily be sold on the market and hence for which there are no problems of realisation, Marx's discussion seems of limited value. Furthermore, Marx's prediction of what will happen to such 'general conditions of production' is widely at variance with the present trend of capitalist societies.

Marx stated that:

"The highest development of capital as capital exists when the general conditions of the process of social production are not paid out of deductions from the social revenue, ... but rather out of capital as capital."⁴

In other words, Marx expected that parallel to the development of capitalism there would be a development towards running the 'general conditions of production' according to capitalist criteria. If this observation is applied to Marx's definition of 'general conditions of production', then the tendency has been the absolute contrary. This is so in the case of oil. Furthermore the production of oil was never originally carried out by means of payments from social revenue, and Marx's discussion is therefore irrelevant to the problem at hand. Altvater's⁵ analysis of the problem is written within a methodological framework where the state is (incorrectly in our view) described as being by necessity 'non-capitalist'. He not only touches on the material characteristics of the commodity, but also looks at the inability of the system to supply such goods because of the low rate of profit to be earned in their production. The

inability of private capitalists to supply certain goods Altvater claims is due on a general level to the tendency of the rate of profit to fall. On a more specific level, the non-supply of a good can be due to four reasons:⁶

- (a) the investment may be too large, or
- (b) the time before the profit can be realised too long for private capitalist to want to invest.
- (c) There may be no immediate commodity-character of the commodity produced (R&D, academic qualifications, etc).
- (d) The size of the market may be too small for the individual capitalist to invest and earn the average rate of profit.

Factors (a) and (b) are results of the development of productive forces and in this way express a basic thought in marxian thinking. Factor (c) on the other hand is similar to the factor that Marx chooses to focus on in his treatment of the problem. But oil cannot, according to Altvater's scheme, be classified as a 'general condition of production' as it is a good which manifestly is being privately manufactured. This seems however to be a more fruitful approach than Marx's, which has some similarities with the orthodox theory of 'public goods' (both centre on difficulties of selling in the market), and which therefore is partly subject to our already stated misgivings about that concept (see Appendix D). But Altvater's approach will unfortunately not settle the issue because the definition of 'general conditions of production' as it stands is too broad. Clearly not any industry should be classified as supplying a 'general condition of production' because its profitability is too low.

We must therefore conclude that the concept of a 'general condition of production' in its present shape gives little insight as to why the state has so heavily intervened in the oil industry. This has two immediate consequences. First, it suggests that we are confronted with a new and challenging phenomenon as far as marxist thinking is concerned. Secondly, it represents a theoretical spur towards developing some new analytical tools for understanding the role of oil production within a capitalist society. This we have attempted to do in the shape of the concept 'strategic goods'.

FootnotesIntroduction

- 1 An exception is the more journalistic account in Hellem (1974).
- 2 Myrdal (1973), p.142.
- 3 This attitude permeates all his later writings, but is explicitly stated in Myrdal (1973), "Through the types of problems I came to deal with, I became an institutional economist, after having been in my youth one of the most ardent 'theoretical' economists" (p.11). His institutionalist methodology requires that "All the 'non-economic' factors - political, social and economic structure, institutions and attitudes ... have to be included" (ibid, p.10).
- 4 His point of departure in analysing present-day power relations in Norway has been to "put great emphasis on inter-institutional relations... Here we have taken advantage of the traditions of economics, political science, and sociology" Hernes (1978), p.57.

FootnotesChapter 1

- 1 Shell (1972), p.4.
- 2 IPR, 1964, p.384.
- 3 PPS, June 1963, p.211.
- 4 Callow (1973), p.155.
- 5 Dunn (undated); p.2.
- 6 PPS, June 1963, p.211.
- 7 OGI, June 1963, p.236. The base of this exploration was Copenhagen.
- 8 Letter from Byrås^ojef (now Under-Direktør) Ola Wattne, Ministry of Industry (Negotiating Office) to author, undated. Ref no.ID/OB/760W/GM.
- 9 Law no.12, 21 June 1963. Paragraph 2 gives the ownership of sub-sea natural resources on the Norwegian Continental Shelf to the state.
- 10 PPS, May 1964, pp.164-67. The reason was that even if the Geneva Convention favoured the median-line solution to demarcate different coastal states' territories, Norway's access to large parts of the North Sea was endangered by the existence of the 'Norwegian Trench'. This is a more than 200m. deep north/south trench in the sea-bed situated immediately off the Norwegian west coast. See also footnote 13 below.
- 11 The first drilling in the North Sea had taken place in Holland, where four wells were sunk in 1961-62, while the drilling off the coast of West Germany in 1964 was at the time regarded as the 'focus' of the oil companies' interests. OGI, September 1964, p.52. But in both cases the legal context was far from clearly defined. In Holland the permission to start exploring rested with the private landlord, but this permission did not give the companies any automatic right to start producing oil if it was found. In West Germany the relationship between the individual Federal States (Länder) and the central government remained badly defined with respect to ownership of subsea resources.
- 12 E.J.G. Toxopeus, Manager Shell, Summary of talk to the Society of Chemical Industry, 26 February 1964, Institute of Petroleum, London, p.1.
- 13 See Ely (1967) for an excellent overview of this problem.
- 14 This is presumably the reason why St.meld. no.76 (1970-71), p.17, stated that "In 1964 one drew for practical reasons a limit on the Norwegian Continental Shelf along the 62nd parallel" (PN emphasis).

There has also been a suggestion that a line was drawn simply because the companies were 'not interested' in acreage further north (Edvard Hambro, MP, in Stortinget 21 December 1965). This has never been confirmed.

- 15 OGI, June 1963, p.236.
- 16 OGI, June 1963, p.73. This consortium was planning to spend \$2mill. on seismic surveys during the summer of 1964 (OGI, May 1964, p.51). Its members were: Elektro-Kemisk A/S, Fernley & Astrup, Christania Spigerverk, Sig. Bergesen, Kværner, Borregård, Akers Mek, Anders Jahre, Orkla Grube-Aktiebolaget.
- 17 Offshore, December 1964, p.25.
- 18 R.W. Wilson, President J. Ray McDermott and Co.Inc. in Offshore, December 1965, p.60. According to another oil executive, the 'free world' would need 17 billion barrels of liquid hydrocarbon per year in 1980, double the 1964 amount. And only 2 per cent of the Continental Shelf had been explored up to 1965. A.T.F. Seale, Vice President operations, Ken McGee, Offshore, December 1965, p.38.
- 19 This is a normal way of estimating overall reserves. For such a procedure applied to Latin America, see B. Grossling, 'Latin America's petroleum prospects in the energy crisis' in US Geological Survey Bulletin no.1411, quoted in O'Shaughnessy (1976).
- 20 Gaskell (1965), p.1. Esso refused in 1923 to pay \$50,000 to obtain part of the Bahrain concession, which was subsequently bought by Gulf. This was later to be labelled 'the billion dollar error', and provides perhaps the clearest warning in oil history of what can happen if a firm lets its competitors control new acreage
- 21 OGI, July 1964, p.64. Cazenove (1965) stressed the same two points. According to the analysis of this firm of stockbrokers the coincidence of these two factors in the oil industry was 'unique' (p.9).
- 22 With a final price in the UK of around \$2.50/bbl and a posted price of the mid-1960s in the region of \$1.80 (even if there were important discounts on this price), transport costs would total around \$0.70 from the Gulf, which constituted around 30% of the final price.
- 23 Aftenposten wrote as early as 1963: "One of the reasons why Norway now has caught the attention of the companies is their desire to find oil in areas that are politically secure" (28 April).
- 24 An 'independent' is normally defined as a US company that produces more than 70% of its oil outside the US.

- 25 Jacoby (1974), p.162.
- 26 This was continuously criticized by members of OPEC. See for example Boumedienne (1974a), p.162.
- 27 For an account of ENI and its controversial President E. Mattei see Frankel(1966). See also Nore (1979b).
- 28 But no agreements were signed during the period we are considering due to company resistance to the idea. The first 'standard contract' was completed in 1968.
- 29 Article 25, para.5 in INOC's agreement with Pan American stipulated for instance that a fixed percentage of the joint output should be shipped with Iranian ships. Evensen (1971), p.69.
- 30 OPEC, Resolution of the First Conference, Baghdad, 10-14 September 1960, Resolution I,1.
- 31 Seierstad (1973) Chapter 3. He also quotes a report from Riksskattestyret (The Tax Council) which assessed the accumulated foreign exchange loss up until 1967 to be kr.200 mill.
- 32 Ibid, p.30.
- 33 The topic of study which underlies our characterisation of a capitalist state is both vast and complicated. The rapidly expanding literature on the subject makes it even more unlikely that a short overview like the one presented in Nore and Green (1977) can do full justice to the subject under study. However, when seen together with the bibliography of the chapter, it may give an introduction to our way of thinking. The most important recent work has been Holloway and Picciotto (1978) which has introduced the German 'state debate' to the English-speaking world, and in their Introduction provides a good summary of the present state of the debate.
- 34 O'Connor (1973) has applied a similar kind of analytic framework to the US state.
- 35 The followers of the German-inspired 'capital-logic' school of state theory have been accused of such 'deductionism'. This is in our view a correct criticism; cf. the statement by two of the school's main exponents in the UK, Yaffe and Bullock (1975), "the intervention of the bourgeois state arises directly from the needs of capital" (p.34). In contrast to such an approach we stress the political and historical peculiarities of each social formation in explaining the actions of a state. See also p.270.

- 36 Quoted in Einarsen (1970), pp.177-78.
- 37 Sweden took a decision in the early 1960s to concentrate its labour force in export-oriented high-productivity industries that were situated in the central and southern parts of the country. This led to considerable depopulation in the northern parts of Sweden. Strategic considerations might also have weighed heavily on the Norwegian government when it attempted to maintain its decentralised industrial structure in the north.
- 38 The Economist, 15 November 1976, Survey: Norway, p.19.
- 39 Halvorsen (1977), p.82. This is still less than Sweden, which spends no less than 7.4% of the state budget on such items (ibid), but much more than for instance in the UK.
- 40 Sejersted (1973), p.230.
- 41 On this interpretation the political confrontations in the early 1950s over Lex Thagaard, and in particular the Conservatives' slogan in the 1952 election: "Use your freedom while you have it", were very much a masquerade. The basic parameters had already largely been laid down. See also Rød Larsen (1977), pp.21-22.
- 42 SSB (1965), p.123, and OECD, Economic Survey, Norway, March 1974.
- 43 SSB (1965), p.138.
- 44 Gerhardsen (1971), p.118.
- 45 SSB (1965), p.113.
- 46 Offe (1973) argues that the breakdown of the legitimizing system will come about by the growth and development of non-surplus-producing sectors. See also Offe (1975).
- 47 A key instrument in the implementation of the Labour Party's policies was the building of semi-corporate structures in Norwegian political life. The best example was the yearly centrally-controlled wage negotiations between the Norwegian employers' association (NAF), the trade union organisation (LO) and the state. The immediate result of this was a period of relative macro-stability and economic growth, but at the expense of a tight political control from the top leading to passivity and depoliticization at the grass roots of the labour movement. In short, economic growth temporarily 'solved' the legitimacy problem.
- 48 Slagstad (1977), p.186. For him the key is to understand the simultaneous interrelationship between three 'subsystems': the 'socio-cultural system', the 'economic system', and the 'administrative-political' system.

- 49 In 1970 Norway exported 18 million tons of raw materials and semi-processed goods, while it imported 25 million tons of the same. The relation between exports and imports of such goods was drastically different from other Western capitalist countries where the volume of these imports was normally many times the volume of exports (Svendsen, 1974, p.29). Further, this pattern of trade was superimposed on an economy which was extremely 'open'. Almost 45 per cent of the GDP consisted of foreign trade. In 1971 imports constituted Kr. 34.4 bill. or 44.9% of a GNP of Kr. 76.6 bill. (SSB, Statistical Yearbook 1975). The dependence of the Norwegian economy on fluctuations in world markets, especially with respect to raw materials prices, has been a constant feature of Norwegian economic history throughout this century.
- 50 As late as 1970 only 87 firms employed more than 500 workers or less than 0.5% of all industrial and mining firms (SSB, Norsk Industri-statistikk, 1972, Table 16). It is clear that the Norwegian state was worried about this structural feature of the economy. In St.meld. no.39 (1969-69) the large number of small and medium-sized firms were regarded as a serious weakness for the international competitiveness of the Norwegian economy. It should be noted that both the industrial and geographical concentration of industry increased rapidly during the 1960s and early 1970s (Halvorsen (1977), p.46, and Strøm (undated), p.53). The weakness of the industrial sector was well illustrated by the amount of external capital in the capital-structure of the average firm. In Norway 81% of all capital was 'external' to the firm, the highest in Western Europe. If we look at new investment in the period 1962-66, the Norwegian figure increased to 87% (Innstillingen om obligasjons og allsjemarkedet, Norge, 1968). The corresponding figure for the UK was 40%. Such a capital structure tends to give considerable power to the financial institutions of a country. In the Norwegian case, because the state's role in the credit structure until recently has been relatively limited, this has given considerable power to the private commercial banks. Industry's necessity to obtain outside private finance for investment has contributed to a closer integration between industrial and finance capital than in a number of other Western European countries.
- 51 Norway has thus been relying on a constant inflow of capital to finance investments, a further characteristic of a 'peripheral' country. As will be made clear in Appendix E, the form that this

capital inflow took varied over time and was furthermore interspersed with attempts by the state to control its role in the Norwegian economy. But despite such efforts, 32% of total assets in Norwegian mining and industry were owned by foreign capital by the late 1960s. This figure contrasts with 23% in the economy as a whole, quoted in Einarsen (1970). Seierstad in Strøm (undated), p.73, operates with the lower figure of 22% for industry and mining and 16% for the economy as a whole. The relative inability of the Norwegian state to control this high degree of foreign ownership is well summarised in St.meld. no.39 (1967-68), which states: "There is probably little that can be done on Norway's part to meet this development (the increasing rate of foreign ownership - PN)".

- 52 Norway never went through a period of classical feudalism (possibly because the amount of extractible surplus was insufficient to support a land-owning class). It thus was a country where small and independent farmers could become an important and relatively independent social class. This class played a significant political role from the beginning of the 19th century. It strongly supported the introduction of parliamentary democracy in the 1880s; according to Therborn (1977) "... to a significant extent, Norway owes her democracy to the independent petty bourgeoisie" (p.28). It was also intimately linked to the fight for national independence, which culminated in Norway's separation from Sweden in 1905. Again according to Therborn, "In Norway ... the establishment of democracy would almost certainly have been delayed for a considerable time had it not been for the unresolved conflict with Sweden" (p.22). This independence heralded the start of an industrialization process, a process that took place at a rapid pace and which in its rudimentary form was virtually completed 20 years later. Finally, as a concomitant of industrialization, this period saw the birth of the Norwegian labour movement as a mass political force (even in the Labour Party had been formed as early as 1887). This movement has ever since maintained its strong ties with the primary industries and especially with the small farmers and the fishermen. These factors go some way towards explaining the anti-centralist and anti-bureaucratic political tradition which is a major characteristic of Norwegian political life, permeating Norwegian politics not only on the left but also in general. It further gives some insight as to why nationalism is such a powerful political force

in Norway. The most recent expression of the strength of this sentiment was the 1972 referendum on entry to the EEC, where nationalist sentiments played a major role in the victory of the 'no'-vote.

The historical strength of the petty-bourgeois agrarian sectors has been mirrored in the relative weakness of the Norwegian bourgeoisie even if this class played an important part in the fight for independence from Sweden. The only exception to this weakness has been the ship-owning class, but their direct influence on Norwegian society was partly mitigated by the international nature of their business. See Kleven (1965) and (1976) for the only available thorough analysis of the Norwegian bourgeoisie.

- 53 DNA has controlled the government almost continuously from 1945 and the party has in effect acted as political guarantor for the stability of the capitalist system in Norway. To borrow a phrase from Keul and Kjeldstadli (1973), DNA became the 'state-carrying' party in Norway, in much the same way as the Christian Democrats became the 'state-carrying' party of Italy.

FootnotesChapter 2

- 1 In most countries (outside the US) the right of landowners to reserve mineral rights to themselves was successfully opposed by other classes, and the rent from subsoil activities was in principle appropriated by the state - see e.g. the Mexican Constitutional Provisions after the Mexican Revolution.
- 2 Bye (1940), p.40.
- 3 Adelman (1972), p.6.
- 4 His theory of oil prices is well summarised in Adelman (1972), Introduction.
- 5 Adelman (1972), p.8.
- 6 He predicted that "there will continue to be enough competition to make prices gravitate towards costs, however slowly", Adelman (1972), p.1.
- 7 Chalabi (1978), p.36.
- 8 Rafai (1974), p.46. PN emphasis.
- 9 Noreng (1978b), p.94.
- 10 ibid, p.102.
- 11 Rafai (1974), p.46.
- 12 Jacoby (1974), p.18.
- 13 Jacoby also adheres to this argument (ibid, p.21).
- 14 Blair (1978), p.27. PN emphasis.
- 15 ibid, p.28.
- 16 Frankel (1946), quoted by Penrose (1971), p.182. PN emphasis.
- 17 Stork (1975), p.134.
- 18 See Penrose (1971), pp.200-201, for a discussion of this relationship.
- 19 Frankel (1966b), p.190.
- 20 This view of the structure of the oil industry is well reflected in the statement attributed to R. Mabro in the Sunday Times, 25 April 1976, "If it (OPEC - PN) did not exist, we would need to invent it". OPEC is here seen as necessary to keep up prices to protect the higher-cost oil-producers. A free market situation with oil prices approaching Saudi-Arabian production costs would be disastrous for all oil producers (including the Saudis) and would also have unmeasurable political consequences in the Middle East.

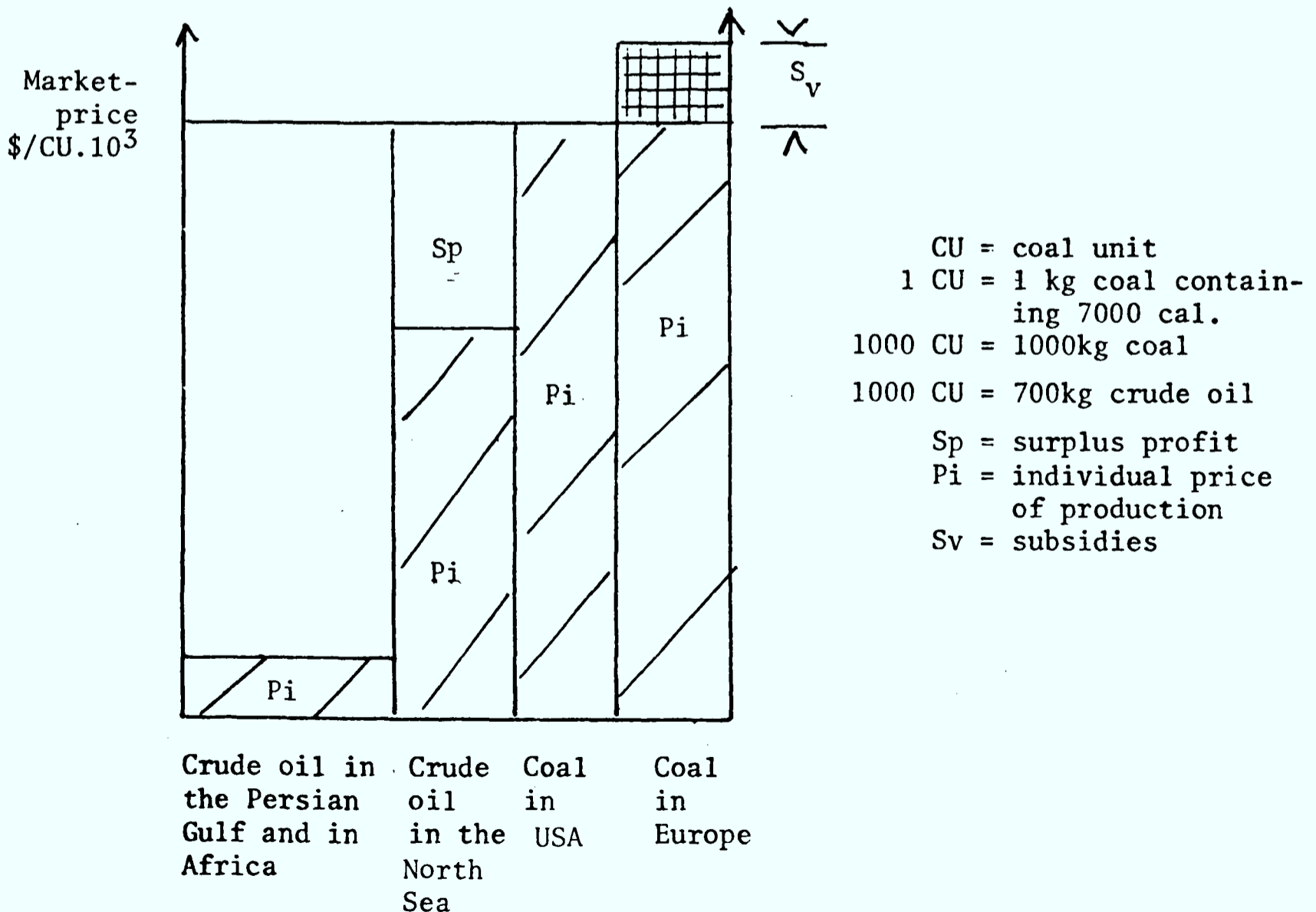
21 While Adelman does not discount that the long-run average-cost curve of oil extraction may be downward-sloping, he claims that the marginal short-run cost curve for oil production, not only on a 'world-wide' but also in the case of a single field, is upward-sloping which would tend to undermine the 'natural monopoly' argument. There are three reasons for this which Adelman puts forward. First, an increase in the demand for oil will lead to an increase in demand for oil tankers. This would mean that in the short run relatively inefficient high-cost 'moth-balled' tankers would be used to satisfy the increase in demand, hence increasing the marginal cost of producing one more barrel of oil. Second, output of a given field can only be expanded by new developments which are costly. There is therefore, according to Adelman, no such thing as a 'drilled-up' field where output can be expanded at very low cost. A third reason follows almost automatically from his conceptual framework. Assuming there is full capacity utilization, the only way to increase production is to look for new sources of oil. In a perfectly competitive world oil is explored according to its relative cost-advantage. It therefore follows that to increase production even in the short run, costs will increase. But this third reason does not seem to be valid in the world's oil industry. As an example, production is taking place in the North Sea despite the fact that there are vast unproduced reserves in the Middle East, so Adelman's hypothesis that exploitation will take place first in low-cost areas is empirically contradicted.

Concerning Adelman's two other objections to the notion of a 'natural monopoly' in the oil industry, it is possible to have an increasing marginal cost curve in the short run, where marginal costs are still less than average long-run costs. Hence a situation of instability which in our schema 'necessitated' a high degree of monopolisation may well prevail.

