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## **Economic alliances, cartel instability, and the future of OPEC**

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### **Citation**

Linde, C. van der, & Bergeijk, P. A. G. van. (1995). Economic alliances, cartel instability, and the future of OPEC. *Acta Politica*, 30: 1995(3), 265-288. Retrieved from <https://hdl.handle.net/1887/3450279>

Version: Publisher's Version

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**Note:** To cite this publication please use the final published version (if applicable).

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## Economic alliances, cartel instability, and the future of OPEC

Coby van der Linde and Peter A.G. van Bergeijk<sup>1</sup>

### 1. Introduction

The continuing weakness of OPEC as a market regulator has muffled the debate about cartel formation in the oil market. Although some authors point to fundamentals (like proven reserves and production capacity) as the source of new, near future, market power for OPEC, we will argue that OPEC, in its present configuration as an economic alliance of 12 member states, will not return to its powerful position at least until after the first decade of the 21st century. By then, either the configuration of OPEC will have changed or the organisation will have modified its function.

Since the early 1980s OPEC has been unable to strike dependable agreements on production among its member states; agreements were for public consumption only. OPEC has become a weak market regulator, and has been less and less successful in reconciling the individual and collective interests of the member states. Differences in oil reserves, production capacity, dependence on oil income and the degree of vertical integration have brought conflicting interests to light concerning price and production levels. Quite a few of the OPEC member states are in such severe economic peril now, that they (the governments) cannot fully invest in new oil production capacities that would solidify their oil future. With its member states, OPEC is at the crossroad. At the end of the 18 September 1992 meeting, Ecuador announced its resignation from OPEC as a full member. This announcement represented the open admission that, in fact, over the last few years, the interests of individual members had not been served by the collective action of OPEC on the oil market.

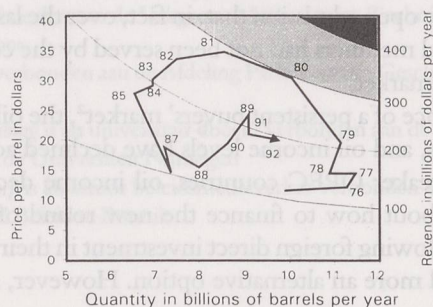
Due to the existence of a persistent buyers' market<sup>2</sup>, the oil price has been weak in recent years, and oil income levels have declined accordingly. For the economically weaker OPEC countries, oil income declined so much that they worried about how to finance the new round of investment in their oil industry. Allowing foreign direct investment in their oil industries is becoming more and more an alternative option. However, attracting these

foreign investments is more feasible if the possibility of striking agreements to limit production is abandoned, although this will further weaken the position of OPEC as a market regulator.

The international oil markets have been struggling with surpluses for more than 10 years now. The relatively high oil prices of the early 1980s encouraged substitution, energy saving and more efficient use of oil, which have made the demand for oil more elastic. Particularly important was the decreasing oil intensity of the OECD economies, which resulted in a much smaller increase of these countries' demand for oil than OPEC had hoped for. Only the demand from the developing countries increased significantly (4.3% in 1993); in 1993, demand from the European Union (-0.6%) and non-OECD Europe (16.5%) decreased. In 1993, world oil consumption decreased with 0.8% (BP 1994: 8). The continuously depressed market for oil intensified the (distributional) conflicts among the OPEC member states over policy issues. Currently, OPEC produces around 26 million barrels per day (or b/d), which is about 41% of world production. Of this, Saudi Arabia is responsible for approximately 8.5 million barrels per day. Since the Gulf war of 1990/91, the Saudi share of OPEC production increased from 23.9% to 32.6% of OPEC production in 1993. Kuwait produced more in 1993 than in 1989, the last full production year before the Gulf war. Since 1989, Venezuela has increased its production with half a million barrels a day and Iran with more than three quarters of a million b/d.<sup>3</sup> The other member states' shares were either stagnant or declining. Moreover, the growth in world demand in the last few years has for 2/3 been satisfied by increased production from the North Sea. Furthermore, the imminent return of Iraq to the international oil market in this period has created a substantial potential market overhang and this continues to depress prices.

Figure 1 illustrates the rise and decline of the OPEC cartel. The decline of market share that is at the root of OPEC's problems is not a new phenomenon. The international oil market has progressed through earlier cycles of

Figure 1: Price-quantity diagram, OPEC 1975-1992



concentration and deconcentration, where market players assumed control and were later challenged by competitors. In each cycle, new market players entered the market and challenged the position of established companies or co-operative groups. Also, governments have played an active role in the regulation of the industry, producing an international industry with active public and private market players that compete, coordinate and at times control the market (Van der Linde 1991). Nothing suggests that this historical pattern will be broken.

This article addresses the rise and fall of economic alliances. We use the case of the Organization of Petroleum Exporting Countries as the focal point of our analysis. In this article we will analyse the future of OPEC as a market regulator. In section 2 we will look at some economic theories, like growth-decline theory, cartel theory, game theory, and derived demand theory, which study the formation and the dissolution of economic alliances in markets. Alliances dissolve when the market conditions (incentives) for co-operation change or disappear over time.<sup>4</sup>

The residual demand approach helps to understand why economic alliances strive for market power and is a useful tool to investigate whether this market power is attainable in the near future. The concept of the elasticity of residual demand quantifies the productivity of the alliance to increase oil revenues for its members. Based on key economic parameters, like price elasticity, market shares, proven oil reserves and depletion rates, the derived demand model is used to analyze and predict both the past and the future of OPEC's market power (Van Duyne 1975). In the third section we will look in more detail at distributional conflicts in OPEC that were the major destabilizing factor of OPEC in the 1980s. In section 4, we will discuss the new market conditions that hold the key to OPEC's future. The example of Ecuador's resignation raises the question whether more member states will follow and will embark on joint-ventures with private international oil companies that seem to have more to offer to small and/or economically troubled oil producers. Given these developments, it leaves us with the important question what sort of future there is for OPEC as an economic alliance that aims at market regulation.