On a more general level Adelman finally argues on almost a priori grounds that if the oil industry exhibited decreasing costs then "the industry would be a 'natural monopoly' and normal competitive rules would not hold" (Adelman, 1972, p.5). The thought that 'normal competitive rules' might not hold seems too absurd for him to contemplate; and hence the idea is virtually dismissed.

22 A challenge to the balance of payments argument for the US was presented in Chase Manhattan (1966).

- 23 OPEC at its meeting in Vienna in November 1973 undertook four major studies, one of which was to establish with more certainty the relationship between the value of crude and production costs of alternative energy resources. Quoted in Kubba (1974).
- 24 For Masserat the oil surplus consists of taxes both to the consumer and the producer countries plus excess profits to the companies. He shows that the final price to the consumer of different sources of energy tends to be equal pr. energy unit (Equivalent Coal Unit (CU) = 7000 kcal). The final price of oil to the consumer cannot go above the production costs of the marginal energy source on a world scale. This marginal source which will just earn an average rate of profit and which earns no oil surplus, is according to empirical data presented by Masserat (1979) US coal production. If the final price of oil to the consumer was below the cost of production of US coal, such production would not earn an average rate of profit and would go out of business. World demand for energy would as a consequence not be satisfied (especially given the long 'lag-times' for demand to change in response to a change in prices). Masserat's point can be well expressed by a simple diagram.



- 25 Van Meurs (1971), p.26.
- 26 Mikesell (1970).

- 27 In January 1974 OPEC decided to fix a differential premium of 6¢/bbl pr. degree API above 34° and a discount of 3¢/bbl pr. degree below 34°.
- 28 According to Rafal (1974), p.60, there was a sulphur penalty of 3c/bbl for each 1% sulphur content in excess of the reference value of 1.6%.
- 29 Chevalier (1976), p.287.
- 30 Tanzer claims that because the AFRA-rate includes long-run charters which on average have tended to have been more expensive than the available spot charters, there has historically been an overcharging on transport costs. This could have meant that subsidiaries of the majors were overstating their transport costs because these were invoiced according to AFRA-rates.

Furthermore, the way that AFRA's seemingly 'neutral' rate is set can at least be questioned once the origin of the system is known. It was instituted at the request of Shell who on 1 April 1954 asked the then London Tanker Broker's Panel (also set up at the initiative of Shell, with one other company, in early 1951), for "a periodic assessment of an average tanker freight rate for a voyage from Curacao to a UK port..." Australian Board of Review (1962), pp.323-324.

- 31 Monopoly rent accrues to even the least efficient company in the industry - and therefore differs from technological rents which derive from the difference in efficiency between different companies.
- 32 But for an analysis of the oil industry at a world level both Masserat and Chevalier include such taxes in their definition of rent.

33

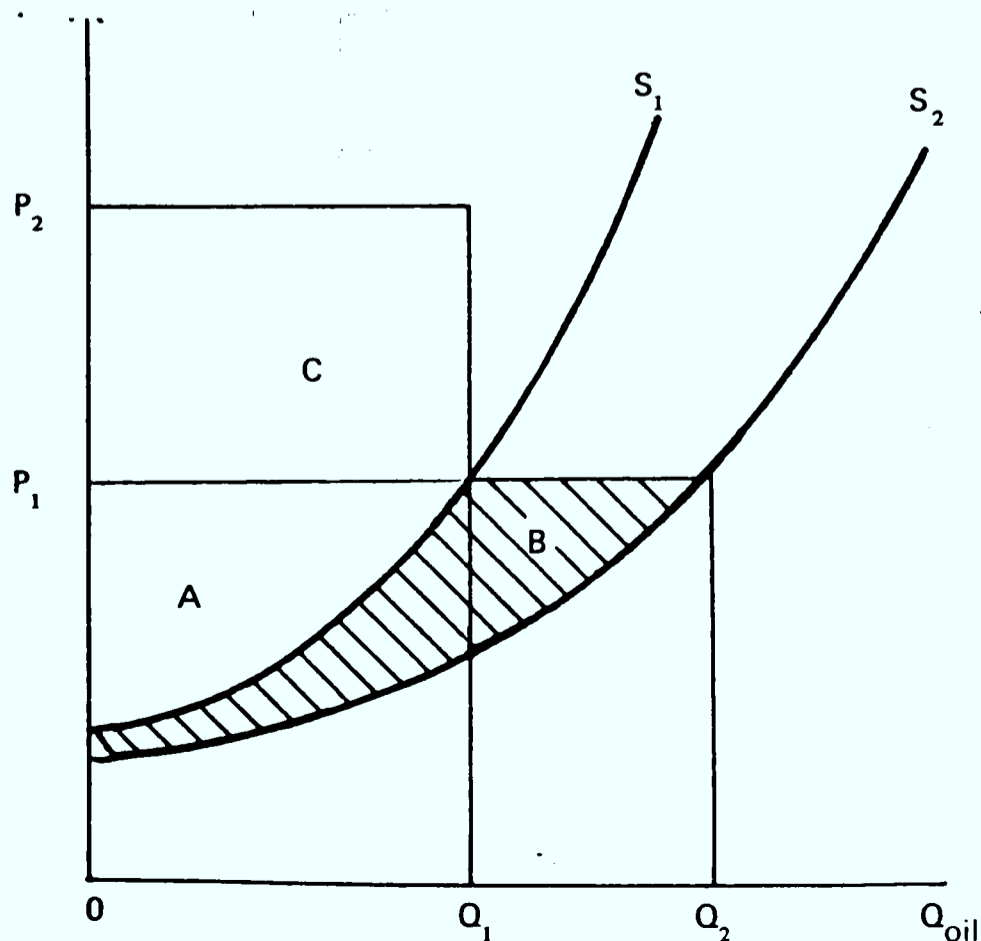


Figure (i)

Figure (i) shows a supply curve (S_1) of oil from one geographic area such as the North Sea. The higher the price of oil, the more marginal fields will be worth while to explore (ceteris paribus) and the higher the output. The immediate amount of rent to be fought about by the nation state and the oil company is differential rent = A. Its origin is twofold. As pointed out in the definition of oil rent, some large fields enjoy a cost advantage over the more marginal fields. Some fields also enjoy a quality differential in output in relation to other fields.

S_1 is drawn on the assumption that the oil companies get a pre-tax return of say 25%. If the oil companies only required a 10% return on their capital, more investment would be made at price p_1 and a larger amount of oil would be produced (OQ_2 as compared with OQ_1). The total amount of rent would increase by B because the supply curve would then be S_2 .

Finally, if the price for whatever reason increased from OP_1 to OP_2 , then the total amount of oil rent (at a given output Q_1) will increase by C (monopoly rent).

Note that it is theoretically possible to have an upward-sloping long run supply curve, even with a short run declining average cost curve (the assumption which is implied in our theoretical discussion on the 'natural monopoly' above).

This way of presenting oil rents has a lot in common with Marshall's notion of "producers' surplus triangle" (Marshall (1949), Appendix H), which has been defined by Blaug as "excess earnings obtained by low-cost firms over the earnings of the marginal firm in an economy". But the definition is not relevant for our purpose because it only includes differential rent. A further weakness is that the concept as presented graphically above is undiscounted while we require, as will be made clear later, a discounted definition of rent.

34 Quoted in Mikesell (1970), p.46.

35 Noreng (1979), Introduction.

36 Hotelling (1931).

37 An alternative way of putting the same point is that an equilibrium will occur when the present value of rents is the same in every time period, otherwise producers could shift production from a period with low present value to one of high present value. Rent

in period t is here defined as $R_t = R_0 e^{d t}$ where R_0 is rent at time 0 and d is the discount rate. The price of the non-renewable resource at any one time equals the marginal cost of production plus rent or: $P_t = MC + R e^{d t}$. Once marginal cost, total original stocks, a discount rate and a demand curve for the resource is known, then the rent and time span of exploitation can be computed by requiring two conditions to hold. First, total amount of production over time must equal the total stock of the resource available at time 0. Secondly, that by the time the source is exhausted, its price is so high that all demand has been choked off.

- 38 Strøm (1974). A similar point is made by Pearce (1977), *Introd.* pp.16
- 39 Hotelling (1931), p.157.
- 40 Ulph (undated), p.10, shows that the outcome of a comparison relies on the elasticity of the demand function and on costs of extraction. But he concludes: "As a general rule, ... monopoly will tend to act as a force for conservation" (*ibid*, p.13).
- 41 On the question of intergenerational equity and its relationship to non-renewable resources, one can contrast two approaches. First, the utility-maximization approach that allows for the aggregation of utility over generations and time. This is the traditional neo-classical solution, and used by, among others, Heal and Dasgupta (1974). The second max-min. solution the problem simply says that there should be equal consumption over time, i.e. between different generations. (This idea comes from Rawles (1971), and has been increasingly used as an alternative to the utility-max. approach.) It implies no net savings if there is no technological change (and no population increase), and negative saving with technological change. However, this implies for example that poor nations (assuming the nation is the methodological 'building-block') will stay poor for ever, a blatantly absurd result that according to Koopman (1970), pp.563-94, should make us wary about the model itself. But for the nations that we are dealing with in our context, the min-max. criterion may seem a reasonable one.
- 42 If the raw material in question is absolutely necessary for the production of 'essential goods' this will affect the rate of exploration. This can be expressed by means of the elasticity of substitution. Solow (1974) and in less technical language (1975) comes to the result that as long as this elasticity is below one (but greater than zero, PN), then the use of non-renewable assets

should be treated according to the rules that govern the optimal use of reproducible assets. According to such a view there is nothing 'special' about a non-renewable resource like oil, as long as oil can be substituted for other commodities.

Dasgupta and Heal (1974) have tried to face the question of uncertainty of technical progress within a Hotelling framework. They assume that the date at which technical progress will make the resource in question less absolutely 'necessary' for the production of a specific good (i.e. by changing the elasticity of substitution) will be determined by a stochastic process. They therefore try to take Solow's analysis one step further. This gives a determinate solution to the problem at hand, but in case the technical progress takes place towards the end of our time-horizon a crisis may take place as the society has run out of one source of energy, and no technological breakthrough has taken place. Can the state take such a chance? Heal and Dasgupta naturally enough do not give us an answer.

- 43 Stiglitz (1974) argues that the market for non-renewable commodities, if left to itself, is inherently unstable. Natural resources are viewed in the same light as other capital goods, which are affected by the absence of future and risk markets. The only difference is that the consequences of a market failure for natural resources is even graver than for other goods, due to the fact that the only return from holding them is the speculative gain, while capital goods yield a rental return.

This is due to the inability of economic actors to foresee the future, leading to a situation where, if prices initially are set too high, to restore equilibrium in the market in the next period, prices have to move even further out of line in order to offset the lower value of the rentals. Alternatively the lack of future markets may lead to an output either lower or higher than the optimal.

Even in the short run there exists a possibility of instability if the expected rate of return on holding natural resources varies from the rate of return on capital in general. Stiglitz argues that to restore equilibrium extremely large changes in current prices may be necessary, making a successful market adjustment unlikely.

- 44 Strøm (1974), p.8.
- 45 While in traditional welfare theory the sector which benefits from a specific policy may compensate the losers (The Scitovsky/Kaldor criterion), in reality this compensation never takes place. This criterion is therefore politically irrelevant.
- 46 Pigou (1962), p.29.
- 47 In the US in the early 1970s the Pentagon was implicitly using a 'shadow price' for its purchase of oil. National oil was to be preferred to imported oil as long as the national price was not more than one third higher than the price of the imported oil. The shadow price of one dollar's worth of imports was therefore \$1.33. Stauffer (1972), quoted in Chevalier (1974), p.134.
- 48 Robinson and Morgan (1976b) state: "Some formidable difficulties stand in the way of successful intervention... First, it is an open question whether, at any given time, a government can even identify in which direction company programmes should be varied... Second there are imperfections in the political process" (pp.255-56).
- 49 This is an oversimplification to describe what in each individual case is a very complex process. Nore and Turner (1979) is partly an attempt to show how a marxist framework can be useful in analysing the problem at hand. In particular see the contributions by Clawson, Hein, First and Turner in that volume.
- 50 The Norwegian Committee was created in 1966 (Aftenposten, 10 March 1966), two years after the creation of its British equivalent.
- 51 Ferguson (1969), p.282.
- 52 Mikesell (1970), Chapter 2, has attempted to indicate within a bilateral monopoly case when the two actors will attempt to collude. The company will, if it is an integrated firm, choose a lower output associated with non-collusion if other subsidiaries within the firm can supply raw materials at a higher after-tax profit per unit. The nation-state will, on the other hand, not appropriate all the rent to itself if it is thereby going to preclude the company from making investments in the future.
- 53 The gravest problem in using a game-theoretic approach for our particular problem is that the battle for oil rent in the North Sea was originally not a zero-sum game (meaning that the total amount of rent to be bargained about was fixed and in particular independent of the relative shares of the two actors in question). There is a general consensus in the literature that such a solution generally has no determinate solutions.

Particularly in the earlier period when the Norwegian government did not have any possibility of producing the oil itself, a solution to the rent bargaining that e.g. would have given all the rent to the Norwegian state would almost certainly have precipitated a gradual withdrawal of the companies from the Norwegian sector of the North Sea, and hence reduced the total amount of rent which was bargained about. The situation was a non-zero sum game. However, since the creation of an independent Norwegian capacity to produce oil (especially since the creation of Statoil in 1972), the situation has been more like a zero-sum game.

54 The game-theoretic approach assumes a minimax strategy on behalf of the two actors. This is only one of many possible ways that economic actors can be postulated to act, both in conditions of certainty as well as in periods of uncertainty. In conditions of certainty an actor can follow at least four other strategies:

(i) maximin, choosing an outcome where the worst possible outcome is minimized. This is a rather pessimistic view of life but may correspond well to Norwegian state behaviour faced, for example, with large possible investments in the North Sea.

(ii) maximax, on the other hand, reflects an optimistic attitude by choosing the method that gives the highest profit, irrespective of potential losses.

(iii) minimax potential regret. Regret is defined as the loss of profit caused by not choosing the best method.

(iv) The actor in question can assume that all possible strategies he engages in may have an equal chance of occurrence, and he may just choose the one for which the expected return is the highest (The Laplace Rule).

So in conditions of certainty there is no reason to believe that for instance the oil companies or the state behave in the basically conservative way ("make the best out of a worst situation") that game-theory assumes lies at the foundation of its approach. This may be especially so for the oil companies, whose 'dynamic' and 'offensive' pattern of behaviour is revealed by even a casual glance at their history.

55 Under conditions of uncertainty different individuals have different attitudes towards risk, and there is no reason to believe that one of these attitudes is dominant above all others. One important corollary

of this kind of analysis is that until now we have assumed that any project which has exhibited the highest expected monetary value would be chosen. This conclusion may be overturned depending upon the actor's attitude towards risk, that is whether he is a risk-averter or a gambler, or simply 'playing the average'. Using a decision-tree analysis as an example will clarify the point. Here a choice for instance between drilling an exploratory well in two different locations depends upon the expected monetary value of the two options when the probability of occurrence is taken account of. The decision is then taken on the (implicit rule) that the decision-making body in question is 'playing the average'. But if this organisation is a risk-averter it may well choose a line of action where a project yielding a discounted monetary value of \$1mill. occurring with a probability of 0.9, would be preferred to a project involving a discounted monetary value of \$10mill. occurring with a probability of 0.1 even if the latter has the same expected present value.

56 Young (1975), Introduction to Part IV, p.303.

57 ibid.

58 Rent, "like any other price set in a commercial bargain, will tend to be set within a range limited by each bargainer's idea of the cost of doing without the other", Hartshorn (1967), p.324.

59 Penrose (1971) makes a much more explicit use of the bilateral monopoly framework than Hartshorn when she unambiguously states: "we are basically dealing with a problem of bilateral monopoly" (p.157).

60 Penrose (1971) elaborates the point when she states: "The government would also be in an extremely strong position with respect to the established oil companies if it could run the industry without their help" (p.158).

61 Vernon (1973), p.35.

62 Penrose (1971). Note that the more widespread the ability of producer states to hire technology at non-monopoly prices, the less such an advantage will be.

63 ibid.

64 Hartshorn (1967), p.357, relates this mode of thinking to the price of hiring technological services in the market. His Chapter XXI (1967) contains a detailed discussion of the different strategies open to an exporting country which wants to increase its control over the oil industry. See also footnote 33 below.

- 65 According to an internal briefing paper of the World Bank, dated May 23, 1978: "On June 30, 1977 the Bank made its first large loan for oil and gas production" (p.2, PN emphasis). But because of the supposedly high risk involved, "So far no Bank financing of exploration is contemplated... For this reason [the high risk] it [oil exploration] has always been funded by private or public investors" (ibid). US foreign aid policy was also clear at this point. A ruling was established at a meeting of US State Department economic officers in Rio de Janeiro in 1942 that at no time would US economic aid be granted for future developments of state oil corporations. Similarly the Inter-American Development Bank also had a policy of refusing loans to government oil enterprises. O'Connor (1963), p.98.
- 66 "The development of a network of reliable buyers is generally a difficult, costly, time-consuming affair" Vernon (1973), pp.54-55. He could also have added that it is a process which at least historically has been enmeshed in political difficulties. The importance of this characteristic of the industry was most clearly seen in Iran in 1953 when the attempt to nationalize BP's oil finally faltered on this structural characteristic of the industry when Mossadeq was unable to sell any oil on the world market.
- 67 "Regardless of the producing country's ability to produce oil efficiently, the control of international distribution channels by the major oil companies can be used effectively to prevent the country from selling oil." Penrose (1971).
- 68 Iraq managed to write into its contracts in the late 1960s that renegotiation of existing contracts depended on the development of concessions in the rest of the world.
- 69 But he repeatedly makes the point that no crude conspiracy is involved in this relationship. The companies and their home governments objectively need each other.
- 70 Evensen (1971), pp.10-11.
- 71 This amounts to an implicit criticism of Penrose (1971), who aims to separate the business aspects of the confrontation between companies and producer states while disregarding the political and military overtones of the analysis when she writes: "Since I am not concerned with political controversies ... I shall treat the oil companies as privately owned concerns interested primarily in making profits" (p.152) (PN emphasis).
- 72 For an excellent summary, see Picciotto and Faundez (eds) (1979).

- 73 Bronfenbrenner (1955) must take part of the blame for the prevalence of such a methodological approach. On the other hand his conclusion that confiscation can be successful in "shifting income to development investment from capitalist consumption, from transfer abroad, and from unproductive investment" (p.201), and his recommendation that in some circumstances a country should pursue a policy of "neo-isolation" based on confiscation, was politically influential and explosive at the time.
- 74 See in particular Mikesell (1970) Chapter 1. A summary is found on pp.54-55, op.cit.
- 75 "In most cases shifts in bargaining power result in renegotiation of agreements." Smith and Wells (1975), p.18.
- 76 Mikesell (1970), p.54.
- 77 Vernon (1973) states that "almost from the moment that the signatures have dried on the document, powerful forces go to work that quickly render the agreements obsolete in the eyes of the government" (p.54).
- 78 The statement "It is a near-invariant law of public finance that an increase in the supply of funds creates its own long-term demand" (ibid, p.58) can serve as a starting point for a critique of Vernon. We question on methodological grounds such 'laws' which are supposed to hold for all social formations irrespective of political make-up of the ruling elite and class-composition within the country.
- 79 Mikesell (1970), p.54.
- 80 Vernon (1973), p.35.
- 81 Mikesell (1970), p.55.
- 82 "Stripped of all complicating variation and special circumstances, the essence of the matter can be stated in the simplest terms as follows. The proportion of its profit that a company will be willing to give up depends on its estimate of the cost of meeting the government's fiscal demands compared with the cost of resisting them, up to the point where the loss in either case makes the business unprofitable". Penrose (1971), p.153.
- 83 Chevalier (1974) describes the traditional theories of bargaining as being limited in their outlook and largely descriptive in their approach (p.12). Instead, Chevalier tries to develop a general bargaining theory, a task he only partly succeeds in accomplishing. His basic point is that the relative strength of the companies on the one hand and the oil producing states on the other depends upon two variables: first, the development of long-run marginal cost (LRMC)

of extracting oil, secondly on political awareness. If LRMC is rising, there are no pressures on the intra-marginal firms to lower their prices since they all earn an intra-marginal differential rent. But with a falling LRMC, it is only the marginal firm that does not experience the downward pressure on prices. Consequently the producers are in a constantly precarious position, their situation as a whole is relatively weak, and they have to engage in oligopolistic behaviour just in order to survive.

He then goes on to interpret the history of the oil industry in this light. The turnaround in 1969/70, in particular, becomes readily explainable within Chevalier's framework as, according to him, this was the time at which the oil industry, mainly as a result of exploration in the North Sea and Alaska, was faced for the first time with an upward-sloping LRMC curve (p.16).

84 While Chevalier's theory is attractive, not least due to its relative simplicity, a number of fundamental criticisms can be made of it. The first criticism relates to the basic indeterminacy of the final price level. The LRMC constituted nothing but a small share of final price both before and after 1970. So while Chevalier's theory may explain the development of bargaining strength with respect to the LRMC, it can say nothing about the other elements of final price. If these shifted in the opposite direction to the development of LRMC, e.g. by a change in the monopoly situation in industry, we have no possibility of predicting which way prices would move. Hence very little can definitely be said about the bargaining strength to the extent that this is expressed in the final price level.

Secondly, Chevalier's analysis will only be of help to the Norwegian case study under a number of clearly defined circumstances. His theory says only something about the relative strength of the oil producers as a whole and the companies. We would have to assume that Norway would automatically follow the lead taken by the OPEC countries in setting OPEC's terms vis-à-vis the companies for Chevalier's thesis to carry weight. The very least that is required is an analysis to establish whether there are any other important influences that will bear on the Norwegian case study.

For these reasons Chevalier's approach cannot simply be 'applied' to the Norwegian case. But its main importance has nevertheless been its emphasis on the mutual interaction between 'objective' circumstances (the shape of the LRMC curve) and the political

- factors. There could have been no OPEC 'revolution' unless there had been at the same time a development of political consciousness.
- 85 Even if such changes are often seen as totally exogenous to the firms and the nation-states, this is not always the case. Cost conditions (which help to define rents) can be influenced by different state policies like depletion. A lengthening of the production profile may for instance increase operating costs per barrel.
- 86 21 February 1973.
- 87 Smith and Wells (1975), p.18.
- 88 ibid, p.23.
- 89 Odell (1975b), p.55.
- 90 Adelman (1975) suggests that retroactively increasing the taxation rate is one way of stopping further exploration in the North Sea, the rationality of which as a policy instrument he does not put in doubt. He simply states that "... someone will say this is morally reprehensible, but that is not my concern." (p.103).
- 91 The US Renegotiation Act, quoted in Kubbah (1974), p.77.
- 92 For a further analysis of the concept of 'ideology' see Mohun (1979).
- 93 This discussion is developed on the assumption that the taxation system in operation is unable to capture all the oil rents. For a full explanation of this assumption, see pp.
- 94 We must assume that the time distribution of costs and revenues does not change if the shortcomings of the undiscounted graphical approach are to be superseded.
- 95 But thinking about 'take' at the margin can be quite misleading, as the conclusions drawn depend upon the nature of the tax system. A sufficiently flexible tax system could ensure that the government was effectively guaranteed the total rent no matter how much the 'take' was at the margin, while the companies were left with their 'normal' profits. If on the other hand we are faced with a more rigid taxation system (the more realistic proposition that underlies this discussion), then a higher 'take' at the margin might be an indication of a 'tougher' bargaining position (and the same conclusion would not hold).
- 96 Odell (1975b) explicitly places the strategies of the oil companies in the North Sea in the context of their overall global strategies.

97 In practice a government will use a combination of policy instruments. But the best way of analysing the problem at hand is first to examine one instrument at a time; pp.69-70 will discuss different policy 'packages'.

98 Bidding can also take place with respect to other variables such as deferred bonus bids, royalty bids, and work commitment bids, see Crommelin (1974). But normally the system relies on cash-bonus bids.

99 Dam (1976), p.174.

100 ibid.

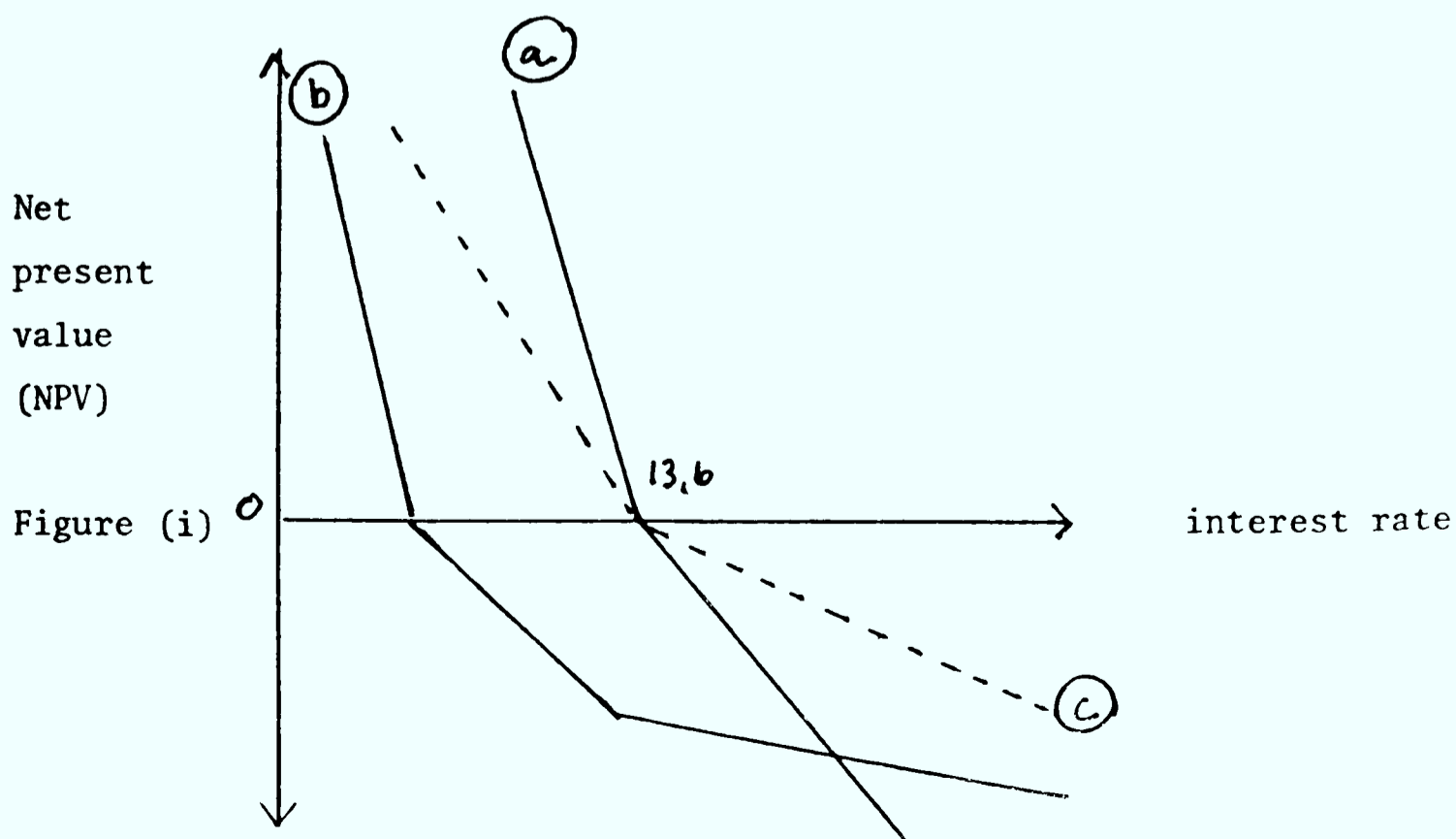
101 From a sample of seven offshore oilfields in the Gulf of Mexico, where the bonus-bidding system has been perhaps further refined than anywhere else in the world, the lease bonus paid per barrel ranged from 'negligible' to 26 cents, with an average of 11 cents. This compared with a profit per barrel of between 32 cents and 118 cents (average 90 cents), Weaver et al (1972), Table 1.

102 ibid., p.26.

103 PPS, August 1972, p.278.

104 This was certainly the case with the limited auction experiment in connection with the 4th round of licences in the UK in 1972, which later was one of the reasons for setting up the Committee of Public Accounts to review thoroughly the British oil policy.

105 To do this, we first adopt the same framework as Van Meurs (1971), p.93, who assumes that \$100 is invested at year 0 and then \$20 is earned at the end of each year starting in year 3. This will give an NPV curve like ^a in Figure (i) with a corresponding internal rate of return of 13.6%.



According to Van Meurs (1971), a state which wants to appropriate its share of the oil rent can use the following policy instruments:

1. Initial cash-bonus/Bonus at discovery-date.
2. Fixed annual surface duty.
3. Increasing yearly surface-duties.
4. Fixed royalty.
5. Royalty on a sliding scale.
6. Profits tax (inclusive of all allowances).
7. State participation with or without a state oil corporation.
8. Progressive profits tax.
9. Resource rent tax.

106 ibid, p.95.

107 The NPV schedule in footnote 105 shifts to the left (schedule b) when there is state participation with a compensation rate lower than the IRR to be earned in the original project. A proper compensation rate yields schedule c.

108 It is possibly doubtful to assume that companies will invest in projects with a negative NPV.

109 Lovegrove (1975), p.91.

110 Under conditions of uncertainty, the time element of payment will again determine a policy's attractiveness to the company. But the distinction between ex ante, mixed and ex post discovery payments becomes of increasing importance as the probability of success of a wildcat strike diminishes. In particular, the lower the probability of success, the less will be the relative weight of the post-discovery outlays. This is clearly seen in the case of state participation, the attractiveness of which as a policy diminishes once we allow for uncertainty. The reason is that while in the 'no-risk' case the company would receive a yearly 'participation-credit' per year to pay for the company's initial outlays; if there is a chance that no find will be made there is an equal chance that an oil company will not receive such a credit. Uncertainty on the other hand has no qualitatively different influence on any 'taxation package'. Hence when allowing for uncertainty the tax solution appears marginally more favourable to the oil company than a participation solution. But this conclusion, taken from Van Meurs, has been built on a number of doubtful assumptions. Most importantly the argument presented in connection with state participation under uncertainty only relates to exploration activities and may therefore turn out to be relatively insignificant in financial terms. As the amount of post-discovery

investment increases, then the relative disadvantage of state participation will diminish. Finally, if the state does not have to pay any exploration costs the problems raised here would not arise.

- 111 The combined influence of bonus payments, surface duties and royalties will normally not be larger than the sum of their individual parts as an increase in any of these variables will be 'softened' by the existence of a profit-taxation system. A similar conclusion can be drawn when we analyse the effect of a policy package under conditions of uncertainty. Van Meurs (1971) p.102.
- 112 Garnaut and Ross (1975), p.284.
- 113 See Kemp (1976), Conclusion.
- 114 The 1933 agreement between AIOC and Iran contained a clause that gave Iran 20% of AIOC's net profit. However, subsidiaries of AIOC only referred a minor part of their profit back to AIOC, with a subsequent tax loss to the Iranian state. For instance British Tankers Company announced a net profit of £10mill. in one of the pre-war years of which only 2.4% was transferred back to AIOC. This intra-firm manipulation was easy to carry out because the Iranian state had no representatives on the decision-making board. Mikdashi (1966), p.113.
- 115 Tugendhat (1968), p.180.
- 116 Garnaut and Ross (1975), p.277.
- 117 ibid, p.280.
- 118 We are not here considering the case of 100% state participation which will be treated separately - see Chapter 8.
- 119 Wyller (1973) (1975) has been a particularly strong advocate of such a view in the Norwegian context, and has centred his analysis on the key role that Statoil has as a supplier of premises for the decision-making process within the Norwegian state.
- 120 The attempts by the Algerian state more closely to control the financial operations of SONATRACH led in 1970 to a confrontation between the two, the outcome of which, according to Madelin (1975), was that "the managers of the state enterprise prevailed over the controllers of national finances" (p.122).
- 121 Pertamina's financial manipulations, diversification and ensuing massive indebtedness of several billion dollars at one point threatened the whole state of Indonesia with economic collapse (Sunday Times, 9 November 1975).

- 122 For a critical view of this relationship by a French Parliamentary Committee see Rapport de la commission d'enquête parlementaire (1975), p.228.
- 123 "In embarking on a policy of rapid exploitation from the very start ... successive governments realized that in doing so less time was left for their own indigenous industry to make itself ready to seize opportunities." Sir Robert Marshall, Secretary, Department of Industry (CPA (1973), p.141).
- 124 One of the factors that was taken into account when the first round of licensing took place in the UK in 1964 was "(ii) The United Kingdom would gain substantially from the production of indigenous oil or gas, providing an addition and secure source of primary energy and benefitting our balance of payment". Quoted in CPA (1973), p.24.
- 125 There was in 1976 a difference of \$52/tonne between the value of crude and refined products like naphta; \$232/tonne when compared with a basic petrochemical input like ethylene. Naphta sold from \$140/tonne, ethylene \$320/tonne (FT, 14 May 1976) compared with a price of crude of \$88/tonne. Crude transformed to textiles gives a value added of up to sixty times the original value.
- In the example of Britain the oil companies originally planned to refine and further process only 35% of the oil from the North Sea in the UK (FT, 28 April 1976). From their point of view this was perfectly rational. Their own profits might not be maximized by, for instance, bringing oil ashore in the Shetlands and then shipping it to Britain in order to re-ship it in processed form elsewhere, while from a British balance of payments point of view this might well have been the best strategy. Such a state of affairs is the perfect example of the almost inevitable incongruence between the interests of a nation state and that of a transnational firm. The original estimates by the North East Office were that £670-780 million per year could be saved on the balance of payments if the planned exported volume of crude was refined in Britain. This situation was recently highlighted further by the \$1 billion deal concluded between Northern Liquid Fuels international and Shell UK for the supply of natural gas to the US for further processing there (FT 8 April 1976).
- 126 The distinction between maximum output and maximum balance of payment effect was particularly important in the period up until 1973 (for a fuller discussion see Section 4.2, which deals with the

British 1965 allocation). After 1973 the increase in rent for each barrel of oil has tended to 'swamp' the other effects.

127 Mikesell (1970) Chapter 6 suggests that the confrontation between an international company and a raw-material producing state can be expressed by the general concept Retained Value (R), which is defined as:

$R = T$ (recurring taxes paid to the government. For the oil industry this would be royalties + profit tax + customs on imported material + others)

+ N (non-recurring taxes. Area and initial exploration taxes)

+ E (government foreign exchange profits. Especially in third world countries where there are non-convertible currencies and multiple exchange rates)

+ W (wages and non-wage remuneration paid to employees. A special point in question is how much money in wages, and money in terms of profit is being transferred abroad without the knowledge of the Central Bank of the producing country.

+ D (domestic purchases of goods and services by the oil industry.

Found by the petroleum sectors internal monetary payments)

What percentage R constitutes of value of the total output is then seen as a very rudimentary index of 'toughness' of a government vis-à-vis an international company. Superficially 'retained value' would seem to be exactly the kind of concept we are looking for as it includes both spinoffs and rents. But unfortunately this is not so. The weakness of Mikesell's concept becomes clear if it is scrutinized more closely. First, it talks in terms of gross values, i.e. all problems in connection with depreciation are disregarded. A relatively high percentage R thus isn't necessarily a positive thing if all capital stock has already been depreciated. Secondly, marginal propensity to import out of wages paid nationally is disregarded, which on a priori grounds can be expected to be higher than the national average. Thirdly, the concept is nothing more than a sophisticated notion of 'government take' and is therefore undiscounted, the shortcomings of which we have already discussed at length. Finally, it misses the point about differential rent. Therefore a cross-section analysis between countries will make little sense, as different margins may be involved. (But on the other hand the development within one country over time may be at least suggestive, providing that no new and e.g. high productivity mines yielding differential rent come into operation to wreck the

'ceteris paribus' assumption.) Murray , in his more general criticism of Mikesell, emphasises the latter's disregard for what the state's income is used for, as well as his disregard for the basic forces which make transnational firms invest in third world countries.

FootnotesChapter 3

- 1 Newendorp (1975), p.45.
- 2 Layard (1975), Introduction p.32.
- 3 Adelman (1972), p.76.
- 4 Quoted by Prof. J.M. Chevalier in an interview with PN in July 1976. The case in question emerged during his inquiries as to why Esso (France) earned such low rates of return during the early 1970s. The companies' argument also presupposes that their own entry into high-cost areas is 'inevitable'. Often, but by no means always, this is a decision taken for private reasons, partly because the companies are not allowed into certain low-cost areas like Iraq. Western demand could, however, possibly be satisfied from these low-cost sources if the social organisation of the industry were different.
- 5 In the early 1960s the degree of self-financing was above 90%, while by 1972/73 the companies were on average covering 70% of their investment through equity. Anonsen (1976), p.1.
- 6 Mobil's 1975 takeover of Marcor, a paper and mail-order conglomerate (Sunday Times, 25 April 1976, p.63) was especially singled out in US public opinion for attack. A view of the companies' diversification into mining is given in the Economist, 15 September 1978.
- 7 When C. Howard Hardest Jr., Chairman of Continental Oil, was asked in 1975 by the Senate Anti-Trust Committee whether Continental's coal subsidiary, Consolidated Coal, which controls 10% of the US coal market, would try to underbid Continental Oil in seeking utility business, his answer was: "No sir, under no circumstances". Robert Sherill, 'Breaking up Big Oil', New York Times, 3 October 1976, p.98, quoted in Oppenheim (1976), p.55.
- 8 Why there are consortia in financing can be explained by one of the more general insights of game-theory: the importance of attitude towards risk. The realization that a company's (or a state's) attitude towards risk basically depends upon two variables, financial position and pure 'subjectivist' factors, opens the way for an explanation of why companies actually take on concessions in consortia. This is to avoid the phenomenon called 'gambler's ruin', where in order to avoid 'putting all their eggs in one basket' the companies spread their investment capital over a number of concessions.

One immediate consequence of this is that the likelihood of effective competition between companies which cooperate within consortia is even less than before.

- 9 Lack of new acreage is not necessarily a permanent constraint. Because oil is not only found in structural traps but also in stratigraphic traps, there are not necessarily a given or finite number of promising structures in an area to be drilled.
- 10 See for example Robinson and Morgan (1976d): "All the NPV calculations shown in this paper use a 20% discount rate (after tax)... Since all our calculations are in current prices, the implied real discount rate is substantially less than 20%" (PN emphasis) (p.6).

Ot.prp. no.26 (1974/75) also adjusts the discount rate according to inflation: "The choice (of a 15% discounting factor PN) must to some extent be viewed in conjunction with the high rate of inflation we appear to be experiencing at the present time" (p.92, British translation).

- 11 For an overview see in particular Johansen (1967) (1978), and Layard (1975) Introduction. We must however present a very minimal theoretical background to the problem. This is necessary for our subsequent quantification of the social rate of discount.

The social rate of discount is a very much more composite concept than the corresponding private rate. According to Johansen (1967) p.27, the full formulae for the definition of the social rate is:

$$P_1 = r + (-\hat{\nu}) G_1 - ((-\hat{\nu}) + (\gamma - 1)) V_1$$

The value therefore depends upon three broad sets of variables:

- the subjective rate at which the state is willing to trade consumption 'today' for consumption 'tomorrow', r .
- the increased marginal utility which results from the increased consumption in the future that an extra investment will bring about, ($\hat{\nu}$ = elasticity of marginal utility, G_1 = rate of growth of total consumption)
- the rate of population growth V_1 , and a value γ to bring this population growth into the state's preference function.

It should be immediately clear that the value of P_1 contains a large element of subjective evaluation. Any subsequent numerical assessment of the value of the social rate of discount will therefore be partly arbitrary.

Note that even if we will use the social rate of discount as the appropriate discount-rate in our subsequent analysis, the former discussion about the characteristics of the private rate of discount has not been in vain. In particular the effects of the rate of inflation on the rate of discount will also be relevant for our present discussion.

- 12 Note that what is being said here does not conflict with what is being said about 'risk' below, p.89. Here we are talking about the variance of the expected present value of the field, while in Chapter 2 we are more interested in the mean of the expected present value.
- 13 Sen (1961) provides an analogous argument with respect to saving, whereby the individual's savings decision is influenced by the uncertainty associated with the expected outcome of that decision; an uncertainty that would cancel for a savings decision taken by society as a whole.
- 14 Note that we can (and do) make a distinction between politicians' and the state's discount rates. Robinson and Morgan (1976b) may well argue that the politicians have a time horizon which stretches no longer than to the next election, and that the state's discount rate should be higher than the companies'. What we argue is that the state's discount rate will be lower because its planning horizon is much longer than the politicians'. For a further discussion of the difference between the 'state' and 'politicians', see Nore and Green (1977), Chapter 12.
- 15 We disregard as part of the oil rent what Cyert and March (1963) called 'organisational slack', which corresponds to the sum of payments made to members of the coalition in excess of what is required to maintain the organisation (p.36). Such a 'slack' was indeed a prominent feature of the majors in the 1950s and early 1960s, partly as a response to the high profit rates being earned. But its quantitative importance has undoubtedly decreased since then, with the relative decline in profit rates.
- 16 See Clark and Laading (1973) for a similar broad classification.
- 17 In any area like the North Sea where new techniques are constantly tested, lead times and costs normally tend to increase sharply up to a point, after which costs may even sink. This phenomenon, often referred to as flattening out of the 'learning curve', is well

described in Trimble (1976), pp.13-14.

- 18 The traditional way of measuring the concept of risk is well expressed in the following table taken from Canadian data:

<u>Type of prospect</u>	<u>r required</u>
proven and developed:	10%
considered proven, but not developed:	12-16%
probable acreage	25-40%

Quoted in Van Meurs (1971), p.65.

- 19 Newendorp (1975), p.92.

20 But even given these shortcomings, using high discount rates or requiring high rates of return remain the most common way to describe risk in the oil industry. The main reason for this is probably that such a procedure can easily be compared with other well-known ways of measuring corporate performance.

- 21 Newendorp (1975), pp.60-61. Note that our concept of 'uncertainty' is different from the kind of risk which is inherently impossible to insure against.

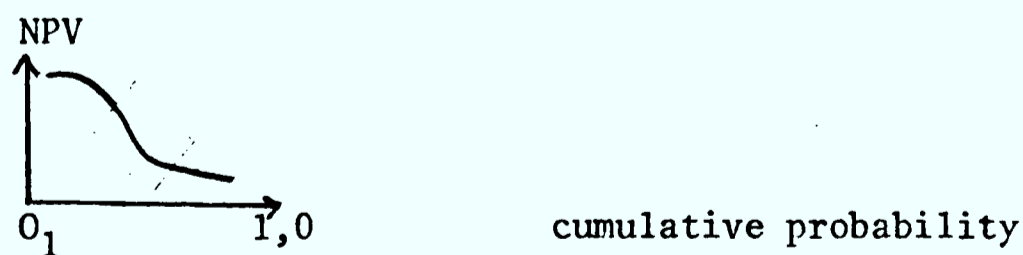
22 If the present value of a successful project is \$100mill. and the success ratio of drilling is 0.20 while the dry hole cost is \$2mill., then the EMV of such a project becomes: $\$100\text{mill.} \cdot 0.20 - (1.0 - 0.20) \cdot \$2\text{mill.} = \$18.4\text{mill.}$

23 The investment appraisal of the major companies has historically tended to operate on the assumption that the probability of finding oil from a given area is fixed (computed by the company geologists). The EMV of an 'average' field is then computed, and then compared with other size fields. The important thing to note is that the size distribution of a field is normally not used as an independent variable. (Information given to author by Ms. Katherine Erdman, investment analyst for Esso (Canada), working in Alberta, in interview September 1978.)

- 24 For an alternative theoretical approach see Clark and Laading (1973). They assume that the success ratio of a find (P) is the unknown parameter (and consequently assume that reserves will be of a minimum size). In such a case, to follow Arps (1961) (quoted in Clark and Laading pp.48-49) we can still find a measure of EPV, if we can claim to locate three points on the distribution of P. This is because it can be shown that under a number of specific statistical assumptions a quantification of the highest, lowest and most likely probability of a find of minimum size in a particular

area can lead to statements about what percentage chance there is that these three possibilities will come true. If as an example the lowest, most likely and highest probability of a find are set at 0.1, 0.33 and 0.25 respectively, there is then a corresponding 15 percentage chance that a no-risk \$6 mill. project based on a minimum size find will have an EPV of \$6 mill. x $[0.1 - R(1.0 - 0.1)]$, a 70 percentage chance that it will be \$6 mill. x $[0.1 - R(1 - 0.33)]$ etc., where R is the ratio of the cost of a dry hole to the PV. This will then give a final weighted average for NPV given these uncertainties. In a completely analogous manner it can be assumed that the size of the reserves (instead of P) is the unknown parameter and we can find the expected value of a project if P is fixed. The only problem arises because total reserves are a function of at least three variables: productive area, thickness, and recovery factor. Thus we can no longer claim that 'there is a 15% chance for x to happen', which was permissible only when one variable was brought into question at a time. Now the probability of making a find is a combination of the different probabilities of the structural variables. Again this will give us a final weighted average of the worth of the prospect, following a calculation that is repeated 81 times. (4 basic variables with 3 choices of each = 3^4 .)