## 2. Economic theories of economic alliances

### 2.1 Growth-decline theory

In the history of the modern oil industry, the market has been dominated by two cartels (the 'Seven Sisters' and OPEC) and a monopolist firm (Standard Oil). Each of these periods of strong market concentration took place in a

maturity/stagnation phase of an oil product cycle. In this phase of the growth cycle, the product has reached a low elasticity of demand and the prospects for major cost decreases have (temporarily) diminished, which has made price competition less attractive or harmful to profits.<sup>5</sup> In this case cooperative agreements (cartels or syndicates), mergers and takeovers, or the establishment of price leadership are used to avoid price competition. Furthermore, horizontal and/or vertical integration also increase in the maturity phase. While vertical integration will diminish in an advanced stage of the stagnation phase, horizontal concentration remains strong throughout the cycle. The probability of vertical integration is a function of transaction costs, the specificity of investments and the complexity of inputs, risks and market size (Williamson 1985; Tirole 1988: 33-34). The level of market concentration varies with the limits to the size of the firm. The size of the firm is limited by the diminishing returns of management, changes in the level of uncertainty and risk, and/or growth and contraction of the market. In the logic of growth-decline theory, the level of both concentration (and thus of successful cartelization) and deconcentration of the (international) oil market must be considered as a function of the particular phase of production in a growth cycle; for this reason, they are of limited duration.

It is, therefore, not surprising that the history of the oil industry is characterized by a succession of periods of monopolization/cartelization and periods of market deconcentration or increased competition, when markets start to expand again as a result of the opening up of new markets (geographical or product-wise). In expanding markets, the probability of successful cartel formation is low, while in the mature stage of the product cycle the likelihood of cartel formation increases because of the uncertainty of the effect of price competition on profits and market share.

The successful cartelization of the international oil market in 1973 by OPEC took place in the transition from an expansionary phase into maturity, and concluded a period of competition which occurred after the 'Seven Sisters' had seen their cartel power disintegrate in the 1950s. The similarity with OPEC's present perils is striking. The destabilization of the corporate cartel transpired in a period of large crude oil surpluses, when barriers to entry had become rather low. Basically, the companies had a choice between increasing output, and thus reducing prices, or maintaining high oil prices by means of output restrictions. Due to the imminent expiration of their concessions, a large quantity of oil would certainly have been left unproduced. This in turn, influenced their user costs, discount rates and consequently their pricing goals. The individual oil companies did not have much choice in determining the desired output level. The fact that the oil market gradually became more competitive meant that 'any individual producer's efforts to prevent a price fall by output cutbacks would have only resulted in the re-

duction of his own revenues' (Johany 1982:97). This distributional conflict among the private companies also transpired among OPEC member states in the 1980s.

## 2.2 Cartel theory

The literature on cartels provides a large number of definitions that suggest disagreement among theorists (Cox 1981; Barnikel 1972). However, most definitions share enough basic characteristics to combine them. The common attributes are: 1) cartels are defined as agreements and/or non-agreements based on reciprocal behaviour of economic subjects; 2) the cartel members remain legally, financially and organizationally independent economic units; 3) the definitions stress the differences of ends and means of cartels; 4) the restrictions on competition are determined by the ends and means of cartels; and 5) generally the definitions only apply to supply cartels (Cox 1981: 231). We define a cartel as:

an agreement (formalized or by acquiescence) between independent market participants in the same or parallel sector, which are (potentially) competitors in the same market(s) or product(s), have action parameters in common and attempt to regulate or influence the market conditions to their own benefit (Van der Linde 1991: 21).

Is OPEC a cartel? With regard to the classification of OPEC as a cartel, some problems of definition remain unanswered. The existing literature is not particularly coherent in this respect. The cartel definitions cited in Cox (1981: 229-31) and Barnikel (1972: 181-90) in general do not include national states or international organizations as possible independent market participants. Several definitions are suitable to analyse cartels on national markets and do not capture the particulars of international cartels. According to quite a few of these cited definitions, OPEC would not be a cartel.<sup>6</sup>

Generally speaking, economists are not particularly interested in the question whether OPEC is a cartel or not. They argue that assumptions do not matter as long as they produce interesting and testable hypotheses. If a cartel model describes OPEC behaviour reasonably well, then the OPEC can be considered as a cartel.<sup>7</sup> Obviously, this approach offers a limited perspective on OPEC, as it does not deal with the strategic, military and diplomatic issues that are so central to the actual success of OPEC in the 1970s. For example, the oil price hike from \$2.60 per barrel in January 1973 to \$11.70 per barrel in January 1974 can only be fully understood with reference to the Arab League's oil embargo against the United States and the Netherlands (Hufbauer and Schott 1985: 465-72). Indeed, given its present lack of market power there would hardly seem to be an economic reason for OPEC's exist-

tence as a cartel. Hence political and strategic explanations are needed to understand why OPEC still exists (in addition to institutional hysteresis, stubbornness, shortsightedness and economic illiteracy of policy makers).