One possible alternative way of utilizing a limited range of data, also chosen by Laading and Clark, is to enter the values into a large number of Monte Carlo simulations, which can then be presented in a cumulative histogram form, showing cumulative probability on one axis, NPV on the other, of the form shown below.



- 25 Section 3.4.5 argues the opposite, namely that there are (modest) economies of scale in development costs.
- 26 Ot.prp. no.26 (1974-75). But note that the use of discounted cash-flow techniques were used in the Department of Industry from 1972 onwards. Laading and Clark (1973) were the first example of oil

economists who simulated a cash-flow analysis from the North Sea, but their example was restricted to one field only, and they did not include an analysis of participation.

- 27 To carry out a discounted evaluation would have required a complicated assessment of the expected profitability of a field with a minute determination of the size and time distribution of costs and revenues. By using a zero discount rate no such complicated assessment needed to be made.
- 28 This model is based on a cash-flow model presented by G. Williams of Shell called 'Oil and gas technology offshore of the UK' to a North Sea seminar, Autumn 1972. The basic assumptions of his 'average' North Sea field were listed in PPS, November 1972.
- 29 The underlying model used by the Norwegian Ministry of Finance their work with Ot.prp. no.26 (1974-75) which dealt with the question of the special tax in the Norwegian sector.
- 30 The underlying model of the work by Robinson and Morgan (1976a,b,c,d)
- 31 Model presented by Nelson, Mobil Oil, at the 1976 Offshore North Sea Conference in Stavanger during a paper entitled 'Depletion and profitability'.
- 32 Identical with Eckbo (1976), which also was the underlying model for the Beall (1976) thesis. Permission to quote from the model specifications was obtained by PN in letter from Eckbo 2 October 1978.
- 33 The model which underpinned the work of Bjerkdahl (1975). Was made available to Norgen Handelshøyskole (Norwegian School of Business and Economics) in January 1975 by courtesy of Statoil.
- 34 The only hint that a similar methodology ever has been considered is given in a British cost study, which states: "With the data which operators have provided on their estimates and making use of available assumptions about oil-flow rates and recoverable reserves, it is possible to recreate (PN emphasis) the basic project appraisals which companies would have been examining before development starts." HMSO (1976) I, p.107. None of the data referred to was ever made public, and the proposed methodology was not followed up in the study.

35 According to Adelman, quoted in Rafał (1974), p.31, the size of the oil which passed through the world's (excluding the socialist countries) non-integrated crude market in the period 1957/67 was a mere 10% of total crude production.

36 But our production profile figures are reasonably close to Lovegrove's (1975) figures, which postulate a 14-year production span for a 200m. field compared with our 18 years.

37 Laading and Clark (1973), p.41.

38 The magnometric survey undertaken in 1962 by Aero Service Filial of Sutton Industry which covered 375 000 km² in the North Sea only cost a total of \$850,000. Cooper and Gaskell (1966), p.74.

39 Ot.prp. no.26 (1974/75), p.47

40 This is an average figure derived from Lovegrove (1975), pp.33-35.

41 Their number depends upon the technological specificity of the individual field like the productivity of the wells, which again depends upon factors like reservoir pressure. It is furthermore known that such pressure can be increased during the life of a field by 'secondary', and 'tertiary' recovery methods. We thus have a potential trade-off of speed of extraction and further investment.

Furthermore the total reserves are no unambiguous concept. The number of platforms and wells necessary to develop a field also depends upon the area over which the reserves are spread. And this area depends upon the height of the oil-bearing strata, and the porosity of the rock giving the recovery factor.

42 Development costs, according to Hinde (1966), include among other elements "fixed platforms for the deviated production wells, the drilling of the required number of wells (which will depend on the contract gas volume)" (p.164, PN emphasis). Shell's submission to the Norwegian Parliamentary Committee of Industry assumes in the circumstances they specify that "doubling of the size of a field leads to a doubling of technical units" (Ot.prp. no. 26 (1974-75), Appendix, p.5).

43 An 18-well drilling platform was described as 'typical', quoted by Martin (1974), figure 4. Apart from total reserves, the optimum number of platforms also depends upon the maximum number of wells per platform and the geological makeup of a field which determines the 'catchment' area of a platform. Our figure must therefore be seen as an 'average'.

- 44 "... a number of these wells (production wells PN) may never be used because of technical problems arising during drilling, such as lost equipment down the well, caving in of the well walls, or the cracking of casing section." Lovegrove (1975), p.41.
- 45 Cazenove (1972), pp.42-47.
- 46 Lovegrove (1975), Table 17, p.60:

<u>Item</u>	%	%
Platform Structures	29.0)	
Equipment	11.0)	
Wells	13.0)	73.0
Offshore Installation	15.0)	
Miscellaneous	5.0)	
Submarine Pipeline		15.0
Land Facilities (including a land pipeline)		7.0
Exploration		0.5
Miscellaneous Costs, including administration, land purchases, helicopter services, etc.		2.5
Financing Costs		2.0
		<hr/> 100.0

- 47 According to footnote 46 above, platform costs constitute:
29% + 11% + 15% + 5% + 2% (platform costs share of miscellaneous costs and financing costs) = 63% of total development costs.
Platform structure costs including installations in turn constitute
 $(\frac{29 + 15}{63})\%$ = 71% of total platform costs.

- 48 An assumption shared by Shell. See footnote 42 below.

<u>Year</u>	<u>% of total investment cost</u>
1	4
2	44
3	27
4	11
5	8
6	6

- 50 While the rationale for the derivation of the figures was different from the one given by us, we see that development costs increase

by a fixed \$50mill. for each \$100mill. increase in recoverable reserves with the exception of the increase from \$300mill. to \$500mill. reserves where the total increase was only \$50mill. Figures from Robinson and Morgan (1976b), p.258.

51 See e.g. Cazenove (1972), p. 74, reproduced on p.384.

The substantial economies of scale arise because top production increases at a much slower rate than recoverable reserves.

52 OGJ, 8 January 1973, p.95.

53 "A doubling of reserves from 1 to 2 billion barrels will only marginally (så godt som ikke) improve the internal rate of return ... (because) there are few economic advantages in larger projects - a doubling of the size of a field results in a doubling of technical units (PN emphasis) and hence in investments in drilling and in operating costs (produkt^ohåndtering)." Ot.prp. no.26 (1974/75), Appendix, p.5.

54 Such costs have been estimated to constitute no less than 41% of yearly operating costs, Wood MacKenzie, Oil Report, October 1975, 2.section,p.2.

55 Hinde (1966), p.164, even if he states that "slightly lower rates (in (in operating costs) per therm are allowed for the higher flow rates" (ibid).

56 Cazenove (1972), p.112.

57 Surrey (1976).

58 Lovegrove (1975), p.93.

59 By listing operating costs which on a per barrel basis are roughly equivalent to the two-tier system adopted by other analysts, there would be no bias in undiscounted terms. But in discounted terms our method underestimates the profitability of the companies as with our choice of estimating operating costs companies have to pay a larger amount of the costs earlier. But this bias fits in with our overall methodology of choosing the most conservative or cautious figures when we make our assumptions.

60 One note of caution needs to be made at this point. While the broad outlines of the different participation agreements today are known, there are nevertheless some details from the still secret agreements where we have been forced to rely on deductions and reasonable assumptions in order to fully specify the participation agreements. Whenever we make such deductions we will state them explicitly. Furthermore, the Norwegian state oil corporation, Statoil, was not created in 1969, when the first participation agreements were made, so we are in the last analysis talking about

participation as a means of taxation even if the different participation agreements were taken over by Statoil in connection with its creation in 1972.

- 61 This scenario corresponds to the participation agreement which covers the Heimdal field (Petroleum Production License No.036, block 25/4). Because it was originally thought that the Heimdal field was commercial, it was decided in February 1975 that Statoil was to exercise its participation option. This led to the publication St.prp. no. 104 (1974-75) which gives a number of details about this participation agreement.
- 62 This scenario corresponds to the participation agreement which covers the Frigg field (Petroleum Production License No.024, block 24/1). It was decided in February 1973 that Statoil was to exercise its participation option for the field, and St.prp. no.78 (1972-73) gave a number of details about the participation agreement.
- 63 It is nowhere mentioned that such an aggregation is to be discounted while exploration is going on. St.prp. no.104 (1974-75) states simply: "To repay Statoil's proportional share of all expenditure incurred by the other companies in connection with the Heimdal field..." (p.10).
- 64 We have disregarded one stipulation in the Heimdal agreement, that the companies at any one time cannot take more than 50 percent of the output which is due to Statoil in order to cover Statoil's share of the exploration costs. (No such stipulation is made for the Frigg agreement.) The reason for this is twofold. In the first place it is not clearly stipulated whether the 50% requirement referred to the whole lifetime of the field or is valid on a per annum basis. Secondly and most importantly its quantitative importance is negligible. For the 400m. field Statoil would for the first year of production be entitled to \$0.4 mill. worth of oil if no 50% stipulation holds, while if it did hold Statoil's share would have been \$1.3 mill., a difference of \$0.9 for a field with an expected net (undiscounted) worth of \$1192 mill.
- 65 This interpretation of the Frigg agreement has been confirmed by Halvor Bjerke, Councillor at the Norwegian Ministry of Finance, in a letter to the author dated 24.7.78.
- 66 See Chapter 2, p.69.
- 67 This scenario was negotiated for agreements nos. 027-030, 032, 033, but to date no commercial find has been made on this acreage.

- Consequently there is no St.prp. like there is for the other two scenarios that could tell us in more detail about the agreement. Our information about this scenario stems mainly from scattered references in a number of White Papers. See for example St.meld. no.30 (1973-74), p.44 (E).
- 68 The net-profit agreements stipulate that the extra net-profit tax is to commence "after the company has covered the costs and investments it has spent in the area of the concession" (St.prp. no.78 (1972-73), p.16). No mention is anywhere made that this calculation is to be made in discounted terms.
- 69 For a further discussion of how especially the majors reacted to the evaluated the different participation scenarios in 1969, see Chapter 5.
- 70 The only commercial find made under this scenario is Statfjord (Production Licence No.037, blocks 33/9, 33/12). For a summary of the conditions of the Statfjord agreements, see St.prp. no.114 (1974-75). On the question of exploration costs it is unambiguously stated that: "The costs that were incurred before the field was declared commercial are paid, according to the participation agreement, fully by the other (non-Statoil - PN) companies". St.meld. no.21 (1976-77), p.33.
- 71 One possible way to correct the difficulty referred to in the text is to find the government 'take' starting with the same present values in all different time periods and scenarios. But such a procedure goes against the historical nature of our investigation. It is not historically legitimate to ask what the tax-take would have been if there had been a change in the tax rate, for the simple reason that all other variables would not have remained unchanged. Indeed an increase in the tax rate was invariably in response to the changes in the other variables of our model, and consequently no simple ceteris paribus condition could hold. For example the taxation rules of 1974 were not constructed to handle fields of an expected present value of around \$100 mill. (NPV of a 200 mill. 1965 field), because of the diminished need for Norwegian output from such relatively small fields.

FootnotesChapter 4

- 1 As suggested by Wyller (1973), p. 16. Note that this argument is different from when Wyller argued that Norway perhaps should never have started the exploration for oil in the first place.
- 2 Denmark awarded (in 1963) exclusive rights of exploration and production of oil from the Danish Continental Shelf to Dansk Underground Consortium (DUC). The only condition attached to this licence was that it would be reconsidered if no production had started ten years after its signing. The leading member of the consortium was a Danish industrialist and ship-owner A.P. Møller, who cooperated with three of the major international companies, of which Gulf was initially acting as operator. The reason for this organisational form is understandable. The Danish bourgeoisie as a class is first much stronger than its Norwegian counterpart. In Denmark there had also been an overland search for oil going on from 1935, where one group had all the exclusive rights. This pattern was simply repeated when the question of offshore operations became an issue. Such a system was also implemented in other parts of the world at about the same time, e.g. in Grand Banks, USA, where an area equal in size to the North Sea was given to one Consortium.
- 3 Gulnes, interview (1976). The Oil Council was set up in 1965.
- 4 Used as an argument in St.meld. no.91 (1975-76), p.77.
- 5 For a critical evaluation of Danish oil policies, see Davis (1975).
- 6 Ot.prp. no.47 (1964-65), p.2.
- 7 ibid.
- 8 PPS, May 1965, p.187.
- 9 Ingvaldsen, MP in Stortinget, 3 June 1965.
- 10 The British rule that allowed 130 per cent depreciation on invested capital was correctly described by the Norwegian Commission as 'favourable' to the oil industry.
- 11 Ot.prp. no.47 (1964-65), p. 2.
- 12 According to PPS, August 1966, p.302, total undiscounted government 'take' as a percentage of gross proceeds totalled 24.8% in the UK, 24.8% in West Germany, 27.6% in Norway, and 22.9% in Denmark. The proposed (but never implemented) Dutch regulations would have yielded a 'take' of 32.8% for oil, and 38.2% for gas.

- 13 Statement by Minister of Power, House of Commons, 7 April 1965.
- 14 FT, (NSC I) (1972), pp.110-111.
- 15 ibid. It should be noted that the UK government consistently treated Shell as a British company, even if it was 60 per cent Dutch owned.
- 16 CPA (1973), p.141.
- 17 The difference is not immediately perceived by only examining the official statistics. Both countries had a constant balance of trade deficit between 1960 and 1965 which was only partially counter-balanced by invisible earnings. In 1965 Norway ran a current account deficit of Kr. 750mill. (1.3% of GNP), National Budget 1966, and the UK ran a similar deficit of £104mill. (0.3% of GNP), CSO Annual Abstracts of Statistics, 1966. The key difference was in the constraint the balance of payments was seen to exert on policymaking in the UK and in particular how it influenced the characteristic 'stop-go' cycle of the UK economy.
- 18 If profits earned by national companies were transferred overseas to finance exploration, then not even the fact that a company was British would ensure a positive balance of payments effect.
- 19 Gulnes (1976) Interview.
- 20 PPS, June 1966, p.226.
- 21 For an analysis of this episode, see Posner (1973), Chapter 11.
- 22 Oil originates from organic matter (plants and animals) which were deposited on the bottom of prehistoric oceans and lakes. These organisms turned into oil when subjected to bacteriological activity, high temperature and pressure over a period of millions of years. The first precondition is that such material was gathered together in substantial quantities. Once the oil had been created, reservoir rocks capable of sucking up the oil must secondly have existed. Thirdly, since oil and gas are lighter than water and subsequently move upwards through the porous reservoir rock, this movement had to be stopped by heavier rock. Finally, there must have been 'traps' where the rising oil could have gathered. There are a number of such different 'traps', the most common being the anti-clinical trap. See Hageman (1975), p.65.
- 23 A. Hamilton, 'The prospects for more British oil', Observer, 15 October 1978.
- 24 Gulnes Interview (1976).
- 25 St.prp. no.1 (1967-68), p.19.

- 26 Ot.prp. no.47 (1964-65), p.3.
- 27 A. Wormedahl, MP, in Stortinget, 23 December 1965.
- 28 Gulnes Interview (1976).
- 29 Callow (1973), p.155.
- 30 Sander and Humphrey (1975), p.11.
- 31 Dunn (undated), p.2.
- 32 Sunday Times, 7 June 1970.
- 33 Dunn (undated), p.3.
- 34 Goksøyr Interview (1976).
- 35 Geologists tend to disagree sharply when they assess the prospects of a small area, e.g. where in a structure to drill a well. There is normally much more agreement about the general shape and prospects of a larger sedimentary basin like the North Sea in 1965. Cf. a comment by Evensen: "It was striking that geologically the companies assessed the situation so similarly", Aftenposten, 19 August 1965.
- 36 At the time no specialised personnel worked for the Petroleum Division, Ministry of Power, on offshore licensing work. By 1972 no more than nine persons were employed by this section. CPA (1973), Annex 2, p.35.
- 37 ibid, p.23. Later, when asked to explain in more detail the meaning of this statement, the Secretary of State for Industry Sir Robert Marshall denied that this was the case (ibid, p.126). But in his answer to the Committee of Public Accounts he referred to the situation after the first exploration drillings had been made. The fact that the Department had access to "cores from exploration and appraisal wells" (ibid) in no way answered the fundamental question of whether it knew anything about the likely chances of finding oil based on the seismic material shot in the period until 1964.
- 38 ibid, p.124.
- 39 Oil on troubled waters (1976), p.2.
- 40 PT, 11 June 1965.
- 41 Odell (1972), p.33.
- 42 Gougouillon and Rastoul in Revue de l'Energie (Nov/Dec 1975), p.95.
- 43 White (1973), p.81.
- 44 ibid, p.64.

- 45 This conclusion was further supported by an internal anonymous memorandum of the Institute of Petroleum that stated:
- "The technicalities of the operation (drilling in 1965 PN) are well within the oil industry's power." (Continental Shelf file, IP).
- 46 D.F. Dohm, Executive Vice President, American International Oil Company, in Offshore, December 1965, pp.45-47. He also stated:
- "... important new technological breakthroughs, which have sharpened the industry's finding-tools and well completion practices, offer hope of greatly decreased costs in future offshore activities" (ibid). Of these breakthroughs he included the airborne magnometer - "a remarkable physical breakthrough", the further refinement of reflection seismic technique, and the gravimeter and electronic counter.
- 47 See exchange between Parliamentary Select Committee Chairman E. Dell and a Department of Industry witness, where Dell makes a similar point. CPA (1973) p.125.
- 48 ibid, p.126.
- 49 See e.g. statement by Dohm, Footnote 46 above.
- 50 Article 26 of the Decree of 9 April 1965 stated that royalty should be "10% of gross value at well-head of the products extracted". Article 30 read that "Partners are to seek agreement on the value of petrol... If no agreement is made, the basis shall be the fair market price".
- 51 Evensen (1973), pp.51-54.
- 52 But as it turned out (in connection with Phillip's first production from Ekofisk in the beginning of the 1970s), it was not particularly easy to define a "fair market price". This soured the relationship between the Norwegian government and Phillips long before the pipeline confrontation in 1972/73. The wording of the new December 1972 Decree therefore tightened up the 1965 provisions to create a system that eventually gave the Norwegian government a much freer hand in setting the price of oil.
- 53 Imported oil accounted for 35.8% of total Norwegian energy consumption in 1965, compared with an average of 32.6% for Western Europe as a whole. (Darmstaedtler (1971) quoted in Noreng (1979), Chapter 1). But this percentage was rising much faster for Western Europe as a whole than in Norway, as the coal industry was rapidly being run down.
- 54 pp.164-67.
- 55 OGI, July 1964, p.64.
- 56 ibid.

- 57 All assumptions with respect to the above variables are set out and justified in detail in Chapter 2.
- 58 Cazenove (1965), p.6, gives an average figure of between £0.5mill. and £1.0mill. Assuming an average of £0.75mill. and that £1 = \$2.80, we arrive at an average cost per exploration well of \$2mill. Shell (1963) gave a maximum figure of £1mill. for a North Sea exploration well.
- 59 Parra in Offshore Development, Economist Intelligence Unit, 1972, p.98. The average figure remained very stable between 4% and 6% during the period 1963 to 1969.
- 60 Unfortunately there are no publicly available cost data from the Gulf before 1967. But it is reasonably safe to assume that costs did not change dramatically during the period 1965-67, especially as no fundamental technological breakthroughs took place with respect to offshore exploration during this period. By using the 1967 figures we implicitly assume that whatever increase took place in efficiency of operation was counterbalanced in money terms by the moderate inflation at the time.
- 61 Economics of Offshore Louisiana, presented at the Annual Meeting of 'Louisiana-Arkansas Division of Mid-Continent Oil and Gas Association', 12 September 1967, p.12.
- 62 See pp.123-124 above. Because the companies could not have expected to undertake any development work until the late 1960s at the earliest, this would have given them further time to develop their offshore technology if they thought this was necessary to deal with conditions in the North Sea.
- 63 Note how our cost distribution developed in Chapter 2, which yields the figure \$1.0mill. for equipment costs above, is indirectly confirmed by an independently assessed equipment cost for the production platform of \$1.1mill. Weaver (1972), Appendix B (computed with respect to Platform A).
- 64 Hinde (1966), p.165, for a 20" line.
- 65 FT, 13 December 1964. Estimate for a pipeline in the Southern North Sea.
- 66 Normally this item is no more than 4% of total development cost (see Chapter 2). But because of the special circumstances in the North Sea and the fact that the North Sea was a totally untried area at the time, we have added an extra reserve of \$5mill. to total development costs. This procedure is also in line with our approach which throughout attempts to use 'cautious' or conservative cost estimates.
- 67 Weaver (1972), p.22. This figure is more comprehensive than the one we have used for development costs, as it also includes expenditure on dry exploration wells, and geological and geophysical costs

- (ibid, p.24). The estimated investment costs per barrel range from \$0.32/bbl to \$1.⁴/bbl. (ibid, p.22).
- 68 Weaver (1972), p.17. The seven fields in the Gulf case study had operating costs between \$0.32/bbl. and \$1.12/bbl.
- 69 UN trade statistics, quoted in Jacoby (1975), p.231.
- 70 March 1964, p.82.
- 71 Helliesen (1975). The 10% is an average value when we use different assumptions about the variables that according to Johansen (1967) help to determine the social rate of discount. Lindstad and Sager (1973) estimate the rate to be between 7.5% and 8.5%, Johansen (1967), p.31, estimates the rate to be between 12% and 13%.
- 72 Unfortunately this return of investment cannot be compared with the normally cited average rate of return on capital for the major companies outside the US, which was 12.5% in 1965 (Jacoby (1975), p.248); because the latter is the percentage of net income to net assets, i.e. an undiscounted figure. For a rough comparison, however, see footnote 73 below.
- 73 If we compute expected net profits over total investment (a proxy for net assets) for a 1965 investment in the North Sea, then a 700m. field with 1:20 success rate would have given a total undiscounted company post-tax profit of \$633mill. earned on a total investment of \$362mill. The profit margin per barrel is therefore around \$1, and if the undiscounted profit is spread equally over the 26 years (the lifetime of the field), this will yield a yearly rate of return of 8% p.a. As a contrast, prior to the royalty expensing decision of 1965 a genuine 50/50 split of the price of one barrel of Arab Light would have given the companies a net profit of \$1.50/2 minus production costs (15¢/bbl) = 60¢/bbl.
- 74 Gaskell (1965).
- 75 Government 'take' during the first round was 56%. St.meld. no.11 (1968-69), p.6.
- 76 But its effect in undiscounted 'take' would have been greater. For the 700m. field it would have increased by 4.6% (own estimate).
- 77 St.meld. no.11 (1968-69), p.5. A drastic change in the tax rates could in theory have achieved the same effect, but such a change would be very difficult to implement. Cf. Section 8.3.16 below.
- 78 St.meld. no.22 (1965-66), p.13.
- 79 St.meld. no.22 (1965-66), Section (a). PN emphasis.

- 80 25% of the area had to be relinquished after six years, a further
25% after nine years. The total life of the licence was 46 years.
- 81 Gulnes (1972b), p.198.
- 82 These totalled an initial payment Kr. 10,000 plus Kr. 500 p.a. in
area fees per km² during the first 6 years, then increasing by
Kr. 500 p.a. until a maximum of Kr. 5,000 per km² p.a. would be
reached after 16 years.
- 83 The Norwegian Minister of Industry at the time, Karl Trasti, was
reported as saying about these negotiations: "Like the British
government, Norway turned back many of the proposed work programs
submitted by the companies, saying they were not good enough.
Improved schedules were then re-submitted and 'satisfactory' under-
takings have now been obtained." Reported in OGI, September 1965,
p.93.
- 84 St.meld. no.22 (1965-66), Section (a).
- 85 OGI, September 1965, p.93, and Dam (1965), pp.54-55.
- 86 St.meld. no.22 (1965-66), p.4. The Norwegian phrase is:
"i noen utstrekning".
- 87 St.meld. no.30 (1973-74), p.69.
- 88 When a comparison is made with the UK it should be remembered that
each Norwegian block was about twice the size of the UK's, 500km² vs.
256km² (100 square miles).
- 89 Outlined in St.meld. no.25 (1973-74), p.15 (Appendix).
- 90 Karl Trasti described this approach: "We have tried to allocate the
blocks in such a way that the various applicants are represented in
different geological structures. We have naturally taken into
account the preferences expressed by individual applicants for
particular blocks and for certain areas." OGI, September 1965,
p.93.
- 91 Gulnes (1972a), p.97.
- 92 Director Dr. Jens Halvard-Bratz in Industriforum 1973, 'Perspektiver
på petroleumsfunn i Nordsjøen', 8 February 1973, p.6.
- 93 Ministerial answer in Stortinget to Invar Helle MP, 17 January 1973.
- 94 Quoted in CPA (1973), p.42.
- 95 The full consideration reads: "... the contribution the applicant
had made or was planning to make to our economic prosperity, including
the strengthening of the UK's balance of payments and the growth of
industry and employment in the UK, with particular reference to
regional considerations", quoted in CPA (1975), p.27.
- 96 St.meld. no.22 (1965-66), p.4.

- 97 Halvorsen (1967), pp.230-33.
- 98 Burmeister & Wein, Copenhagen; Grängen, Sweden; and Rosenberg, Stavanger.
- 99 Tveit (1973-74), p.182.
- 100 Guardian, London, 21 March 1973.

FootnotesChapter 5

- 1 PPS, July 1969, p.250.
- 2 St.meld. no.95 (1969-70), p.13. This included construction of land bases and other infrastructures. The original cost estimate was Kr.600mill. but more wells had been drilled by 1970 than was originally anticipated.
- 3 Letter from the Oil Council, 2 March 1968, quoted in St.meld. no.11 (1968-69), p. 8.
- 4 OGI, May 1969, p.40.
- 5 Callow (1973), p.75.
- 6 ibid, p.74.
- 7 St.meld. no.76 (1970-71), Appendix 12, confirmed that there was an intense geological activity in what was to become the Frigg area, during 1968-69.
- 8 October 1977, p.45.
- 9 Answer to question in Commons, 17 January 1967, quoted in IPR, February 1967.
- 10 OGI, May 1968, p.47.
- 11 p.81. PN emphasis.
- 12 May 1968, p.44.
- 13 OGI, May 1969, p.40.
- 14 According to Gulnes (1972b), p.203, "The find (of COD, PN) gave the state the possibility of achieving better terms than those which had been obtained in 1965."
- 15 Evensen (1971), p.87.
- 16 ibid, p.92.
- 17 St.prp. no.1 (1969-70), p.21.
- 18 See Chapter 4, footnote 12.
- 19 PPS, July 1969, p.250.
- 20 Thus the price agreed with Phillips of 2.47 d/therm fell short of the industry's pleas for a price of 4-5 d/therm and in that way represented a partly successful attempt by the British state to appropriate part of the rent from the gas production. We are not suggesting that the UK government in this way managed to extract all the rent from the companies. But we are suggesting that the companies encountered a political problem which they thought they could control, hence the violent nature of their reaction. See also Posner (1973), Chapter 11.

- 21 OGI, July 1967, p.8. See also Labour Party (1967) (1968).
- 22 This move was intimately linked to BP's attempts to enter the US market via its bid for Sohio, and its exploration efforts in Alaska. According to Turner (1975), "No British government was (therefore) going to take actions which might offend the American majors" (p.97), because the US government could easily use US anti-trust legislation to block BP's entry into the US market.
- 23 "A refined type of turbo-drill, the Whittle has been put into use at several North Sea locations." PPS, July 1969, p.256.
- 24 May 1967, p.178. PN emphasis
- 25 Shell (1968), Appendix 6.
- 26 Sunday Times, 7 June 1970.
- 27 The Labour Party (1968), p.21. A similar figure was repeated as late as 1972 by Sir David Barran, Chairman of Shell, as an average cost of an exploration well in the northern parts of the North Sea. PPS, April 1972. Sir Barran was within average also including production wells but because none had by then been drilled in the very north, and only a handful in the centre part of the North Sea, we will use his figure as a rough guideline for exploration costs.
- 28 Shell (1968), p.6. The acreage taken up in 1965 was generally in more shallow water than the 1969 acreage. But the Shell platform cost can serve as a check on our original 1965 figures. The total cost including installation of \$10.5mill. is sufficiently close to our original cost estimate of \$6.2mill., when higher cost for deeper water is accounted for, to validate our 1965 figure.
- 29 ibid, p.7.
- 30 ibid, p.7.
- 31 Wenger (1971), p.25.
- 32 The 240 km Cod-pipeline to the Norwegian coast was expected to cost Kr.390 mill. PPS, July 1968.
- 33 UN statistic quoted in Jacoby (1975), p.241.
- 34 Goksøy, Interview (1976).
- 35 St.meld. no.78 (1972-73), p.6.
- 36 Bank of England. Statistical Abstracts, No.2, 1975, gives the rate at the last working day of 1969 to be 10.06%.
- 37 The original state participation rate was 36%. This only increased to 40% following a 'farm-in' agreement in 1971. There were also some agreements along the same lines with a lower participation rate. The 40% participation must therefore be seen as an absolute maximum rate.

- 38 Law of 19 June 1969 "Om særregler av aksjeselskaper og aksjonærer" paragraph 8.
- 39 To the extent that this was expected by the companies, their tax burdens would have been correspondingly decreased.
- 40 Quoted in Bulletin de l'Industrie Pétrolière, 31 March 1969, p.6. Note however the important rider, "at the moment".
- 41 St.meld. no.11 (1968-69), p. 6.
- 42 We shall later see how this aversion to risk remained a constant feature of the state's attitude throughout the period under study, and that the creation of Statoil, and in particular Statoil's active intervention in drilling, presupposed the partial breakdown of this risk-aversion on the part of the state.
- 43 St.meld. no.95 (1969-70), Part III.
- 44 Wenger (1973), p.165.
- 45 Confirmed by a source in the Norwegian Ministry of Industry.
- 46 An alternative version of this episode could claim that the Norwegian state was at the time dominated by the major oil companies which forced the Norwegian authorities not to accept the Rinde offer for fear that they would have to follow suit in the terms offered by Rinde to the Norwegian state. But we reject such an interpretation both on the general grounds that the relationship between the Norwegian state was NOT one of such direct subordination by the state, and also because the state at the time seemed eager to increase its participation share.
- 47 Quoted in Bulletin de l'Industrie, op.cit.
- 48 Letter from Oljerådet, op.cit. quoted in St.meld. no.11 (1968-69), p.6.
- 49 Total exploration costs of the first round of Kr. 720 mill. spread over five years.
- 50 Letter from the Oil Council, op.cit.
- 51 Data supplied to author by Norsk Rederforbund.
- 52 In 1968 'net freight earnings' of Kr. 6.9 bill. helped to cover a visible trade deficit of Kr. 5.0 bill. OECD Economic Survey, Norway, January 1975, pp.61-62. Solli (1972) has a more critical assessment of the contribution of the Norwegian shipping industry to the Norwegian economy which does not share the assumptions made above, and which by implication casts doubt on the objective 'bargaining card' which the companies actually wielded.
- 53 St.meld. no.95 (1969-70), Part III.

- 54 Goksøy, Interview (1976).
- 55 In St.meld. no.11 (1969-69), the Department of Industry wrote:
"... the state has not sought to give Norwegian participation a larger part of the future activities than the Norwegian private sector (næringsliv) until now has found it appropriate to participate with." (PN emphasis, p.7).
- 56 ibid.
- 57 The Consortium consisted of 19 major Norwegian industrial and shipping firms which are listed in St.meld. no.30 (1973-74), p.76. E.
- 58 Letter from the Oil Council, op.cit.
- 59 NI, 4 November 1968, Editorial.
- 60 ibid.
- 61 Naustdalslied (1975b), p. 33.
- 62 Turner (1975), p.96-97.

FootnotesChapter 6

- 1 Frank J. Gardner, OGJ, 25 May 1970, pp.33-36.
- 2 January 1971, pp.15-18.
- 3 PPS, August 1972, p.309.
- 4 The companies had found promising traces of oil and gas 25 miles north of 211/21 as early as May/June 1971, but had managed to keep it a secret. PPS, September 1972, p.319.
- 5 O. Harbek, Executive Oil Services a/s, a Norwegian broking and consultancy firm, interviewed in Aftenposten, quoted in PPS, September 1972, p.345.
- 6 Frank J. Gardner, 'Norway gearing up for a big future in petroleum', OGJ, 29 November 1971.
- 7 OGJ, 25 May 1970.
- 8 OGJ, 29 November 1971, Gardner, op.cit.
- 9 The overview of completed seismic surveys (St.meld. no.76 (1970-71), Appendix 10-14) shows that by 1970 the extent of this tertiary basin must have been known for at least four years to the companies. The most complete seismic overview of the area had been made as far back as 1966.
- 10 Callow (1973), p.155.
- 11 OGJ, 25 May 1970, p.34. PN emphasis
- 12 OGJ, 29 November 1971, p.36. PN emphasis
- 13 St.meld. no.95 (1969-70), p.17.
- 14 ibid, pp.15-16. State seismic shootings were seen as a prerequisite "if Norwegian interests are going to become more actively involved in the exploitation of such resources" (St.meld. no.11, (1968-69), p.6). 'Norwegian interests' meant nothing but private Norwegian interests and the state's actions could still be interpreted in the sense outlined in Chapter 5 as basically supportive of Norwegian industry rather than trying to build up an autonomous state sector.
- 15 ibid, p.16.
- 16 ibid.
- 17 ibid.
- 18 This was a tactic used with great skill by the companies in other producer countries. See e.g. Tugwell (1975), Section III, for such an analysis of the Venezuelan case.

- 19 See Innst. S. no.294 (1970-71), p.638, for a list of these ten 'commandments'.
- 20 Shell and Esso both returned more than the compulsory minimum of 25% (both handed over around 45%), but there were other companies which returned nothing but the absolute legally minimum. The overall percentage of relinquishment was 30%. St.meld. no.81 (1974-75).
- 21 OGJ, 29 November 1971, p.19.
- 22 OGJ, 10 August 1972, pp.34-35.
- 23 The original proposals made by the DNA government were believed to have been "slightly moderated during the past two months as a result of talks with the oil companies", FT 9 December 1972. But the expectation that anything should change with respect to the principle of 'carried interest' following the downfall of the DNA government turned out to be false.
- 24 For a fuller overview of the issues in the EEC campaign see Nore (1975).
- 25 According to the Daily Telegraph, 4 October 1972, "One of the factors in making the Norwegians decide against the EEC was a statement from Brussels that North Sea oil should be regarded as Common Market oil, rather than the property of Britain and Norway".
- 26 January 1973, pp.7-9.
- 27 In 1969 this was done for the first time. Gulnes, Interview (1976).
- 28 Aas, Interview (1976).
- 29 FT, 23 March 1973.
- 30 OGJ, 8 January 1973.
- 31 White (1973), p.61.
- 32 (£1.2m. to £1.7mm), Cazenove (1972), p.41.
- 33 PPS, April 1973, p.153.
- 34 A point also made by PPS, September 1973, p.344.
- 35 ibid.

Field	Eventual Production Rate.bbl/d	Depth of water ft.	Distance from shore miles	Date of full production	Approx. Total cost £m.	Cost per bbl/day £
Forties	400,000	420	115	1977/78	325	813
Ekofisk and surrounding fields	510,000	230	185 to Teeside	1975/76	385 (inc. under-water storage)	755
'Shell'*	250,000	n/a	n/a	n/a	250	1,000
Cazenove's field	300,000	300	120	-	228	760

*estimate given by Sir David Barran of Shell for developing a mythical field in northern waters

- 37 Aas, Interview (1976).
- 38 As in MIT (1976), p.25. Note that we are here using the MIT production profiles, while our 'normal' production profiles are from Surrey (1976), which have marginally less than 10% as peak output. This can be justified with reference to the belief in the early 1970s that the original production profiles would be somewhat steeper than what they eventually turned out to be. E.g. the final production profile of Ekofisk was a little flattened compared with original plans in 1971/72 partly because Phillips was forced to re-inject gas into the field. See St.meld. no.81 (1974-75), p.11.
- 39 Cazenove (1972), p.47.
- 40 Total operating costs would thus be $(11 \times 4)\% \times \$145 \text{ mill.}$
 $= \$63.8 \text{ mill.}$, Wood MacKenzie, North Sea Financial and Technical Background, October 1973. The lifespan of the field is 11 years.
- 41 Due to economies of scale in development costs, our procedure of treating operating costs in the above way makes the final results to some extent depend upon the size of the find. We should therefore treat this figure with some scepticism; the true figure is probably lower. As a consequence, we have run a sensitivity test assuming that the 1972 operating costs had dropped by 30% to 52.5¢/bbl.
- 42 Wood MacKenzie, 'North Sea Report', October 1973, p.23.
- 43 This is also the figure used in Anonsen (1976), p.1.
- 44 Statoil for the first time raised a loan in its own right in March 1978 when it borrowed \$300mill. on the Eurodollar market. FT, 10 March 1978.
- 45 Cazenove (1972), p.112.
- 46 NOU, 1972: 15, p.15.
- 47 PPS, August 1971, p.282.
- 48 If production was less than 40 000 bbls/d the royalty rate was 8%
- | | | | | | | |
|---------------|---|---|---|---|---|-----|
| 40-100 000 | " | " | " | " | " | 10% |
| 100-225 000 | " | " | " | " | " | 12% |
| 225-350 000 | " | " | " | " | " | 14% |
| above 350 000 | " | " | " | " | " | 16% |
- The royalty rate for gas production increased from 10% to 12.5%.

49 Ot.prp. no.65 (1971-72), p.1.

50 This tax averaged 10% of distributed dividend. ibid, p.2.

According to Norwegian taxation rules the distributed dividends can be subtracted from what is the basis of the state tax. In theory this may mean that no state tax is paid. But the firm cannot make all its pre-tax profits go towards offsetting the state tax by distributing it as dividend (before any tax is paid).

It is stipulated that:

(1) "The company sets aside an amount to tax funds which is sufficient to cover the income taxes which accrue on the year's income"; and

(2) "to the extent that the year's depreciation and any losses carried forward do not cover the necessary repayments on loans, these payments will be paid out of the year's income."

(Ot.prp. no.26 (1974-75), p.95. E)

Apart from (1) and (2) the entire post-tax profit can be distributed as dividend. Our computer model has only taken account of the first point above. For a more in-depth analysis of this point in Norwegian tax law, see Mørch (undated), pp.20-21.

51 By treating Statoil as a foreign firm we have disregarded that there was a different and marginally lower dividend deduction for Norwegian firms which was specified in a slightly different way from the one which held for foreign firms. But there were only two such Norwegian non-state firms, SAGA and Hydro, neither of which played an important quantitative role in the Norwegian sector. There were rules with respect to reserve requirements that made it unlikely that these two firms would have been able to take full advantage of the dividend deduction clause.

52 Ot.prp. no.26 (1974-75), p.57. The whole source tax controversy has been extremely muddled. As late as in the autumn of 1977 the Norwegian Ministry of Finance had still not decided which final attitude to take to the source tax after a reassessment had been promised in Ot.prp. no.26 (1975-75), Section 6.2 (E).

53 This did not affect the financial outcome of the 1965 agreements where special agreements had been made about the repatriation of profits.

54 Cazenove (1972), p.113. Note that this figure should be treated with some caution because Cazenove only used undiscounted figures.

- 55 The NPV also increased because the 'tightening' of some of the tax variables was clearly 'swamped' by the increase in PV. The variable royalty rate should in theory have increased the 'take', but mainly contributed towards easing the profitability situation for the minor fields. This was because the higher royalty rates only came into operation for the very largest fields.
- 56 62.2% for the 200m. field and 55.8% for the 700m. field (author's estimates).
- 57 HMSO (1976), I, p.107.
- 58 This is only unambiguously so if we compare with the scenarios 3 and 4 in 1969. But it should be remembered that scenario 2 with 40% state participation was untypical for the 1969 allocations; most licences were granted under scenarios 3 and 4.
- 59 It is expected that the companies in the coming fourth round of concessions to be allocated in mid-November 1978 will have to accept a special clause that gives the state the right to control output from future finds. Such a clause would not have been necessary if the 1972 Royal Decree had proved to be satisfactory. The 1972 provisions have mainly been used to force the companies to reinject gas into Ekofisk instead of flaring it so as to maintain the pressure (and hence the long-run productivity of the field).
- 60 I. Ulveseth in the debate about St.meld. no. 95 (1969-70) and No. 76 (1970-71), Stortinget, 14 June 1971.
- 61 Answer by Minister to question by K. Aasland, MP, in Stortinget, 7 February 1973.
- 62 ibid.
- 63 Gulnes (1972a), p.97.
- 64 ibid.
- 65 Halvorsen (1967) was perhaps the first to systematically draw attention to what oil could mean for Norwegian industry.
- 66 T. Dyring, MP, Stortinget, 14 June 1971.
- 67 Gulnes (1972a), p. 97.
- 68 In some cases oil companies even have a direct ownership share in a spinoff industry. Gulf owns for example part of the major engineering firm Kellogg.
- 69 Statoil's existence was originally partly defended with reference to its 'industrial-political' aims. St.prp. no.113 (1971-72), p.10.
- 70 St.meld.no.76 (1970-71), p.20.
- 71 See St.meld. no.95 (1969-70), p.17. Hydro was very active in this respect.

- 72 For a full list of these groups see St.meld. no.76 (1970-71), Appendix 6.
- 73 A majority of the Norwegian merchant fleet had traditionally been financed in the international capital markets.
- 74 St.prp. no.113 (1971-72), p.10. It is possible to interpret the state's purchase of additional Hydro shares to bring the total to just over 50% as a step in a strategy to make Hydro the state oil company.
- 75 St.meld. no.76 (1970-71), p.20.
- 76 Harbek, op.cit. (footnote 5) complained that the US interest in the Norwegian sector of the North Sea was waning because there were very few private Norwegian oil companies left which were unattached to international companies and which could therefore become vehicles for new international entrants.
- 77 PPS, November 1972, p.429.
- 78 For example I.Ulveseth, MP, in Stortinget, 14 June 1971, cited Iran, Iraq, Indonesia, Italy and France as countries which had developed state oil corporations and rejected multinational control (sic).
- 79 According to the head of ERAP, there were three reasons why oil supplies to France could be threatened if France relied on the 'majors'. This could happen if the French oil policies displeased the majors; if the majors' policies displeased the producer countries; or finally if French policies displeased the producer countries. The first two of these problems cease to be problems if a state oil corporation like ELF/ERAP were solely responsible for the production and distribution of oil in France. The third factor could, according to the head of ELF/ERAP, be at least significantly reduced if a French state oil corporation followed a more far-sighted and unorthodox concession policy abroad. Madelin (1975), p.135.
- 80 ENI arranged for a barter deal with the USSR whereby Soviet crude was exchanged for Italian manufactured goods.
- 81 Madelin (1975), p.154. PN emphasis.
- 82 While in no sense a perfect division, this separation prevented the kind of difficulties experienced in the UK (1978) where BNOC was accused of being both a commercial and a regulatory entity.
- 83 St.prp. no.113 (1971-72), special appendix, p.20.
- 84 For an elaboration of this (dominant) view of state intervention in Western Europe see Holland (1975), pp.120ff.
- 85 J. Syse MP in Stortinget, 14 June 1971.

- 86 The difference between Norwegian and British Conservatives towards state intervention in the oil industry is striking. Patrick Jenkins, the Tory Shadow Secretary on Energy, described the plans for a British state oil corporation as "utter folly, pointless folly, damaging folly, and very, very expensive folly". FT Offshore Development Supplement, December 1976, p.29.
- 87 St.prp. no.113 (1971-72), p.10.
- 88 (1972a), p.97.
- 89 Debate in Stortinget, 14 June 1971.
- 90 ibid.
- 91 Debate in Stortinget, about the creation of Statoil, 13 June 1972.
- 92 The distribution of Statoil's future profits between the state and the company has today (Summer 1978) still not been settled.
- 93 J. Syse MP in Stortinget, 14 June 1971.
- 94 Evensen (1971), p.13.

FootnotesChapter 7

- 1 Høyres fraksjonsmerknad, Innst.S. no.275 (1973-74), p.12.
- 2 FT, 30 October 1974.
- 3 For a definition of 'produceable reserves', see St.meld. no.81 (1974-75), p.78. According to the Oil Directorate these reserves consisted of around 260 mill. tons of oil (Oil Directorate, Annual Report, 1973, p.79), 40 mill. tons NLG (ibid, p.15) and around $400 \times 10^9 \times \text{Nm}^3$ of gas (assuming 60% of the Frigg total), St.meld. no.77 (1973-74), p.4. At 1973 prices these reserves would be worth Kr. 35-40 bill. (author's estimate).
- 4 Spread over a production span of 15 years the value of reserves would on average give a year contribution to GDP of the order of Kr. 3 bill., compared with a GDP in 1973 of Kr. 111 bill.
- 5 Total expected state income would, according to T. Aakvaag, executive of Norsk Hydro, quoted in Petroleum Review, September 1973, p.336, reach a maximum of \$3-400 mill. (Kr. 1.7 bill.) per year by the late 1970s. Total state income in 1973 was Kr. 55.5 bill.
- 6 FT, 23 March 1973 attributed the delay in the granting of new concessions to Norway's relationship to the EEC.
- 7 H. Simmonet, Vice-President of the EEC Commission, assumed that 35% of the EEC's oil consumption in 1985 would be covered by North Sea production. Such a calculation could only be fulfilled if Norway drastically increased its planned production. FT (SNSI) (1974) op.cit. M. Van den Abeelee, Chef de Cabinet Adjoint to H. Simmonet, at a later date urged Norway more directly to maximize its output from the North Sea in return for favours given to Norway by the EEC. FT (SNSII) (1975), op.cit.
- 8 Guardian, 2 March 1973. According to PPS, March 1973, p.91, Norway used the large French interests in the North Sea as a bargaining leverage to overcome the (largely French) objections to Norway's free trade agreement with the EEC.
- 9 Within this perspective it becomes more understandable why Statoil was not given the exclusive rights to the Brent blocks. Such a policy might not have meant their immediate development in case of a find, while by giving the blocks to an international company this would de facto ensure their immediate exploitation if oil was found.