The agreement between the independent market participants can be both a result of force or of free choice, formalized or in unofficial acquiescence. The independent market participants can be private or state companies, or a mixture of entities. The market participants should, however, be potential competitors in specific market(s) or good(s) and therefore be financially and organizationally independent. Cartels may take a wide variety of forms, whether they are classified by type or by action parameters. There are price cartels, production cartels, market sharing cartels, syndicates, etc.

The likelihood of cartel formation depends on a low price elasticity of demand and supply, that is, on a lack of responsiveness of demand and supply to price (changes). Price elasticity of supply and demand tends to decrease in the course of a growth cycle, which explains why the oil industry cartels existed predominantly in the maturity and stagnation phase of particular growth cycles. The likelihood of cartel formation also increases when there is enough cohesion and/or sufficient common interest among the cartel members. The cartel gains stability if the number of products or sort of products is limited and if the products are homogeneous. Furthermore, a small group of (large) cartel members will constitute a more stable cartel than a larger group of smaller members, but a small number is not a prerequisite. The cartel group should always have a substantial market share. In the long(er) run substitutes can reduce the market share of the cartel. High barriers to entry do make cartel formation easier to accomplish. The stability/durability of a cartel can be endangered if market participants outside the cartel (in the same branch or from another branch) may easily enter the market either because an entrant possesses superior technology, and/or there is no time for the established firms to preempt entry and/or the established firms lack complete information on the entrants' qualities (Tirole 1988: 346). The stability of a cartel is also secured when the cartel members' income needs from oil can be satisfied or income can be properly redistributed among the cartel members (see section 2.4). The OPEC member states were and still are developing countries that intend to invest the oil income into economic growth and economic diversification. In order to achieve economic development, their income needs had to be satisfied. However, according to Moran (1978), OPEC is facing problems common to all oligopolies. The group as a whole can maximise the economic benefits if

the members coordinate production decisions as if they were a monopolistic supplier, but the economic benefits to individual members will be maximized if they can expand their output by offering price discounts without being disciplined by the cartel and without inducing the cartel to fall apart.<sup>8</sup>

The linchpin of OPEC's policy has been to achieve a price level that would satisfy the income needs of its member states. However, every member state has a different discount rate. This will result in different current values of a barrel of oil. In the early 1980s, it became clear that OPEC could only satisfy some member states' income needs, and then only at the cost of other member states. This created a serious distribution of income problem among the member states that has not yet been solved.

For a deeper understanding of the distributional problems and optimal pricing policies for the individual member states we must turn to Griffin and Teece's (1982) critique of (work based on) Hotelling's depletable resource theory. OPEC's pricing policy in the 1970s led to a renewed interest in Hotelling's theory.<sup>9</sup> This theory has been the underpinning of many studies on oligopolistic/monopolistic pricing behaviour. In response to these studies, Griffin and Teece demonstrated the shortcomings of the Hotelling approach. Griffin and Teece argued that the idea that OPEC producers have priced their oil above marginal cost in the 1970s and early 1980s was wrongly interpreted as an indication of wealth-maximizing monopolistic behaviour. They went on to argue that:

Knowing that price equals marginal cost in a competitive market, one might be tempted to reason that OPEC is a wealth-maximizing monopolist based purely on the observation that the market price grossly exceeds the marginal cost of producing crude in the OPEC countries (\$.10 to \$.25 per barrel in most Persian Gulf countries). This fallacy arises from an inadequate understanding of marginal cost (Griffin and Teece 1982: 14).

The concept of marginal costs is based on renewable inputs in the production process, and the decision to produce today does not affect the costs of producing in the future. Marginal costs then entirely consist of marginal production costs: labour and intermediate inputs (including material costs) to produce the last unit of output. However, according to Griffin and Teece, production of a depletable resource does affect the costs of production in the future and, therefore, also the current value of a barrel of oil produced today instead of in the future. Marginal costs in this case are not only constituted by marginal production costs but also by opportunity costs that depend on future supply and demand conditions, proven reserves, technical production capacity, technological advances to improve extraction from a single field, new supply from other countries, income elasticity of oil, economic growth, and the impact of a backstop fuel.<sup>10</sup>

The wide diversity of the reserve-to-production ( $r/p$ ) ratios of the OPEC member states (see Table 1) results in different discount rates and, subsequently, in a desired current price for oil. The future demand and supply conditions will, therefore, vary for each company or for each OPEC mem-

ber state. The instability of OPEC, based on a lack of common interest, is stressed by Moran (1981:244):

While useful in sketching a general path of aggregate self-interest, the rational monopolist approach suffers from representing the OPEC cartel as if the members are motivated to behave over time as a single unified factor. In reality, the individual governments of OPEC have differing 'rational' economic interests depending on social pressures, revenue needs, alternative sources of exports earnings and fiscal income, hard currency financial assets, and geological reserves. Hence, they have different discount rates for present versus future earnings and different strains or pains associated with holding spare capacity or not developing additional capacity. Ultimately the members of OPEC have different preferred price and production paths for the exploitation of their petroleum reserves.

Accordingly, the diversity of the OPEC member states will also be expressed in their national price and production goals. Collectively, OPEC can strive for wealth maximization, but it cannot do so for its member states. The fact that OPEC is an intergovernmental organization, and that the member states continue to enjoy sovereignty over their national petroleum policies, combined with the differences in optimal pricing goals, prevents the pursuit of a wealth-maximizing policy by OPEC. Indeed, OPEC's policy has been the outcome of conflicting national income goals and national long-term pricing goals. Since 1973, OPEC's market behaviour has had elements of a price-fixing, a market-sharing and a target revenue cartel.