- 10 Ellingsen (1976) gave Shell's subjective assessment of the situation in the North Sea from 1965 to 1975. This took the form of a plotted curve which rose in times of optimism and fell in times of pessimism. The shape of this curve was not made available to the press at the time. While we do not give much scientific credence to such an evaluation, it is nevertheless useful as secondary evidence in our investigations. The curve showed a continuous upward trend until the creation of Statoil in 1971. 'Nadir' was reached with the proposed 40% special tax in December 1974 while the actual conditions of the 1974 round raised Shell's optimism of the future to a considerable extent.
- 11 According to St.meld. no.81 (1974-75), p.19, "the majority of companies accepted this".
- 12 FT, 11 May 1973, wrote, "It is for this reason that some of the larger groups may prove tough bargainers."
- 13 St.meld. no.81 (1974-75), p.20.
- 14 This can explain why Shell decided that the deep-water blocks were not interesting from their point of view. SAGA, in a letter to the Ministry of Finance (Uttalelser til Finanskomiteen vedommende Ot.prp. 26 for 1974-75, Appendix to Innst.O. no.60 (1974-75) (hereafter Uttalelser (1974-75)), p.79) came to a broadly similar conclusion regarding the commercial prospects of the deep-water blocks.
- 15 St.meld. no.81 (1974-75), p.20.
- 16 The need to include such a clause in the standard agreement casts some doubt on the state's former assertions that the companies would have been fully responsible for possible environmental accidents from the production of oil.
- 17 OGJ, 18 February 1974.
- 18 FT, 6 December 1974.
- 19 According to FT (ibid), "Some of the major US and French oil companies ... can be expected to withdraw". Note that it was not suggested that all companies considered withdrawal, nor that any Norwegian company would withdraw.
- 20 Quoted in FT, 4 December 1974.
- 21 Under the headline: "OPEC-spirit in the North Sea", PE, January 1975, p.4, wrote in relation to the Norwegian package "The spirit of OPEC, which aims at ever increasing pre-barrel revenues and maximizing state participation has now firmly taken hold of the governments surrounding the North Sea."

- 22 These were the State Attorney and the representatives of Statoil and the Ministry of Finance.
- 23 There were indications that representatives of private industry were less worried about the legal principle of "retroactivity" than part of the Norwegian civil service. A Vice-President in SAGA criticised a tax solution to the problem of expropriating oil rents because of the widely different conditions that existed in the Norwegian Shelf. He added that "A more logical approach would have been discussion on state participation in Ekofisk, similar to the Norpipe Solution". Evenson (1975).
- 24 See FT, 6 December 1974.
- 25 St.meld. no.81 (1974-75), p.21.
- 26 Noroil, January 1975, p.5.
- 27 St.meld. no.81 (1974-75), p.21.
- 28 ibid.
- 29 The Economist, 27 March 1975.
- 30 Noroil, April 1975, p.9. Noroil, on the other hand described the actual costs of exploration drilling as "massive", and said that the 4 wells the company would have committed itself to in the work programme would come to Kr. 200 million. Hence Noroil could understand that the taxation rules were important for an acceptance or not.
- 31 The 1965 Decree stipulated that oil and gas should be landed in Norway if the national interest so required, while the more stringent 1972 Decree explicitly required landing in Norway unless the state on application approved another point of landing.
- 32 According to the Daily Telegraph, 3 March 1973, Phillips and its partners "have been gradually forced into giving way by nationalistic pressure that makes the Arabs almost look tame". FT, 16 February 1973, described the move as "yet another successful move towards greater direct participation in oil development".
- 33 Unanimous declaration by Parliamentary Committee on Industry, quoted in a debate in Stortinget, 26 April 1973 (Stortingstidende, p.2806). According to the Ekofisk Commission this postponement would be "around two years" (ibid.).
- 34 As St.meld. no.51 (1972-73) pointed out: "To put conditions for the development of the fields, which to an important extent changes the pre-conditions which underlay the production licences, presumably goes against the normal concept of the law (almenne rettsgrunnsetninger)", p.20.

- 35 Arne Kielland, MP, Stortinget, 26 April 1973.
- 36 PPS, April 1973, p.148.
- 37 Chase Manhattan, controlled by the Rockefellers who also have a controlling interest in Exxon, was a member of the consortium that refused the loan if Norway got control over the pipeline, OGJ, 12 March 1973, and Platts Oil News, 5 March 1973.
- 38 Guardian, 31 March 1973.
- 39 This report was written by Professor Sjur Brækhus for the North Sea Operators Committee, dated 13 December 1974 and sent to the relevant Norwegian Ministries on 2 January 1975.
- 40 Paragraph 97 of the Norwegian Constitution states, "No law shall be retroactive".
- 41 Uttalelser (1974-75), p.1.
- 42 ibid, p.37.
- 43 ibid, p.27.
- 44 Appendix 25, Innst.0. no.60 (1974-75), p.105.
- 45 Innst.0. no.60 (1974-75), p.79.
- 46 ibid, p.9.
- 47 ibid, p.75. According to the evidence submitted by SAGA (ibid, p.78), it is not even possible to see how a 10% acceptable rate of return would affect the 'acceptable area' of exploration.
- 48 ibid, p.64.
- 49 The five factors are: (i) increased capital costs, (ii) delays in start-up, (iii) less production than expected, (iv) a collapse in oil prices or market conditions, (v) a shortfall in financing. The company then stated that each of these factors might decrease the internal rate of return by 3-10%. ibid, p.73.
- 50 ibid, p.6.
- 51 In the period 1969-72 NTNf used a number of contracted firms (which were all independent of the oil companies) to shoot a total of 9800 profile-km north of 62°, while it continuously received all the seismic data from the companies. 1971 and 1972 saw the highest ever geological activity south of 62°N since the period just before the first allocation of blocks in the middle 1960s. 29400 profile km were shot in 1971 and 34400 km in 1972. St.meld. no.30 (1973-74), p.9. See also Footnote 17, Chapter 5.
- 52 Statens Oljedirektorat, Årsberetning (Annual Report) 1973, p.32. However, there were at the time still some limits to the ability of the Directorate to fully dominate the technical field of seismic

surveys. Because of specific problems in conducting seismic surveys off the coast of Troms, the Directorate in 1973 had to seek special expertise from experts in Chevron, Mobil, Shell and Texaco. They were to aid the Directorate in technical questions, conduct tests of the field instruments and supervise the seismic shooting which was conducted by Geophysical Service International. Even if this particular set-up had no direct influence on the negotiations in connection with the third round (nor would the use of oil-company personnel necessarily influence the independence of the Directorate), it nevertheless served to clarify what kind of basic problems the Norwegian state was continuously faced with in having to rely on the international companies for technological advice.

- 53 The Oil Directorate makes safety assessments of the proposed capital investment already at the design stage, Annual Report, op.cit. p.11.
- 54 Daily Telegraph, 19 December 1974.
- 55 St.meld. no.21 (1976-77), p.25. One year later the figure was 244 (ibid).
- 56 "One has within the Directorate such expertise", Annual Report op.cit. p.33. Note that from the mid 1970s onwards the production assessments of the Directorate have consistently been lower than those of the companies. For one explanation of this, see pp.184-5.
- 57 Uttalelser (1974-75), p.60.
- 58 63 wildcats had been drilled giving 13 finds (St.meld. no.30 (1973-74), p.80). Dr. J. Birks, Director of BP Trading Co, gave a Norwegian success rate of one in eight with respect to commercial finds, defined as a find which produces more than 30 000 bbls/d or 100m. ft³ gas/d. He described the Norwegian success rate as "very favourable compared with the usually quoted worldwide average of 1:15", Birks (1973), p.4.
- 59 This is roughly in line with the assumed average cost of \$4 mill. per exploration well used by Lovegrove (1975), p.29.
- 60 OGJ, 23 September 1974, p.139.
- 61 Barge-hire rates together with fabrication labour rates were the two cost elements in the North Sea singled out as being subject to excess demand during this period. HMSO (1976), I, p.36.
- 62 Lovegrove (1975), p.69.
- 63 ibid, p.69. (This figure is for a 200m. field but given our assumptions about economies of scale this should not be important.)
- 64 Wood MacKenzie (WM), North Sea Report, 11 July 1974.

65 The WM figure corresponds to a permanent development cost component of \$161 mill, the Lovegrove figure to \$136 mill.

66 An alternative way to find this fixed development cost component is to use a detailed breakdown of each component as we did in the 1965 and 1969 calculations. Assuming that the cost of tanker-loading equipment remains the same (\$4 mill. for each 100m. in recoverable reserves), a 100m. field will cost:

3 delineation wells @ \$ 4.8 mill.	= \$14.4 mill.
18 production wells @ \$ 2.4 mill.	= \$43.2 mill.
Total platform costs *	= \$88.0 mill.
Total costs	<u>\$145.6 mill.</u>

With a subsequent total cost including the EKSBM, the total will be \$149.6 mill., which is virtually equal to figures used in the text.

* The 50 mill. barrel on field loading Auk-field had platform costs of £20 mill. (\$44 mill.), McKay and McKay (1975), p.71.

67 This was the expected price for the pipeline from Forties. PPS, April 1972, p.122.

68 Baxendell (1974), pp.2-3. This referred to a 36" pipeline in 500 ft. of water.

69 Lovegrove (1975), p.67.

70 Uttalelser (1974-75), p.63.

71 Brown (1975), pp.112-13.

72 OECD (1975b), Table 5-4.

73 A report from Wood MacKenzie, October 1973, gave total operating costs for Ekofisk's 3.8 billion barrels to be \$876m., an average of 23¢/bbl. (By 1975 this figure had increased to \$1310m.). In contrast the Statoil (1974) operating costs worked out at \$1.53/bbl at the 1973 prices, increasing to \$2.30/bbl by 1975. Surrey (1976) employs a part fixed cost, part variable cost approach to allow for both tanker loading and pipeline. The idea is that average costs will decrease for the larger (pipeline) fields, compared with tanker-loading. Such a procedure gave an average \$1.60 per barrel for a composite of the 400m. and 700m. field (1976). Finally MacKay and MacKay (1975) expected operating costs in 1975 to average \$1.00/bbl. (p.40).

74 MacKay and MacKay (1975), pp.46-47 and p.97.

75 Aronsen (1976), p.2.

76 Brown (1975), p.119.

77 This percentage was also used by Bjerkdahl (1974).

78 Until 1974 50% of all loans raised in the Norwegian sector had made use of export credits, St.meld. no.81 (1974-75), p.66.

- 79 Wood MacKenzie assumed a rate of interest of 12% with 6 years repayment of loans (North Sea Report, January 1975, 2.section). NS (1974) however assumed a rate of interest of 10% with repayment over four years with two years' grace, while Statoil (1974) assumed a loan running over 10 years with 10% rate of interest. WM reported in March 1975 that Agip had raised part of its capital for the development of Ekofisk at 10½%. (North Sea Report no.75, Section II, pp.60-61).
- 80 Parra used the same assumption in a similar calculation, quoted in PPS, November 1972, p.422.
- 81 Wood MacKenzie, Report, October 1975, p.51.
- 82 This is in line with Chevron's adjusted figures to point of distribution, submitted to the Norwegian Parliament in 1975 (Uttalelser (1974-75), p.60), and WM's figures of \$11.25/bbl (North Sea Report January 1975, Section I), but lower than Esso's assumption of \$12/bbl also given to the Norwegian Parliamentary Committee (Uttalelser (1974-75), p.19).
- 83 These calculations subsequently turned out to be very optimistic, but in 1974 there was still no indication of the real cost explosion that was to come and which was to play havoc with expected profits of the North Sea. At the most one could ascribe the cost increases which had taken place since the end of 1973 to a sudden excess demand for all factors which related to oil production, as all companies and consumer-states in Western Europe made a determined bid for self-sufficiency and stepped up the search for oil. This interpretation of the cost rise clashes with the conclusion of the British cost study (HMSO, 1976), which ascribes the cost increase mainly to insufficient engineering planning.
- 84 It is important to note that the participation rate is therefore not related to reserves. St.meld. no.91 (1975-76), p.16.
- 85 ibid, p.16.
- 86 ibid, p.22.
- 87 Therefore the comment in a White Paper that a find the size of Ekofisk would give the state a participation share of around 70% (St.meld. no.81 (1974-75), p.21) at a time when Ekofisk reserves (lower estimates) in 1975 totalled 1010m. bbls (ibid, p.79) does not necessarily settle the issue. But just to be on the safe side we have also run a sensitivity test on the latter assumption. As we will see the difference it makes to our results is marginal (see footnote 94).
- 88 As long as losses are incurred these losses are carried forward, for a maximum period of 15 years. A maximum of one third of the

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accumulated losses can then be used to offset profit before corporation tax per year, hence this process of deduction will take place over three years of profit before corporation tax is greater than one-third of the accumulated loss. If not, it can stretch over more years.

89. Net profits defined as: net income before corporation tax plus distributed dividend (not deductible for special tax) = net income for tax assessment minus tax free allowance = 10% of all capital goods acquired during the preceding 15 years. When there are no taxable profits, this free income can be accumulated and carried forward, but the maximum tax-free allowance which in any year can be utilized must not exceed net income for tax assessment.
- 90 Wood MacKenzie, North Sea Report, no.61, 11 July 1974.
- 91 Ot.prp. no.26 (1974-75). [Note that we have already argued in Chapter 3, p.83, why the high discount rates used e.g. by Robinson and Morgan (1976d) have been disregarded.]
- 93 Quoted in PE, December 1975. According to Wood MacKenzie (op.cit.) the post-tax IRR for the other Norwegian fields would be: Frigg, 19%; Statfjord, 34%; Ekofisk (gas) 30%.
- 94 If we use an alternative participation scale (see p.219 and footnote 87) which assumes a 55% participation rate for the 100m. field, and increases by 1.7% for each 100m. reserves reaching 70% for the 1 bill. field, the difference in total state control over rent changes only marginally. For the 700m. field Statoil's PV decreases from \$995.3mill. to \$924.2mill. A similar trend is seen for the 200m. field.
- 95 The situation today (1978) is different from 1974 as concerns the optimal rate of depletion for Norway. As a result of large external borrowing to maintain full employment during the recent international economic crisis and the continuation of this crisis; and the shortfall in production compared with the state's expectation in 1974, the Norwegian state has now stepped up the granting of concessions. This partial change in policy underlines the importance of our historical methodology. The 1974 negotiations, especially about volume, can only be understood based on what was believed and known at the time.
- 96 Evensen (1973), p.57.
- 97 Evensen might have engaged in a certain amount of historical self-justification. As we have shown, depletion policy was neither in operation in 1965, nor arguably in 1969, but at the most could be said to operate after 1971.

- 98 The fact that he assumed fixed exchange rates makes no difference to his argument. Instead of pricing a good out of the world market by high labour costs, a shift in exchange rates will also have the same effect.
- 99 Seland (1973), p.9.
- 100 Mabro (1969) showed in particular how in a state like Libya where employment was virtually guaranteed by the state's income from oil, this had brought about a misallocation in the labour market. It was in particular difficult to induce nationals to take employment in irksome tasks like agriculture and construction. For a more theoretical treatment of the 'rentier state' in the third world, see First (1979), Part I.
- 101 Naustdalslid (1975b), p.33.
- 102 St.meld. no.25 (1973-74), p.8* E.
- 103 ibid, p.8.
- 104 ibid, p.97, Appendix.
- 105 ibid, p.98, Appendix.
- 106 See Brandzæg (et al) (1975), especially pp.54-64.
- 107 "Any use of the revenues beyond this level would appear at the moment to lead to such extensive structural changes that it would be difficult to get it under the necessary public direction and control" (St.meld. no.25 (1973-74), p.18*). If we use this figure then the structural changes outlined above based on an injection of Kr. 10 bill. (see footnotes 102 and 103 above) would be correspondingly less.
- 108 ibid, p.6.* This was the higher estimate for income in 1981-82.
- 109 A largely similar argument was later put forward by Øien (Ministry of Finance) when he supported a slow rate of oil production by implicitly referring to a classic portfolio choice between "oil in the sea and (the yield of - PN) international investments" (speech to Norske Sosialøkonomers Høstkonferanse, 1975, quoted in NI no.21, 1975, p.16).
- 110 The area around Stavanger is a particularly clear example of the direct effects of the oil activities and the pressures of centralization brought about in an area which has become part of the oil economy. For a micro-study of its effects on social work clients, see Stangeland and Nilsen (1976). For a more general analysis of the social consequences of the oil activity, see NOU, no.38, 1975 and NAVF (1978). The latter overview suggests that the negative social effects might have been less than initially feared.
- 111 Statement by official in the Norwegian Ministry of Environment, quoted in Guardian, 7 April 1976..

112 Confidential source in the Ministry of Finance.

113 Norman (1974), [summed up in less technical language in Norman (1975)] criticized a number of what he saw to be crucial assumptions of the calculations. He claimed that the PRIM/MODIS macro-model used at the time by the Ministry assumed the elasticity of demand within the external sector to be zero and the elasticity of demand within the sheltered (including the public) sector to be infinite. Hence a 1% increase in disposable income would increase the demand for goods produced by the sheltered sector by one full per cent, and on the assumption that there is a fixed labour/output ratio, increase the labour force in that sector by one per cent. This increased demand for labour would be transferred from the external sector. The only mediating influence would be that if we take into account the decreased demand from the external sector for the goods in the sheltered sector, then the increase in the demand for labour would be less (around 0.83% according to the PRIM/MODIS calculations). Norman claimed that it was more reasonable to assume a demand elasticity less than infinity for the external sector, when taking into account phenomena like product differentiation. He furthermore assumed a positive demand elasticity in the sheltered sector because he found unreasonable the PRIM/MODIS assumption that the decrease in real income which would follow an increase in prices of the protected sector would lead to a decrease in the demand for internationally traded goods only. Finally he challenged the underlying fixed input/output coefficients. A change in these three assumptions would according to Norman tend to overestimate the structural changes which would follow an increase in oil production.

114 Screiner and Wilhelmsen (1974) denied that the crucial price and income elasticities were necessarily equal to one or zero as Norman had assumed, and that PRIM/MODIS had been misrepresented. But of more principal interest was their answer to Norman's assumption about employment in the public sector which he had assumed was price-elastic. This meant that Norman's lower estimate for the need to transfer manpower mainly stemmed from a lower relative growth of the public sector. Screiner and Wilhelmsen pointed to the assumption used by the Ministry that different parts of the 'sheltered' sector had different employment elasticities. Employment would increase by 18,000 man years for each Kr. 1 bill. spent by the public sector, compared with 5,000 man years for each Kr. 1 bill. spent by extra private consumption (St.meld. no.25 (1973-74), Section 4.3.2).

Therefore Norman's assumption that the share of public expenditure was to remain constant as a percentage of GNP when oil revenues were expected to arrive were "a political declaration" according to Screiner and Wilhelmsen (p.125). In addition they objected to Norman's assumption that the demand for public services was independent of the relative price between the two main sectors. Thus, interestingly, it seemed as if one key to the technical aspects of the depletion debate were dependent upon the size of the public sector.

- 115 Debate in Stortinget, 6 June 1976. The opposition against this aspect of Norwegian oil policy must also be seen on the background of a general scepticism by the oil companies and the significant sectors of the Norwegian capitalist class towards the state's oil policy, and the general strengthening of the state it implied.
- 116 The Times, 12 December 1974.
- 117 FT, 30 October 1974. (PN emphasis).
- 118 NI, no.24, 1975, p.12. The latter reason was an interesting, albeit implicit, admission that the oil production in the North Sea was expected to generate enough cash flows to help the financing of future huge offshore investments; not exactly an indication that the profitability of the Norwegian investments was bad. SAGA also wanted to increase the rate of production in the North Sea. This standpoint seemed to have been inspired (as for Esso) by reference to the energy needs of the Western world and the commercial interdependency between the rest of the world and Norway (interview with Knud Endre Knudsen, M.D., SAGA, NI, no.10, 1974, p.10).
- 119 This factor, according to Adelman (1975), pointed in the direction of the most rapid possible extraction of Norwegian resources. He wrote: "The chance is minimal that the price of oil will increase so much in the 1990s that it will pay to keep back oil production" (p.98). This point of view must clearly be seen in relation to and in conjunction with Adelman's theoretical framework, which we have already criticized in Chapter 2.
- 120 Odell (1974a), pp.3-4.
- 121 Adelman (1975), p.102.
- 122 Odell (1974a), p.4.
- 123 Interview with the Director of Norges Industriforbund, in NI, no.16, 1975, p.29. But note that the organisation in principle claimed to be in favour of "a moderate rate of depletion" on the Norwegian Shelf (ibid, p.28), even if this was not defined in more detail.
- 124 This is the main argument in Odell (1975a).
- 125 ibid, p.3. The validity of this argument depended crucially upon the

expected production from the North Sea. If one believes, as Odell did, that the reserves of the North Sea are much higher than official estimates, then such an argument makes sense. If one on the other hand thought (as the Norwegian state clearly did at the time) that, while the resources were considerable, they were in no sense 'immense', then his argument has much less force.

- 126 This he only indirectly implied. See Odell (1974a), point 3, p.4.
- 127 St.meld. no.25 (1973-74), p.98, Appendix (E).
- 128 Noroil, May 1974, pp.29-31.
- 129 By early 1975 the Finnish shipyard Rauma-Repola was under contract to build 9 H-3 rigs, NH&ST, Oil Survey, 5-10 May 1975, p.17.
- 130 While it had been normal in the rig market to build in response to specific needs and requests made by the oil companies, the Norwegians built drilling rigs without being sure beforehand that they would be employed. In so doing, however, they often cooperated with an experienced (often American) drilling contractor.
- 131 Offshore Products & Services Guide, Norwegian Export Council, quoted in the Scotsman, 4 June 1976.
- 132 R.S. Platou a/s, Oslo shipbrokers, quoted in NH&ST (op.cit.), 28 of these 65 rigs were of H-3 construction.
- 133 Industriens Servicekontor (1975), quoted in Jenkin (1977), p.10, Appendix D. Of the total Kr.2.76 bill. worth of deliveries or orders of drilling rigs gained by Norwegian industry by mid-1975, only Kr. 400 mill. was destined for overseas markets.
- 134 St.meld. no.25 (1973-74), p.21a.
- 135 Scotsman, 4 June 1974.
- 136 Condeep is a Norwegian-constructed gravity structure destined for production. It represented the first alternative to production platforms made out of steel which until then had reigned supreme offshore. The advantage of gravity structures of the Condeep kind was especially clear in deeper waters, and the two first orders came in the autumn of 1973 from the UK sector. Mobil ordered one Condeep for its Beryl field to be placed in 384 feet of water, while Shell ordered another for the Brent field, to be placed in 460 feet.
- 137 Noroil, May 1975, p.67.
- 138 Industriens Servicekontor (op.cit.). Some caution should be exercised in the interpretation of this figure. The production of both platforms to Frigg which was at the time at least a 50% Norwegian field were classified as 'export'.
- 139 NH&ST, op.cit., p.44.

- 140 Bugge Supply Ships (BSS) which by 1976 planned to operate a total of 23 ships, was owned by major firms like Fred Olsen, Vesteraalens Dampskipselskap, and Northern Offshores Ltd (ibid).
- 141 St.meld. no.25 (1973-74), p.23.
- 142 The total by May 1975; Noroil, May 1975, p.67.
- 143 Statssekretær Engell Olsen, Ministry of Industry, NI, no.19, 1975, p.25.
- 144 Industriens Servicekontor (op.cit.)
- 145 PE, October 1974, p.368.
- 146 Because of the late completion of Phillips' installations at Teeside, supply of NGL to Bamble has been delayed. There is today (1978) a legal battle going on between Phillips and the Norwegian firms operating the Bamble plant (see below) about who is to carry the cost for the delay.
- 147 Innst.S. no.230 (1973-74), p.4.
- 148 All points from Prime Minister Lars Korvald, in Stortinget, 26 April 1973.
- 149 The price of NGL is to adjust only 80% in relation to the change in an index figure which is fixed to changes in the crude prices, alternatively to the long-run supply price of naphta as a raw material in the petrochemical industry. St.prp. no.79 (1973-74), p.4.
- 150 Hydro had initially wanted to build a 250,000 tonne/year cracker only in cooperation with the Norwegian firm Borregaard, but was also negotiating with ICI to build a similar structure on Teesside. SAGA wanted to build a 300,000 tonne/year polyfinil complex together with the Norwegian private firms Aker, Dyno, Elkem Spikerverket, Hafslund and Årdal & Sundal. PE, February 1974, p.69.
- 151 In constant 1973-Kr. St.meld. no.30 (1973-74), p.62.
- 152 Innst.S. no.333 (1973-74), and St.prp. no.79 (1973-74).
- 153 Cf. comments by the chairman of the Parliamentary Committee of Industry, in Stortinget, 26 April 1973.
- 154 Innst.S. no.381 (1973-74) explicitly said that Statoil's participation in future finds "will give the Norwegian state an effective means to secure that the state's intentions with respect to supplies to the offshore industry is being realised" (p.13).
- 155 Ministerial answer to I. Helle, MP, in Stortinget, 17 January 1973. It was thus clear that the Norwegian state naively thought that its own behaviour was going to have permanent repercussions on the rational behaviour of other countries, an attitude for which there was precious

little rational basis. The justification for this policy resembles the UK's justification for its original terms in 1965 (see Chapter 4, p.116), and the earlier Norwegian argument as to why the Norwegian state should not be directly involved as a productive entity in the oil industry.

156 Norwegian industry will supply between 60 and 70 per cent of the total worth of the Statfjord B platform (Statoil's purchase manager D&stol at Offshore North Sea (ONS)), Stavanger, October 1976. 64 per cent of the value of Statfjord A was produced by Norwegian firms (St.meld. no.21 (1976-77), p.46).

157 This crucial role of Statoil was recently shown in the creation of Norwegian Petroleum Consultants (NPC). NPC was set up in 1976 by the ten largest Norwegian engineering and supply firms to carry out multidisciplinary work on major integrated petroleum projects. NPC and Brown & Root have jointly been awarded the main engineering contract for Statfjord B and the majority of the work will be done in Norway. As in the case of SAGA it was the Norwegian state (now in the shape of Statoil) which was instrumental in pushing for a cooperation of Norwegian firms to form NPC (Lavik, Interview, 1976).

Statoil on at least one known occasion pressed for an offshore order to go to Norwegian suppliers for 'reasons of employment' (Jenkins (1977), p.27). The yet clearest discrimination in favour of the Norwegian spin-off industry was made clear in the 1978 bidding for the deck of Statfjord B where only Norwegian firms were invited to submit a tender. For the industry's hostile reaction to this procedure see Noroil, editorial, October 1978, p.17.

158 In St.meld. no.30 (1973-74), it was stated: "This (full integration - PN) is a prerequisite for the solution of the tasks that the government has entrusted to Statoil" (p.44).

159 But the final extent of the vertical integration had not yet been determined. The decision that the state should also control retailing was not taken until the summer of 1975 when a separate marketing entity, Norol, based on the network of BP, was formed.

160 Its initial equity of Kr. 5 mill. was quickly enlarged first in May 1973 to Kr.150 mill. A further Kr. 150 mill. were provided by the Storting in 1974. St.meld. no.30 (1973-74), p.21.

161 The first hole drilled by Statoil was spudded in 15/12 during the summer of 1975. The company had by that time chartered a Norwegian drilling rig, 'Ross Drill', for five years. Esso played initially a key role as technical assistant

162 Quoted in St.meld. no.30 (1974-75), p.45. But the letter also pointed to the advantages of an active state company, namely that all the

- found oil would go to the state and that the activities could more easily be subject to other Norwegian policy considerations in the field of industrial and resource policy.
- 163 Conservative MP Knudson complained that the 200,000 Norwegian shareholders who had invested Kr. 400 mill. in the so-called "peoples' oil companies" were given a chance to participate in the UK sector, but barred from Norwegian waters. Stortinget, 9 June 1975.
- 164 Interview in NI, no.18, 1974, p.18.
- 165 Innst.S. no.381 (1973-74), comments to Chapter 10.
- 166 Innst.S. no.402 (1974-75), p.8. But a conservative amendment to the Industrial Committee in 1974 that these blocks should be exploited together with SAGA and Hydro was rejected in favour of a statement which gave more flexibility to Statoil.
- 167 This sentiment was echoed by Minister Leif Aune when he was asked to comment on the international commitments of SAGA and he answered: "There are neither any plans nor wishes from Statoil to be engaged in such projects" (Stortinget, 27 March 1974).
- 168 Johnsen interview, NI, op.cit., pp.8-9.
- 169 NI, no.7, 1972, p.16.
- 170 MPs Austreheim, Eika, Helland, Vigestad and Westermoen from these centre parties declared: "Given the phase in which Norwegian petroleum activity finds itself at the moment, Statoil in the opinion of these members should first concentrate on the exploration, production and pipeline transport of oil and gas." Innst.S. no.381 (1973-74), p.7.
- 171 R.T. Larsen, Innst.S. no.381 (1973-74), p.18.
- 172 Motion put forward by the Conservative Party, Stortinget, 9 June 1975, but defeated against their own 28 votes.
- 173 Knud-Endre Knudsen, interviewed in NI, no.10, 1974, p.15.
- 174 Saganytt no.1, August 1974, p.2. See also interview with Endre Knudsen, op.cit., p.16.
- 175 NH&ST, Oil Survey, 13-16 September 1977.
- 176 Johnsen, interview, op.cit.
- 177 Hydro was prospecting for oil on a 10,000 km² concession in Denver, Colorado, together with Gulf Oil.
- 179 See Stork (1975), p.159, and First (1974), p.203.
- 180 See Sampson (1975), pp.212 and 215 for a somewhat less categorical interpretation of this event.
- 181 Rafa (1974), p.308.

- 182 Stork (1975), p.175.
- 183 ibid, p.205.
- 184 ibid, p.
- 185 According to New York Times, 25 October 1974, quoted in Barraclough (1975a), p.21.
- 186 "Saudi Arabia virtually imposed conditions (at the OPEC meeting - PN) that were closely in line with American desires." New York Times, 20 March 1974.
- 187 This agreement was made public during the US Senate hearings (1975), US Senate (Part 7, p.254). According to Sampson (1975), "It was not surprising that the companies did not wish the Shah to know how his country's future income depended on a private rationing system controlled by eight companies" (p.132).
- 188 27 March 1974, quoted in Stork (1975), p.139.
- 189 The agreement which in July 1969 was concluded between INOC and the Russians to develop the huge North Rumaila fields was undoubtedly such a threat. For a good summary of Iraq's oil policies during this period see Stork (1979).
- 190 Speech at a Financial Times North Sea oil conference in London, reproduced in full in Middle East Economic Survey (MEES), 22 September 1972.
- 191 ibid.
- 192 Stork (1975), p.195.
- 193 St.meld. no.30 (1973-74), p.46 (E).
- 194 ibid.
- 195 St.meld. no.25 (1973-74), p.94 Appendix.
- 196 This attitude may have changed again in the autumn of 1976 when there were strong forces within the Ministry of Finance which opposed the use of 'service contracts' because it complicated the taxation dealings with the companies.
- 197 St.meld. no.25 (1973-74) (E), p.16, Appendix E.
- 198 ibid. This conclusion is reinforced by examining the UK depletion rules announced by Minister Varley (Commons 6 December 1974). These are only valid for any finds made after 1 January 1976 and are extremely feeble. They allow for a maximum cut in production of 20%, after the field in question has been paid for.
- 199 Johnsen interview, op.cit., p.14.
- 200 St.meld. no.30 (1974-75), p.46.
- 201 FT, 30 October 1974.

202 FT, 3 January 1974.

203 Inst. S. no.275 (1973-74), p.10.

204 St.meld. no.25 (1973-74) (E), p.14.*

205 SV urged that no private company should be given any concessions on the Norwegian Shelf and that Statoil should have a monopoly over all new concessions. Old concessions should be renegotiated and the average Norwegian 'take' per barrel should be comparable to those in the OPEC countries. SV furthermore wanted to decrease the planned output from Norwegian waters to 50 million tons per year, and as a step in this direction aimed to control directly the output of all existing fields. The main reason given for such a ceiling was that structural changes would be minimized with such a policy. Finally SV wanted a better parliamentary control over Statoil.

206 Innst. S. no.275 (1973-74), p.10.

207 St.meld. no.25 (1973-74) (E), p.13.*

FootnotesChapter 8

- 1 Ot.prp. no.26 (1974-75)(E), p.7.
- 2 St.meld. no.11 (1968-69), p.6.
- 3 One of the four major assumptions used by 'Project Independence' concerning future US energy production was that investments in the energy sector would realise a 10% rate of return. Federal Energy Administration (1974), p.78.
- 4 As shown in Chapter 6, p.185, the reference to 'conservation' in Norwegian law constituted no method of regulating output from a single field for macro-economic reasons.
- 5 There is however a micro-economic optimal level of inventories to be held by the individual firm in oil production as in any other kind of production.
- 6 In 1965 total Phillips production of crude amounted to 17 million tons, while its total refinery output was 22 million tons. CGT (1976), p.91.
- 7 Total crude output of 199m. tons with a refinery run-through of 78m. Ibid, p.32.
- 8 This view clashes directly with Odell's analysis of the inter-relationship between the world energy situation and the situation in the North Sea. He argues that the major companies' neglect of the North Sea acreage extended into the 1970s (Odell (1976), p.85), something we cannot accept given the almost euphoric interest in Norwegian acreage from 1970 onwards, and the much tighter work programmes negotiated in the Norwegian third round.
- 9 Dillar Spriggs, Executive Vice-President of Baker Weeks & Co Inc, declared to the US Senate Church Committee on Multinationals that the oil companies had shifted their profits downstream between 1971 and 1973 in anticipation of producer-state ownership. While profit margins per barrel of final products was 30 cents on average in 1971, this had been increased to 90 cents in the spring of 1973. (US Senate Hearings, 30 January 1974, pp.56-61, part 4). According to a Wood MacKenzie report on Shell, quoted in PE (May 1977), Shell's downstream profit was 10¢/bbl in 1971, nil in 1972, but shot up to 69¢/bbl by 1976. The belief that the companies would not earn any money upstream has, however, turned out to be too pessimistic. See Nore (1979a).

- 10 This was hinted at in Noroil, July 1975, p.14, and has also been confirmed to the author by a former employee of Statoil.
- 11 OPEC Bulletin, September/October 1969.
- 12 Especially in Algeria it was apparent that the aim of nationalization was intimately related to the country's development plans. According to Madelin (1975), "From 1969 onwards it was clear that Algeria was seeking complete 'recovery' of its sources of production, in order to obtain full possession of the proceeds from them, for the purpose of financing very large investments under the First Five Year Plan" (PN emphasis), p.154. By the early 1970s oil constituted 16.0-16.5% of the Algerian GNP (Economist, 6 February 1971, p.62).
- 13 "... concerning the (problem of - PN) prices, it was only by a process of nationalization that the Algerians could get control over the surplus so that it could serve the development of the country" Chevalier (1974), p.101.
- 14 See Table 6.2 in Nore (1979a).

Net profit per barrel in cents, 1957-72

	<u>Government 'take'</u>	<u>Company profit*</u>
1957	78.1	77.1
1958	75.7	60.3
1959	76.5	58.4
1960	70.8	56.5
1961	70.0	54.3
1962	70.9	53.1
1963	75.1	56.3
1964	75.2	43.2
1965	76.4	41.8
1966	77.0	41.1
1967	79.7	36.9
1968	82.8	39.9
1969	83.9	35.6
1970	86.0	33.0
1971	126.4	33.5
1972	134.0	28.0

* Relates to whole integrated operation

Source: 'Energy memo', First National City Bank, October 1969, January 1973, and January 1975.

- 15 Jacoby (1974), p.248.

16 See Table 6.3 in Nore (1979).

Majors' return on net assets in Eastern hemisphere, 1957-71

1957	18.6
1957	15.0
1959	13.8
1960	13.9
1961	13.2
1962	13.1
1963	14.1
1964	11.1
1965	11.2
1966	11.5
1967	10.7
1968	11.7
1969	11.1
1970	11.2
1971	12.9

Source: 'Energy memo', First National City Bank, July 1975.

17 Issawi and Yeganeh (1962), p.112, computed that the companies' Middle Eastern rate of return (measured as net income over total net assets) averaged 67% in the period 1948-60. Kubba (1974) assessed an average rate of 79.2% for 1970 based on data from the US Department of Commerce.

We accept that there were fluctuations in the companies' rate of return. For instance, in the aftermath of the Teheran agreement the companies experienced a significant increase in their profit margins which undoubtedly accelerated the producer-states' demand for a fuller control over their operations. A similar upturn followed the Arab-Israeli war of 1967. But our point is that these movements nevertheless were superimposed on a downward trend of profitability.

18 This concession made the oil industry one of the lowest taxed industries, especially in the US. Exxon paid an effective 11.2% of their net earnings to the US tax authorities in 1973 (US Senate Committee (1975), p.13). This policy was also used as a method by the US government to increase its aid in an indirect manner to the Arab countries in the 1950s (ibid, p.2, Introduction).

19 The companies just assumed that the future investment in the industry would be provided from retained earnings. Hence it followed almost automatically that the industry wanted higher prices (and hence higher profits) once it was expected that production costs would drastically increase. According to PPS, August 1971, higher prices were inevitable. "The enormous quantities of oil needed to satisfy demand in the 70s and 80s ... will have to be sought for and developed in more and more difficult places.... the rise in prices will have to be greater than the rise in costs, because of the need for larger earnings" (p.212).

- 20 Mr D.H. Barran, quoted in PPS, June 1968, p.202. His point carries additional weight given the high price elasticity on oil products.
- 21 Chandler (1974), p.4.
- 22 According to Edward Symonds, writing in First National City Bank's Energy Memo, January 1967, "... the intensity of competition between fuels will make it important for companies to consider getting a foot in more than one camp.... In the future, increasing attention may be paid to their (the companies' - PN) access to diverse types of energy."
- 23 US total coal reserves are estimated to be in the order of 1 trillion six hundred billion tons or, in energy terms, equivalent to 12 times total proven worldwide oil reserves. Boumedienne (1974a), p.160.
- 24 ibid, p.163. See also Chevalier (1974), p.142.
- 25 Writing in Foreign Policy, Fall 1976, he stated, "Since 1971, the United States has encouraged Middle East oil-producing states to raise the price of oil and keep it up" (p.24).
- 26 Chevalier (1974), pp.160-61.
- 27 Economist, 7 July 1973, under the title 'The phoney oil crisis', voiced the suspicion that the US had only capitulated too readily to the OPEC demands for an increase in oil prices because such an increase would slow down the Japanese economy. Japanese exports were at the time outcompeting American goods and its economy would be more hurt by rises in the price of oil than that of any other nation.
- 28 There are however some notable exceptions. Oil workers were active in both the Soviet and Mexican nationalizations in 1917 and 1938. The action of the Iranian oil workers in 1978 in opposing the Shah were a follow-up to their militant actions under Mossadeq in the early 1950s. See also Nore and Turner (1979), Introduction.
- 29 See Kontrast no.6, 1976 (62), pp.327-28, for the author's argument that it is not possible to relate Norwegian oil policies to any of the three leading general schools of modern state theory: the STAMOKAP (State Monopoly Capitalism), the STINKAP (State Interventionalist Capitalism)(also called the "Capital Logic" school), and finally the "Althusserian" school. This argument was presented within the context of a general introduction by Kontrast's editorial committee on the subject of modern state theory. A similar disillusionment with the usefulness of general theories of the state is found in Gestenberger (1978), who also stresses the importance of the political and economic peculiarities of each social formation.

- 30 For a discussion along similar lines of the choices open to the OPEC countries in the aftermath of the 1973/74 events, see Jabarti (1977).
- 31 St.meld. no.24 (1973;74), p.9+(E).
- 32 ibid.
- 33 ibid.
- 34 Such a thought, often described as state intervention on behalf of capital in general, owes much to the work of Poulantzas. See in particular his (1973), and 'The problems of the capitalist state' reprinted in Blackburn (1972). But as opposed to Poulantzas we don't make this into a general theory of the capitalist state, but merely one that is representative of the Norwegian social formation. Other social formations, such as that of Australia, do not correspond to such a characteristic of the state. Here the state is very much under the influence of one fraction of capital: the raw material producers. See Richards (1976) for a confirmation of this point with respect to Australia.
- 35 Naustdalslid (1975) argues that there will be an increased contact between the (then) Ministry of Industry and Norwegian oil capital which will strengthen both of them. The loser will be the Ministry of Finance as the overall coordinator of the Norwegian economy (and hence as representative of 'capital in general').
- 36 For a summary of O'Connor's work see O'Connor (1973), pp.5-13.
- 37 But if the Norwegian state's main aim in the period up to 1975 was to maximize its total rent to try to overcome a 'fiscal crisis', the state would presumably have sought to maximize its total production and not control output. This seeming paradox can be explained by the fact that an intensified rate of extraction would have meant a more than proportional increase in state expenditure due to the whole range of externalities which would result from an increased rate of production. Also at this time the structural consequences of oil production had still not shown themselves fully, so the reasons for an increased output put forward on p.273 had not yet made themselves felt. It was only later that these reasons 'swamped' the effects of the externalities referred to above.
- 38 Total taxes corresponded to 47% of GDP. Parliamentary Report no.1 (1976-77), Table 1. Of OECD countries only Sweden had a higher percentage of taxes as a percentage of GDP.

- 39 For such a perspective see Rowthorn (1977).
- 40 Holloway and Picciotto (1977) and (1978), Introduction, argue such a point. Their perspective is wider than Rowthorn's because they include a restructuring of the political process as part of the total restructuring referred to in the text.
- 41 In 1976 the state acquired the majority shares of the construction firm Høyer-Ellefsen which was part of Norwegian Contractors. This followed a rescue operation for the ship-owner Hilmar Reksten. These shares were then sold to Norwegian private firms in 1977.
- 42 Minister of Industry Finn Lied referred explicitly to 'Konsesjonslovene during a debate about St.meld. no.95 (1969-70) and St.meld. no.76 (1970-71) when he defended an increased role of the Norwegian state in the North Sea. Stortingstidende, p.3219.
- 43 Following the defeat at the Annual Conference in 1949 of the left wing of the Labour Party which wanted to extend and reinforce the autarkic tendencies of the post-war 'siege economy', the majority of the party expressed no principled doubts about relying on foreign capital to provide capital inflows for investments. First, it was argued that foreign investment provided valuable jobs, which was seen as an absolute political priority and would also increase the total value of exports. This attitude was further reinforced by the knowledge that the companies often controlled the whole vertical production process of an industry (as in aluminium). Consequently to insist on Norwegian control over only one part of a vertically integrated structure (while the companies controlled both the marketing and the raw-material end of the process) was seen as irrelevant. Finally, the Norwegian government's position in the after-war period could be seen as a virtually inevitable consequence of the liberal world-view of international economics which it had adhered to at Bretton Woods in 1944, see Rød Larsen (1977).
- 44 A high degree of socialisation of production can also mean that the time before any profit can be realised is so long that private capitalists refuse to invest in the project. Infrastructure is an example of such a commodity. See also Altvater in Appendix H.
- 45 SSB (1976) 'Statistical Yearbook', p.58. The figure excludes all investment related to oil and gas production, but includes investment in nationalised industries.
- 46 Extrapolated from Aronsen (1976), p.2.
- 47 For a more detailed discussion of the concept of 'General Conditions of Production', see Appendix H.

- 48 Foley (1976), p.64.
- 49 Barraclough (1975a), p.21.
- 50 Ford Foundation Report estimate, ibid, p.22.
- 51 A similar argument can be made with respect to the OPEC countries where there is also an 'objective' need to accumulate capital for the purposes of industrialization. But the exact form this 'need' takes depends, as in the Norwegian case. upon the political institutions, i.e. the specific state structure through which it is mediated. No thorough exposition can, of course, be made here about that process, but see especially contributions by Clawson, Hein, Turner in Nore & Turner (1979) for such a connection.
- 52 This trend has recently been accentuated, as Statoil now has started to participate in the financing of general exploration costs. On blocks 24/11 and 24/12, according to terms announced in October 1976, Statoil is to shoulder 7.5% of exploration costs even if no commercial find is made, a break with the basic state participation agreements negotiated as Scenario 1.
- 53 Anonsen (1976), p.2.
- 54 Estimate made by the Scottish merchant bankers Noble Grossart, quoted in Kirkby (1976).
- 55 Brown (1975), p.3.
- 56 Estimates by Chase Manhattan quoted in Anonsen (1976).
- 57 ibid.
- 58 Up to 1973 \$80 bill. alone had been channelled through the Eurodollar market. Ranfors (1975), pp.116-121. There were also other financial institutions to draw on. The European Investment Bank, which in principle should earmark its lending for EEC countries, has in reality channelled large sums to the Norwegian sector. In the words of its director, even if Norway was not a member of the EEC, "we had no difficulties in accepting that it was of Community interest (to finance Norwegian oil developments - PN), since the oil was coming to the UK, the gas to Germany for distribution there and in the Netherlands, Belgium and France" Kirkby (1976).
- 59 Kirkby (1976), p.4.
- 60 Gulnes (1972a), p.5.
- 61 The only exception was the financing of the Ekofisk pipeline. But this was an unrepresentative example which primarily sprang from the Norwegian government's need to strike a 'tough' bargaining in view of considerable domestic opposition to the deal.