The income needs of the member states are determined by spending needs and plans. Governments that try to administer price and production with regard to target incomes face the continuous shift in 'income requirements'. A member state will, therefore, have to reach a compromise with other OPEC member states which might frustrate the achievement of national pricing and production goals. Furthermore, OPEC has to cope with the growing disparity in the member states' income requirements. The initial limitations to the absorption capacity of some member states and the growing disparity in economic strategies has increasingly impeded OPEC's ability to regulate prices and production satisfactorily for (any group of) member states.

Indeed, nation states can apply a variety of measures to satisfy their own objectives, or the cartel's objectives. Thus, these measures can be used to reinforce the cartel but can also destabilise it. These measures can be political, economical, and ultimately also military. A cartel of nation states must imply that, in terms of our definition, their attempt to regulate or influence the market conditions to their own benefit should be read as 'to their own *political, economic or strategic* benefit'. Based on its market behaviour, OPEC does comply, at particular moments in time, with our definition, but the feasibility, operation, and durability of the cartel should and can be explained by more than economic factors only.

### 2.3 Game theory

Market conditions have changed so much over the years that OPEC is no longer able to realise its main objectives. These objectives stress in particular the importance of stable prices and income from oil export for the member states.<sup>11</sup> The pursuit of a coordinated or even uniform oil policy by the member states was considered of great importance for the realisation of these objectives. The realisation of said objectives, by means of which both collective and individual objectives should be pursued as fully as possible, however, requires converging developments in the oil industries and economies of the member states. As long as the member states lacked influence on the price and production levels (international oil companies had oil concessions) the member states had a common objective: obtaining influence over price and production. In the market conditions of the late 1960s and early 1970s, increased influence for the member states automatically led to higher oil incomes. At that time, the heterogeneousness of the member states played no significant role. In game theory terms, it can be asserted that before and during the oil crisis of 1973 there were sufficient common interests to enable agreement to be reached. Market conditions allowed both short term windfall profits and control over the levels of production to be achieved. Thus, the members were in a cooperative game without conflict, and they could reach a Nash equilibrium (Rasmusen 1989:33) Put differently, it is possible to say that the international oil market in 1973 satisfied the criteria for the formation of a strong cartel. Demand was price inelastic and supply was strictly concentrated. Therefore, after the Tripoli and Teheran agreements of 1971 in which the member states gained more say in prices and production, supply was also inelastic in the short term. The OPEC members produced around 55% of world production in 1973 and accounted for around a 73% share of oil exports (OPEC 1986: 25). The year 1973 represented a unique year for the members of OPEC, one which can not be repeated. From then on, the centrifugal forces on OPEC increased; that is, 1973 immediately brought the asymmetry among the member states to the fore, when they had to formulate their policy objectives. This change was the result of the transfer of property rights, and, therefore, a change in the economic determinants of the member states' strategic behaviour and their ability to make credible commitments.

After 1973, the member states' different economic determinants transformed OPEC into a typical example of the prisoner's dilemma, i.e. a non-cooperative game characterized by conflict. This model assumes that the member states maximize their own utility functions, and, therefore, cannot make binding commitments. Although the member states can agree to cooperate, they will, when the time comes, act according to their maximum

individual payoffs (Rasmusen 1989: 29). This opportunistic behaviour was also observed by Moran (1978), who pointed out that the reward for cheating in OPEC was great. The developments in OPEC in the 1980s confirm this view. This game theory model emphasises the instability of OPEC, which prevents it from coordinating their market behaviour as a single monopolist.

The lack of symmetry and the existence of different objectives and strategies is not sufficient to explain the instability of OPEC. Even in an asymmetry model of a leadership-follower type relationship between member states, the stability of the cartel would depend on the dominant player(s) establishing the leading price for the group, assuming there is a finite set of players. Jacquemin (1987: 72-4) shows that in such a situation, in which the players take the interaction between their decisions and their environmental conditions into account, an equilibrium of the leader-follower type can be stable, without the tendency for the leader to disappear. After 1973, however, none of the players or sub-groups of players in OPEC held a dominant set of economic, political, and strategic factors, which might facilitate a leadership role for a sustainable period of time, and might give the group some stability. From a purely economic point of view, for instance Saudi Arabia and the other Gulf member states should have been able to assert a leadership role after 1973; politically they lacked the power to do so. Consequently, in 1979/1980, Saudi Arabia was unable to assert its leadership, and prices were set by a group of players that lacked the economic parameters to assume leadership.

The control over oil production was completed in the period 1974-78 as the interests of the international oil companies were nationalised and organized in national oil companies. In addition to the differences in oil reserves and production capacity, the creation of national oil companies introduced another latent source of conflict in OPEC. The diverse range of conflicting interests within OPEC increased because: (a) the interests of the state and the interests of the national oil company are not necessarily the same and both alter over time; (b) the market strategies of the various national oil companies increasingly vary; and (c) differences in the degree of internationalisation and vertical integration of the national oil companies impose diverging demands on the price and production policy of the member states, and consequently of OPEC.

#### 2.4 Quantifying OPEC's productivity to increase its member states' income

OPEC is the archetype of an economic alliance. Many cartels for raw materials and natural resources exist or have been proposed (e.g. the International

Tin Agreement and the Organization for Tropical hardwood Exporting Countries, the OTEC). Economic sanctions constitute another example. Sanctions can only be successful if the sender of an economic sanction (often this is an alliance) has sufficient market power to influence both prices and quantities consumed by the target (Van Bergeijk 1994: 31-3; 83-91; Bayard, Pelzman, and Perez-Lopez 1983: 507-555). Despite clear limitations, the residual demand approach may be useful for understanding economic alliances that, like OPEC, seek market power. The concept of the elasticity of residual demand tests the productivity of the alliance in terms of its capability to increase oil revenues for its members.