- 62 Banks have in particular mistrusted the increasing control that the state has achieved over operations in the North Sea. Chase Manhattan Bank, for example, blocked an effective Norwegian control over the Ekofisk pipeline. See Section 7.3
- 63 L.G. Beckers et.al, Petroleum Department, First National City Bank, London, in Investors Chronicle, 5 September 1975.
- 64 Brown, Director of Noble Glossart (1973), p.120.
- 65 Kirkby (1976).
- 66 Smart and Sæter (1973), p.3. Aas (1975), pp.22-23, gives an overview of how Statoil at the time was financing its capital requirements, part of which was simply borrowed from the state. Statoil has later gone directly to the international market in order to raise finance.
- 67 Longcroft (1975), p.51. This is part of a longer quote which also shows the potentially nationalistic attitudes of this sector.
"A great deal of press comment has been directed towards castigating government participation as an expensive piece of political dogma which should be abandoned. The British government's role in this regard should be re-stated, their role should be to help establish a healthy and expanding independent British exploration industry. Certainly our government is the only possible means whereby the exploitation of our own oil reserves will not be dominated by foreign interests in the years to come.... Only through the British government becoming a participant can Britain remain independent of, and over the years, be less reliant upon the international oil industry through the establishment of a balanced oil industry" (ibid).
- 68 A development loan for Tricentrol to meet their share of the cost for the development of the Thistle field was concluded on 16 June 1976, and guaranteed by the UK state. See FT (NS76), op.cit, p.34.
- 69 Given the importance of the state's role in securing finance for projects in the North Sea, it is not surprising that there were attempts by the private sector to use the state in a manner that was congruent with the way that the state normally had been used by the private sector in the past, i.e. as a passive supporter of private capital accumulation. This idea was clearly present in an early UK suggestion that the state should supply the finance for projects in the North Sea, but only ask for a 'bankers return' on the sums provided. This idea was however never followed up. Its rejection can serve as an indication that the period had passed where such a direct and unambiguous support from the state to the private sector could be put forward and accepted.

- 70 The data is kept by the Norwegian Oil Directorate, which is not allowed to make it public until five years have passed. This rule also applies to Statoil.
- 71 Goksøyr, Interview (1976).
- 72 For a good overview of the present decision-making procedures on the Norwegian Continental Shelf, see St.meld. no.21 (1976-77), which deals with the initial cost overshoots of Statfjord.
- 73 In this sense they differ from the 1969 agreements where no participation on the Operating Committee was guaranteed until a commercial find was made.
- 74 The lower percentage is the stipulation under participation Scenario No.2, cf. St.prp. no.104 (1974-75), p.10.
- 75 This situation is broadly similar in the UK sector. According to SCNI (1974), p.xi, 51% state majority will not ensure complete state control on the Operating Committee; the minority partners maintain effective powers of veto.
- 76 In that case there was no meeting of the Policy Steering Committee between 5 January and 16 June 1976 (St.meld. no.21 (1976-77), p.64). So for almost half a year in the most crucial part of the development planning stage of a field, decisions were taken by other and less formal channels, which seems to have blocked the Ministry's (but not necessarily Statoil's) access to vital information.
- 77 Despite Statoil's 50% share in the concession, the Norwegian government almost had to resign in February of 1977, as a result of its own lack of information about cost escalation on Statfjord. Statoil and Mobil seem to have had a much better cooperation than the Ministry of Industry and Mobil. In view of the greater congruence of rationality between the two firms, this is hardly surprising.
- 78 Even in the case of block 34/10, the so-called 'golden block', where Statoil has an 85% interest and where no foreign company holds any equity, Esso will still be providing 'technical assistance'. The terms of what amounts to a virtual 'service contract' are still secret.
- 79 Lavik, Interview (1976).
- 80 ibid.
- 81 For a forceful statement of this position see Tanzer (1979).
- 82 Lavik, Interview (1976).
- 83 Point made by Jon Bakken, Engineer, Statoil, in interview with PN.
- 84 The probability that the companies will have a technical role to play on the Norwegian Shelf in the foreseeable future is positively related to the speed of exploration of the Norwegian oil reserves and the

- technical complexity (especially deep-water) of exploration. The faster the Norwegians choose to develop the area north of 62°, and the deeper they go, the slimmer are their chances not only of supplying spinoffs (as recognized earlier), but also of gaining enough experience as operators so that Statoil on its own can undertake this task, and thus in a meaningful way replace the international companies.
- 85 Dr. Jesse Wyllie, Executive Vice-President of Gulf Oil, when asked to comment on the UK proposals for majority state participation, contrasted these with the Norwegian policy, which he described favourably in the following terms: "The Norwegians have not done anything like that. Their legislation has not suddenly changed the rules of the game. It is not retrospective" (Banker, December 1974, p.1484).
- 86 For a treatment of different aspects of oil's relationship to Norwegian foreign policy see Sæter (1975) and Brundtland (1975). Ausland (1978) is an interesting piece of work because the author worked in the US Embassy in Oslo from 1969 to 1974. The government's point of view was put forward by Evensen (1971) and Frydenlund (1975).
- 87 Quoted in Ausland (1978), p.45.
- 88 ibid, p.102.
- 89 ibid, p.34.
- 90 Such an assessment of course depends upon the future geographical spread of world production, the size of new reserves and the political development in the key OPEC countries.
- 91 We will not go into any detail about Norway's relationship to IEA, partly because Norway did not join until 1975. But it must be said that IEA was perceived as a threat to a 'national' oil policy in general and to the question of the rate of depletion in particular when the agreement was first ratified by the Storting in April 1975. Ms. Berit Ås, leader of the Socialist Electoral Alliance (SV) criticised the IEA as the product "of an American move to create a new US dominated organisation similar to previously established organisations like the World Bank, the IMF and NATO" (FT, 1 May 1975). Former Prime Minister Per Borten (Centre Party) called for reassurance that Norway would itself have the right to define the Norwegian reserve production capacity for oil, in case of an emergency, as well as to define when an emergency had arisen. The interpretation that the creation of IEA was basically the West's 'answer' to OPEC is provided by Sæter (1975) and Ausland (1978), p.34, among many others.

FootnotesChapter 9Conclusion

- 1 It is in this context important to note that the strongest challenge to the companies came in the aftermath of the EEC referendum which momentarily weakened the last constraint referred to in the text.
- 2 No comprehensive analysis has as yet been undertaken concerning this trend in Norwegian capitalism, but even a casual glance strongly suggests the existence of such a trend. SAGA operated in 1974 in six countries: UK, Holland, Italy, Peru, Guatemala and Ireland, while Hydro saw an equal expansion as a producer in the US, Abu Dhabi and in Italy. The realisation by the international companies that their chance of obtaining concessions were proportional to the degree of participation by Norwegian firms in their operating consortia also helped to tie Norwegian firms closer to international capital. This tendency is also clearly seen in the engineering industry (cf. the creation of NPC and the many bilateral production agreements between Norwegian and foreign firms, e.g. Aker's cooperation with Brown & Root, De Grooth Offshore Contractors, and Moran Bros.Inc. just to mention a few).
- 3 The official report from the blow-out blamed the Norwegian Oil and Gas Directorate for weak inspection routines. See NOU: 15 (1977), p.5.
- 4 The bad working conditions, the existence of virtual company unions, and low wages paid to non-Norwegian labour, has led to bitter conflict during the construction of several oilfields. In October 1978 Spanish workers carried out a successful four-week strike, mainly on the question of union recognition, against Mobil, and Brown and Root/Aker, the firms in charge of the construction of Statfjord A.
- 5 These failures have lately (1978) been accentuated by the sudden need by the Norwegian state to earn rent as fast as possible from the North Sea to cover its present balance of payments deficit and to increase industrial employment. The deficit has arisen because the oil has been produced at a slower rate than was initially expected, and because Norwegian policy-makers miscalculated the extent of the present world depression. Their economic strategy of borrowing abroad in order to maintain a high level of aggregate demand in Norway throughout what in 1975 they thought would be a short-lived international recession,

ran into problems as the depression continued. A new phase of Norwegian oil policies has recently been introduced, whereby the granting of new concessions is tied to the applicant's willingness to create employment in Norway, whereby industrial firms like the Swedish Volvo and the German Veba (through Denimex) have been promised oil concessions in the North Sea on the condition that they form joint industrial ventures with the Norwegian state. It should be stressed that the reason such industrial investment is needed at least partly springs from the collapse of the traditional Norwegian export industries, which again is partly a result of the expected oil revenues' effect on unit costs in industry. This new trend has important long-term consequences for the way that the Norwegian state will be tied to international capital, and thus reduces its ability to pursue an independent oil policy.

- 6 Preface to Chevalier (1974), p.8. A similar self-satisfied statement was made by a Norwegian MP when he stated: "It is possible that the multinational companies have not been accustomed to a situation where the state wants a decisive influence. But Norwegian oil policy assumes this, and the companies had better abide by that." (Arvid Johansen, Stortinget, 6 June 1974).
- 7 Statoil's expected turnover will by 1980 reach Kr. 4.6 bill. if we cautiously assume a constant oil price in money terms (St.meld. no.21 (1976-77), p.48. This will by then make it Norway's largest company. A couple of years later the state oil corporation should be earning a substantial profit, and by the mid 1980s probably become the most profitable single company in Norway. By 1976 Statoil with Kr.1.55 bill. also had the largest capitalisation base of any single Norwegian firm. St.meld. no.19 (1976-77).
- 8 Statoil's role cannot be isolated from other aspects of the state's oil (or industrial) policies. Statoil is merely the most dramatic expression of a trend that has accelerated and which has recently made itself felt in Norwegian society. This is the increased productive role of the Norwegian state. During 1975 the state increased its equity holdings in Norwegian industry by Kr. 2.3 billion. As a result, its share of total Norwegian industrial equity reached in 1975 between 40% and 45%. The Ministry of Industry directly controlled 30% of this total compared with 15% in 1970 and 21% in 1974. (NI no.22, 1975, p.5). A number of the state's important ownership shares are either

directly or indirectly related to the Norwegian oil industry. The extraction, refining, reprocessing and retailing of oil products thus seems very much to be the 'tail that wags the dog' as regards a state productive role in the Norwegian economy. But there are also more indirect effects from oil in the state-owned sector. The Norwegian state bought in 1975 a controlling interest in Alcan Aluminium for Kr.600 mill. The ready availability of the finance for this transaction was clearly a reflection of the country's expected future oil income.

- 9 The most immediate expression of this trend is the huge increase in expected state revenue from oil. In Norway the income of the state, both from taxes and from Statoil, is expected to reach Kr. 16.1 bill. by 1982. (Det Reviderte Nasjonalbudsjettet, 1979.) This is equivalent to 7% of GDP and 14% of total state income (1978 figures). This income will give the Norwegian state an increased political 'room for manoeuvre', a development which has already been seen in the facility the Norwegian state has had in borrowing internationally to overcome the world slump of 1974-77. But there are also domestic repercussions of this development. The state's ability both to guarantee accumulation as well as to enact measures that serve the legitimization of the political system is bound to increase with the state's accessibility to an increased share of the rent. The capitalist state's classic role as overall coordinator of economic activity and the entity that facilitates the process of accumulation in the private sector has also been strengthened in Norway as a result of the oil. The relative success of the Norwegian spinoff industries and the centralisation of private capital through the establishment of SAGA was mainly a result of state action.
- 10 For the only author who has tried to deal with this topic, see Noreng (1979).

FootnotesAppendix A

- 1 Such an overview becomes a synthesis of one's own historical understanding of the oil industry. Because the data of this appendix is generally well known, the number of footnotes have been kept to a minimum. My overall view of the history of the industry has especially been influenced by Odell (1974b), Jacoby (1974), Evensen (1971), O'Connor (1955) and (1963), Chevalier (1974), Tanzer (1969), Penrose (1968). But whenever there is reference to the history of a particular geographic area or a particular problem we will make this clear in footnote form.
- 2 It should be noticed that Norway's historical relationship to the major companies in its capacity as a consumer country is not directly relevant for the purpose at hand and will therefore only be treated in passing. All it may indicate, is something about the general level of influence that the international companies enjoyed in Norway in the period up to 1965.
- 3 One episode during this period brings out the strategic value of oil, which was to become of ever-increasing importance as time passed. Winston Churchill argued in Parliament in 1913, at the time the British Navy changed from coal to oil, in favour of the UK state's purchase of 51% of the shares of the Anglo-Persian Oil Corporation (later to become BP). He said, "We (the British - PN) must become owners, or at any rate the controllers, at the source of at least a proportion of the supply of natural oil we require". (House of Commons, 17 July 1913), quoted in Sampson (1975), p.55.
- 4 Two examples show collaboration or at least tacit 'accommodation' between imperial powers and institutions in their handling of oil issues. The Frontier Commission of the League of Nations which was arbitrating the conflict between Iraq and Turkey over Vilayet of Mosul in the 1930s refused to rule in favour of Iraq until the country concluded an oil agreement with IPC (which at the time consisted of Shell, BP, and Standard Oil of NY (now Exxon)), quoted in Kubba (1974), p.77. When the US companies tried to move into the Middle East after the First World War they met fierce opposition from the dominant UK interests in the area. Characteristically there were no attempts by the Americans to try to gain entrance by outbidding the British in terms offered to the Middle Eastern states (as happened

- later). Instead the main confrontation took place between the UK Foreign Office and the US State Department over the head of any producer state. There can be no better indication of the perceived irrelevance of the Third World nation state during this period.
- 5 For an overview of the history of the Mexican industry up to the early 1960s from a former Director General of PEMEX, see Bermúdez (1973). For a more critical assessment from a former World Bank economist, see Levy (1960).
- 6 O'Shaughnessy, H. (1976) provides a brief but extremely useful overview of all Latin American state oil corporations.
- 7 This was accomplished in the immediate post-war period when Exxon and Mobil joined the original partners of ARAMCO (Caltex and Socal) in a move which merged crude-short and crude-long companies.
- 8 Jacoby (1974), p.40. The seven companies referred to as 'The Seven Sisters' were: Esso (now Exxon), Shell, British Petroleum, Texaco, Gulf, Socal, Mobil. When the term 'major' is referred to, the French C.F.P. and US companies like Continental and Phillips are often included.
- 9 For a critical summary of the companies' behaviour during this period see UN European Commission Report (1954), "The price of oil in Western Europe". According to Penrose (1968) the report "caused considerable annoyance among the oil companies" (p.185). According to Hartshorn (1967), after this incident, the UN was "warned off oil" (p.286).
- 10 Jacoby (1974), Table 4.1, p.53.
- 11 Nelson (1963), pp.10ff, shows how concentration tends to decline in rapidly growing industries.
- 12 Blair (1978), having been associated with the drafting of the report, gives an 'inside' story of this particular incident. His Chapters 2 and 3 are based primarily on material in that report (p.71).
- 13 Jacoby (1974), p.12.
- 14 There seems at a first glance to have been an important contrast between American international diplomacy, which directly and uncompromisingly supported the oil companies, and the stated action by the Federal Agencies which on a domestic level seemed to take a more critical attitude. But in view of the final outcome of the anti-trust case, this difference may turn out to be much less of a contradiction.
- 15 Jacoby (1974), p.248 (figures with respect to non-US, non-communist countries).

- 16 ibid., p.211.
- 17 Due to the large percentage of energy needs satisfied by hydro-electric power, Norwegian demand was very much concentrated in relatively unusual items like heavy fuel oil and diesel.
- 18 For a short overview of Esso-Norge's history, see Norsk Esso (1974).
- 19 See for example the interpretation by Odell (1976), p.36. It was clearly in the interests of the companies that the State adopted the argument of 'security of supply'. This policy not only led to international expansion and supportive State diplomacy internationally, but also resulted in extremely profitable protective policies for their home operations.
- 20 For a summary of the Venezuelan case study see: Tugwell (1975) or Hein (1979). The latter concentrates more on the role of the labour unions in the history of the Venezuelan oil industry.
- 21 Evensen (1971), p.60.
- 22 ibid, pp.31 and 61.
- 23 US Senate Committee (1975), Introduction, p.2.
- 24 According to Szulz (1975) the six major US oil companies paid in 1973 a total of \$642 mill. in US taxes compared with their total net profits of \$6.7 bill., a rate of taxation of 8.2% on gross profits (pp.67-68). The depletion allowance was during this period estimated to cost the US tax-payer \$3.5 bill. p.a. in lost tax revenues, Barraclough (1975a), p.22. For a further critical view of what the US tax system in the oil industry has meant for the allocation of resources, see Adelman (1964).
- 25 An attitude put forward by Odell (1975b), p.13.
- 26 For an introduction to the Iranian case study, involving a comprehensive bibliography, see Clawson (1979).
- 27 Johnsen (1968), p.13.
- 28 Nirumand (1967), p.34
- 29 Johnsen (1968), p.22.
- 30 ibid, p.25.
- 31 Kemit Roosevelt, CIA's head of station in Teheran during this period, admitted later that CIA had engineered Mossadeq's downfall. See: Julien (1968), p.315; Stocking (1970), p.156; Tanzer (1969), p.325; and Sampson (1975), p.127, for a confirmation of CIA's involvement.
- 32 According to one Vice-President of Standard Oil (New Jersey) the nationalization laws gave the consortium rights over Iranian oil

which "were in no way inferior to real property rights". Quoted in Johnsen (1968), p.37. One should nevertheless note that the 1954 terms were more favourable to Iran than those in operation before 1951.

- 33 In 1947 Western Europe had a refining capacity of 10.9 mill. tons with a total consumption of 37.1 mill. tons of refined products. By 1954 the area was self-sufficient in refined products. Quoted in Johnsen (1968), Chapter III.

FootnotesAppendix B

- 1 Bye (1940), p.103. One should note that a number of neo-classical writers including Walras would agree with this statement.
- 2 For a clear summary of Marx's theory of rent, see Ball (1976). Marx's own views are set out in Marx (1969), Vol.2 Part VI and Marx (1969), Vol.2 Part 3. For a critical survey of marxist work undertaken in the field of rent, see Edel (1975).
- 3 Desai (1974), Chapter II.
- 4 Murray (1977) has stated, "In this essay I want to re-assert the importance of Marx's value theory for rent analysis and in doing so, to relate the issue of rent to the more general debate on value" (p.101).
- 5 It was a letter from Dr. P. Clawson, New School of Social Research, New York, that first alerted the author to this aspect of Marx's thinking. See also Clawson (1979), Part I.
- 6 Bye (1940), p.101.

FootnotesAppendix C

- 1 Hulsey (1964), p.19.
- 2 Newendorp (1975), p.23.
- 3 Tanzer (1969) claims that the change in the investment criteria meant that the companies encouraged a 'quick kill mentality'. He gives an example whereby a company according to a discounted investment criterion would prefer a once and for all income of \$40 mill. in year 1 to \$15 mill. in perpetuity (Chapter 1). While his point is generally correct, his specific example makes no sense unless the chosen discount rate is revealed.
- 4 See for example a number of Norwegian White Papers connected to the oil industry, perhaps the clearest example being Ot.prp. no.26 (1974-75), Appendix I. Note that this does not contradict what was said earlier about the use of undiscounted figures which are being used alongside the IRR criteria.
- 5 See for example the reports from Wood MacKenzie stockbrokers in Edinburgh, an example of which is reproduced in Petroleum Economist, December 1975.
- 6 Hulsey (1964), pp.23-24. This point tends to support Tanzer's argument presented in footnote 3 above.
- 7 Newendorp (1975), p.550.

FootnotesAppendix D

- * This appendix is based on a paper given to a conference organised at PNL by the London and South East Branch of the APTE in February 1977 with the title "The role of the state in orthodox economic theory". The title of the conference was "The state and the economy".
- 1 Peacock and Wiseman (1961), p.12.
 - 2 Johansen (1971), p.12.
 - 3 Peacock and Wiseman (1961), p.12.
 - 4 Samuelson (1973), p.160.
 - 5 Peston (1972), p.12.
 - 6 Davis (1975) is the only writer who has attempted to employ the framework of externalities in the North Sea to analyse the situation for oil-producing states.
 - 7 Peston (1972), p.14.
 - 8 Robbins (1947), p.20.
 - 9 Samuelson (1973), p.156.
 - 10 Quoted in Bartlett (1973), p.9.
 - 11 For a non-technical exposition see K. Arrow, 'Values and Collective Decision-making!', in Laslett and Runciman (1963).
 - 12 Musgrave (1959), p.132.
 - 13 See Buchanan and Tullock (1962).
 - 14 Bartlett (1973), p.14.
 - 15 For an analogous argument related to profit maximization see T. Scitovsky in American Economic Association's Readings in Price Theory, 1954.
 - 16 For a pure description of this development see Gough (1973).
 - 17 McCulloch, p.298.
 - 18 Wealth of Nations, Book IV, Chapter IX.
 - 19 No writings of A. Wagner have been translated into English. R. Goldscheid's 'A Sociological Approach to Problems of Public Finance' is found in Musgrave and Peacock (1958).
 - 20 See J. Haines (1977), The Politics of Power (London: Jonathan Cape), Chapter 3.
 - 21 Solo (1975), p.100.

FootnotesAppendix E

- 1 The key references for this overview are Einarsen (1970) and Stonehill (1965).
- 2 Einarsen (1970), p.164.
- 3 SSB (1965), p.137.
- 4 From SSB: Credit Market Statistics and Census of Establishments, 1963, quoted in Einarsen (1970), p.170.

Appendix G

- 1 PPS, May 1963, p.192.
- 2 See Oil on troubled water (1976), p.3, which makes a similar point.
- 3 OGI, September 1964, pp.71-73.
- 4 IPR, May 1965, p.192.
- 5 The figure rose from 3% to 11%, CPA (1973), p.
- 6 IPR, September 1965, p.442.

Appendix H

- 1 Marx (1973), p.526.
- 2 ibid, p.530.
- 3 ibid, p.531.
- 4 ibid, p.532.
- 5 Altvater (1973). For an overview of his general thinking and its relevance to Norway, see the interview with him in Kontrast no.3-4, 1978, pp.82-89.
- 6 Altvater (1973), p.105.

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