In order to provide a quantitative assessment of the productivity of OPEC, the elasticity of demand facing the OPEC is calculated as if OPEC were a single producer. Obviously, this will lead to an overestimation of actual market power, because, as we explained, OPEC (like all oligopolies) suffers from problems related to co-ordination and redistribution failures. However, if we find insufficient productivity for the case where we abstract from these problems, then in reality our verdict will have to be even more negative.

The residual demand curve is defined as the difference between world demand and supply by non-OPEC countries. The question that must be answered does not concern so much the precise value of the elasticity of residual demand for OPEC oil, but in fact whether or not this elasticity is greater or smaller than one. The size of this elasticity is relevant because monopoly equilibrium can occur only in the price-quantity range where demand is inelastic, that is, elasticity should be less than one.<sup>12</sup> It can easily be shown that marginal revenue is negative if the elasticity is larger than one; in that case a restriction of production as always increases the market price but this does not compensate for the lower production level and consequently the revenue of the OPEC cartel declines. In early 1987 predictions based on this approach for the period up to 1995 suggested that a restriction of production would be counterproductive and that OPEC's market power would not be restored in the medium term:

striving to increase prices under the present circumstances does not appear to be a rational cartel policy (...) substantial (real) rises, to the levels such as those of 1980-1981 are not very probable in the short to medium term (Van Bergeijk 1987: 14).

An interesting question is whether this conclusion still holds. Consider Figure 2 which reports ranges for the development of the elasticity of residual demand for OPEC oil. Remember that the cartel is only productive in an economic sense if this elasticity is less than one. The underlying calculations of OPEC's market share use a 3 per cent growth rate for oil demand and are based on the 1992 proven oil reserves and depletion rates.<sup>13</sup> It is important to

note that the proven reserves are defined as the quantity of oil that can be expected to be produced in the future on the basis of existing geological and technical knowledge, *as long as economic circumstances do not change* (for example, proven reserves will increase if the oil price rises). We calculate the elasticity of residual demand from the maximum market share in a high growth scenario. Hence, the exercise answers the economic problem whether OPEC in the most optimal situation can revive.

Figure 2: The elasticity of residual demand for OPEC oil (1992–2015)

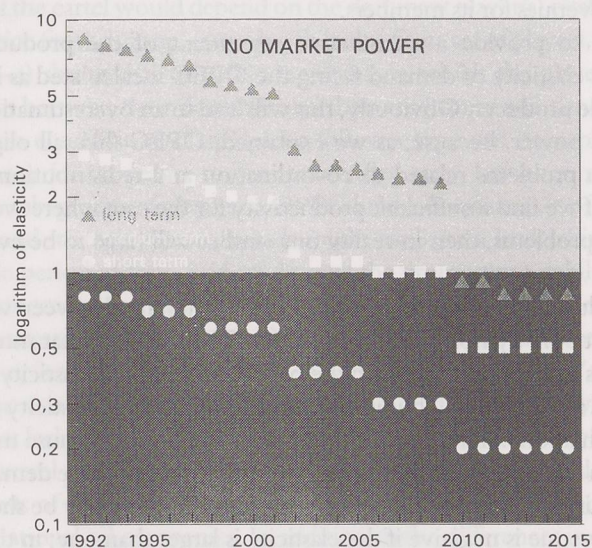


Figure 2 distinguishes three sets of elasticities that relate to the speed of adjustment in the market. In the short term both supply and demand are inelastic while the possibilities for substitution are meagre. In the longer term higher oil prices induce non-OPEC supply and at the same time reduce demand as a consequence of substitution and income effects. The short-term elasticity of residual demand is below the critical value of 1. This suggests that, in contradistinction to the mid-1980s, OPEC can now again achieve a short term gain by reducing output. According to the calculations based on medium term and long term elasticities such a price strategy will be counter-productive, at least in the next two decades. It is, therefore, extremely unlikely that OPEC's market power can be restored to its 1973 level before the year 2010. This section's quantitative method to determine OPEC's market position concludes the discussion of some theoretical notions on economic alliances and cartel behaviour. In order to complete the analyses on OPEC and its future, we will now consider some qualitative factors.

### 3. Destabilization through distributional conflict

#### 3.1 Barriers to cooperation: Heterogeneous

The persistent differences between the member states as to the size of reserves and production (see table 1), as well as the absorption capacity of the economy and the dependence on oil revenues, have resulted in contradictory interests between member states – in the short term as well as in the long term – concerning the desired price and production levels with regard to target oil incomes for the economy and/or budget of the government (Van der Linde 1993: 21–25). The dependence of government budgets on oil revenues creates a situation where an oil market recession will immediately translate in a lower spending capacity of the governments, and, since they play an important producer role in the economy, will lead to a depression of the entire economy. For instance, in 1990/91, the government budgets of Saudi Arabia, Venezuela, the UAE (United Arab Emirates) and Nigeria depended for more than 75% on oil revenues, while Algeria's and Gabon's government budget depended between 50 and 60% on these revenues (Van der Linde 1993: 28). Particularly in populous countries like Nigeria, Algeria and Venezuela, which also have substantial external debts, a decline in oil income can result in a severe economic crisis situation, which needs to be taken into account in OPEC policy-making. In the early 1980s, Saudi Arabia, Kuwait and the UAE were willing to 'accommodate' production of these countries on the market at their own expense (i.e., by not acting against the free-riders), but the ability to accommodate the 'high absorbers' declined rapidly.

Moreover, the degree of vertical integration and the degree of internationalisation of the national oil companies changed the market strategies of national oil companies, which were not necessarily served by concerted crude oil policies of the member states. On this basis, it is conceivable that not only the conflicts between the member states increase, but also those between the states and the national oil companies. Such a conflict has already emerged in Venezuela, where the state oil company PDVSA complained about the subordination of company interests to the resolution of conflicts in the OPEC context. The company's management was annoyed with the oil minister, who had approved production limitations to settle (political) disputes between Arab member states. Also, there have recently been tensions concerning the internationalisation and investment policy of PDVSA which, according to the government, ran counter to government policy.

The inability on the part of the member states to make binding agreements is an inherent feature of the intergovernmental character of the organisation. Above all, this intergovernmental character, and the weight that it accorded to sovereignty over own natural resources, prevent the imposition



Table 1: OPEC member states' production and reserves.

1993	production in million barrels a day	% share in world total	reserves in thousand million barrels	% share of world total	R/P* ratio in years
Venezuela	2.565	4.2	63.3	6.3	68.9
UAE	2.435	3.6	98.1	9.7	>100
Iran	3.62	5.7	92.9	9.2	70.4
Iraq	0.455 (1989: 2.8)	0.7	100	9.9	>100
Kuwait	1.95 (1989: 1.6; 1992: 1.07)	3.1 (1992: 1.4)	96.5	9.6	>100
Qatar	0.5	0.7	3.7	0.4	20.8
Saudi Arabia	8.695	13.4	261.2	25.6	83.7
Algeria	1.320	1.8	9.2	0.9	21.2
Gabon	0.295	0.5	0.7	0.1	6.9
Libya	1.42	2.2	22.8	2.3	44.2
Nigeria	1.91	3.0	17.9	1.8	25.8
Indonesia	1.53	2.3	5.8	0.6	10.8
OPEC	26.695	41.1	772.1	76.5	79.6

\* R/P ratio is the number of production years remaining at current production level.  
Source: BP (1994).

of OPEC sanctions to ensure that the policies are implemented. Within OPEC, the members retain sovereignty over oil policy. Thus, in the 1980s individual OPEC member states not only had large financial incentives to cheat, but also lots of freedom to do so (Moran 1978: iii). That is, as long as Saudi Arabia, Kuwait and the UAE were willing to absorb the production cuts on behalf of the other member states, and effectively redistribute income within OPEC, these conflicts remained dormant. In the meantime, these three countries created a high level of idle capacity, which increased their ability to make a future credible threat towards the other member states to drive the price of oil down.

When the international market for OPEC oil began to shrink in the beginning of the 1980s, the lingering distribution problem increased in gravity, and conflicts intensified. The conflicts operated on OPEC as centrifugal forces, and ensured that collective action became increasingly difficult. As John Elster (1989: 174) has emphasised, collective action in a heterogeneous group requires a great deal of negotiation as to the distribution of advantages and disadvantages. In his view, the inability to agree on this distribution is a far greater threat to the stability of the cartel than the free rider problem.

### 3.2 Political and economic dynamics

After the oil price crisis of 1979/80, the tensions about which price and production policy to pursue became increasingly obvious. Members with a relatively low reserve and production capacity (compared to – potential – domestic consumption), such as Algeria, Ecuador, Gabon, Nigeria and Indonesia (supported by Iran and Iraq which were by then engrossed in an expensive war) were proponents of a relatively high price supported by production restrictions. These countries operated in accordance with their own rational interest. A barrel of oil produced now had a higher value for a country with smaller proven reserves than for a country with large proven reserves. The price level preferred by these countries in 1980 and 1981 was largely determined by their income requirements, and was supported by the short term price inelasticity of oil. Countries like Kuwait, the UAE and Saudi Arabia have an interest in a relatively low price. Defending a relatively high oil price by means of production restrictions curtails demand and stimulates replacement of oil by other sources of energy. However, in the early 1980s the rational economic interest of these countries was subordinated to the strategic political interests of the countries in the region.

Despite the diverging interests of the member states with respect to price and production policy following the oil price increase of 1979/1980, which made the OPEC inherently unstable, OPEC entered a period in which it actively sought to stabilise prices by means of agreements on production quota. This was due, after 1981<sup>14</sup>, to the fact that Saudi Arabia, Kuwait and the UAE had made a credible commitment to maintain the high price policy for political reasons. Given their lower export capacity, the two warring countries Iran and Iraq could only finance the war by means of export of oil at a high price. Saudi Arabia, Kuwait, and the UAE could not withstand the political pressure imposed by Iran and Iraq, which knew that the high oil price policy had the support of the other member states.

Game theory, as argued elsewhere (Van der Linde 1991: 27), fails to capture the political dimension of OPEC. OPEC is an organisation of primarily developing countries, and many times, also an organisation where the complex Middle East politics have dominated. Agreements on production quota and support of a high crude oil price have been realised despite the fact that they ran against the economic interest of certain member states. This was mainly the result of political manoeuvring. Thus, despite the existence of economic rewards for cheating for individual countries, the agreement was made credible by some core players, at least for the duration of the political accord. Member states with little or no interest in the political manoeuvring were compensated in economic terms for not cheating (too much). The member states with a stake in the political manoeuvring pro-

vided this compensation, i.e., they redistributed production from one country to another.

### 3.3 Transfer of income

The stabilisation of prices at a high level meant extensive restrictions on the production of Kuwait, the UAE and Saudi Arabia. Between 1981 and 1986, these countries produced 6.6 million barrels per day less, the lion's share of the cutbacks being borne by Saudi Arabia. The proponents of the high oil price policy also had to limit production as the market for OPEC oil shrunk (from 23.4 million barrels per day in 1981 to 17.3 million barrels per day in 1985), but this was by no means equivalent to the losses incurred by Kuwait, the UAE and Saudi Arabia (Van der Linde 1991: 175). The OPEC policy of the early 1980s, therefore, involved a large redistribution of oil income from the Gulf countries to the economically weaker members. The absorption of the costs by a small group of member states allowed the other member states to abuse the system.

Such a policy of production limitation favours, in the short term, states with relatively low oil reserves and production capacities. However, the problem of the distribution of costs of the agreement increased over time, particularly when the political and economical strategic interests of the three states were no longer served by a high oil price, but rather required the maximisation of oil revenues. In December 1985, Saudi Arabia announced that it no longer supported such a policy, not merely because it has lost a great deal of its market share, but more particularly because it itself had encountered financial problems. The value of OPEC oil exports had already dropped from a high point in 1980 of \$284 billion to \$131 billion in 1985 (OPEC 1991: 6). With its rejection of the production limiting policy Saudi Arabia also resigned from its position as swing producer within OPEC. Together with Kuwait and the UAE, it realised a completely different market strategy. The increased volume of idle production capacity in these countries allowed them to push the price of oil down. The income advantages of a lower price and a larger oil export volume were enjoyed by these three countries in particular. However, the new policy led to a reduction in oil revenues for the smaller OPEC producers such as Ecuador that had less spare production capacity; the disadvantages of the liberalisation of the oil price were largely experienced by them.

### 3.4 Increase in conflicts

After the steep price drop of 1986 it took some time for the member states to

attempt to stabilise the oil price again. By then, the smaller exporters had already had to sacrifice oil revenues, and they had to accept an oil price of \$18 dollars per barrel which better suited the long term interests of the larger OPEC producers. The conflicts over which price and production policy to pursue also played an important role in the conflict between Kuwait and Iraq, which led to the Gulf war in 1990 (Van der Linde 1992). From 1986 to January 1990, Iraq mainly supported the low price policy of the other three member states because it believed, at that moment, that Iran would suffer more from low prices than Iraq. Additionally, Iraq received support from the other Gulf States. However, when it appeared that this support evaporated after the cease fire with Iran and that Iraqi oil production could not be increased, Iraq abandoned its support for this policy. Iraq then started to plead for stricter adherence to the production limiting policy by the member states so that the oil price could rise to \$25 per barrel. The difficult negotiations over the Iraqi proposal in the Spring of 1990 led to the July 1990 compromise price objective of \$21 per barrel and to an interim agreement on production restrictions, both of which indicate the reluctance to change policy.

After the Gulf War, Saudi Arabia again increased its market share from the 25% claimed in 1986 to 34.5% in 1991. It therefore appeared that the power struggle within OPEC had been resolved in the favour of Saudi Arabia and the other surplus producing states. In fact, the abandonment of the price policy in 1985 amounted to the recognition of the inherent conflicts between the member states which had been mounting since 1973.

## 4. What future for OPEC?

### 4.1 Winners and losers of cartel instability

After 1973, the demand for OPEC oil stagnated and decreased substantially in the period 1980-1986. Investments in new oil fields were not required, since the capacity utilisation degree was growing. However, the demand for oil from OPEC countries is now predicted to increase. The unfortunate situation is that the current low price level has lowered the investment capacity of the weaker OPEC countries.

The long period of relatively low oil prices (partly due to the depreciation of the dollar in the same period) and limited export growth put oil incomes for most OPEC member states under pressure, particularly those which were unable to raise the volume of exports because they were already producing at maximum capacity. The OPEC member states are all largely dependent on revenue from the export of oil. In countries like Algeria, Nigeria, Ecuador,

Venezuela, Gabon, Iran and Iraq, the dependence is greater in the sense that the oil industry has to compete with other sectors for the investment of oil revenues, while the incomes are at the same time of great significance for the budget of the government.<sup>15</sup> Most of these countries have also built up considerable debts, and in a number of these countries (particularly Algeria and Nigeria) the economic situation has resulted in immense social tensions. The rude awakening for these countries is that the oil industry has aggravated the economic slump rather than provided an economic cushion.

Currently, the oil industry in these countries is in a precarious situation. Investment in exploration and development has been low for a quite a while. Many countries saw the degree of capacity utilisation increase in the period 1989-1992, but the present overhang in the market prevents the reduction of idle capacity to be translated in higher prices and income.

The inability to invest in new oil production as a result of the highly unstable macro-economic situation of these countries jeopardises their future as substantial oil producers and exporters. OPEC countries with a weak economy and substantial debt problems become dependent on foreign or international assistance. The restructuring programmes of the International Monetary Fund in cooperation with the World Bank push for liberalisation of the economy and a cut-back in fiscal deficits. Such a policy would dramatically change the economic structure of these OPEC countries, since the state has commanded a dominating role in the economy. The IMF usually demands that subsidies of all sorts be removed before countries can successfully apply for the refinancing of debts. Just the removal of the fairly high energy subsidies in oil producing countries would cause a tremendous change in the demand structure of those economies<sup>16</sup>, while subsidies are also used to redistribute oil income to other sectors in the economy. Removal of these subsidies could create a severe adjustment shock. Although adjustment of the economy under the umbrella of the World Bank and the IMF could in the longer run make more investment capital available to the national oil companies for investment in new oil production, it will in the short run further destabilize OPEC. Indeed, according to Ayres and Braithwaite (1992: 148) the economic crisis in some oil producing countries creates an excellent opportunity for large oil importing countries (like the United States) to further destabilize OPEC by offering greater incentives to these countries to infringe on the OPEC agreement. They (Ayres and Braithwaite 1992: 148) continue:

An optimal strategy of destabilization would combine a mixture of carrots and sticks to achieve this end. Debt forgiveness, favored nation trading status, additional foreign aid to specific oil-producing nations and promises of diplomatic and military support in the event of an attack could thus be conditioned on the excess production of oil. Linking badly needed economic development loans and their refinancing to OPEC betrayal might be especially effective.

The weakness of their economies and the current lack of investment capital, have already forced the governments of many OPEC countries into joint-ventures with private international oil companies. This implies an effective weakening of the state's influence on oil production, and a recapture of influence of private international oil companies. In the absence of a drastic change of economic policy in these countries, the economic instability in some of the member states could prove to be the largest destabilising factor OPEC has ever experienced.

Investment in non-OPEC member states, particularly from 1986 onwards, has also been low as a result of the buyers' market, leading to the current situation of underinvestment (UN 1993: 131). OPEC has calculated that the growth of demand in combination with the reduction of non-OPEC production will lead to an extra demand for OPEC oil of 7 million barrels of oil per day by the end of this decade (Subruto 1992: 12). At the moment, the sustainable capacity is below the capacity required in the year 2000 of 31 million barrels per day. To increase capacity to this level, investments totalling approximately \$80 thousand million are required, while for investment in non-OPEC countries another \$170 thousand million is required (Subruto 1992: 12).

The fear exists that some of the OPEC member states will be unable to generate this level of investment capital in time, and that the future production capacity will fall short of projected demand. These countries are looking increasingly to international oil companies to finance these new investments. This has certainly improved the investment opportunities for private investors in crude oil exploration and production, also in the OPEC countries. One could say that a certain amount of competition for private investment capital exists among the weaker exporting countries. However, many international oil companies are also struggling to adapt their business operations. The relatively low oil prices have also affected cash flow of private oil companies. Additionally, environmental protection measures (like cleaner products and processing, safer tanker transportation, and the possibility of introducing energy/carbon taxes) have led to greater investment demands on the production, processing, transportation and distribution of oil products, and have complicated the prediction of developments in demand.

#### 4.2 The future of OPEC

Despite the 77% share of the world's known oil reserves and a recovery of its world production share (41.1% in 1993 compared to 30.2% in 1985, 45% in 1980 and 59% in 1970) (UN 1993: 257), the market power of OPEC member states is presently rather weak. Moreover, the short term capital squeeze

seems to exert a strong disintegrating force on the organisation. In the coming years, the enormous investment efforts which must be made in all sectors of the industry throughout the world, will result in the reorganisation of the oil industry. Old structures disintegrate to be replaced by the new as has happened in the past (Van der Linde 1991: 203). In the 1970s, nationalisation resulted in the replacement of the private sector with the public sector in OPEC countries. Oil interests were brought under the control of national oil companies, and the governments received the economic rents and profits directly or in taxes. A few national oil companies, such as KPC (Kuwait), Saudi Aramco (Saudi Arabia) and PDVSA (Venezuela) underwent processes of vertical integration and internationalisation, with the objective of guaranteeing markets.

The majority of the OPEC countries, however, are currently unable to generate the necessary investment capital to expand their crude oil production capacity as a result of outstanding foreign debt. These countries are increasingly searching for ways to attract private investment capital. The governments and/or the national oil companies do not appear able to finance these operations themselves, nor do they seem capable of facing the necessary management, geological, technical and price risks; as a consequence, they are looking for partners that will take these risks (Walde 1988: 12). Increasingly, these investment risks or part of these risks are discarded in exchange for equity, whereby the oil reserves are partially privatised. Iraq is a prime example of a country seeking private investments in return for equity. Pending its return to the international oil market, about 150 private companies were invited to a conference on the future of the Iraqi oil industry and investment opportunities (Financial Times 1995: March 13th). In a number of member states such privatisation has already begun, partly as a result of pressure from other parts of their oil sector that compete for investment capital, from other sectors of their economies, from other countries and from international organizations. Nevertheless, for some OPEC member states, the preservation of property rights in natural resources is of immense political importance, and this obstructs financing by this method. However, innovative contracts could facilitate private investors' desire to have equity.

For private investors, however, OPEC membership implies a (future) risk of production restraints enforced by the member states governments' agreement in the OPEC conference. This could impede foreign investments unless the host government is prepared to guarantee production at economically and technically efficient levels. However, the provision of such guarantees to private investors limits the room for manoeuvre of oil minister to make arrangements at the OPEC level. In the existing situation of a buyers' market, the members states are facing the choice, if they wish to attract private investors, of either leaving OPEC – as Ecuador did – or adapting OPEC

strategy such that the member states' diversity is taken into account, giving up the aim of unified price and production policies.

If we adopt a longer-term perspective, we must conclude that the present phase of competition in the international oil market conforms to the growth–decline model. The growth of demand in parts of Asia, improving demand perspectives in other developing countries, the fuller integration of the former Soviet Union into the world market and the growing investments of private international oil companies in developing oil producing countries, including some OPEC countries, are signs that the market is expanding again. Our analysis, however, of the development of the elasticity of residual demand for OPEC oil shows that an increase of market power is not eminent. The present shake-out among OPEC member states forces a new market structure on them, in which the dominance of state producers is weakened, and private entities (old and new) have become, once again, more important players in the market. Unless large new oil discoveries are made, some oil producing countries will lose their status as a substantial exporter because domestic oil demand increases faster than supply. Other countries will have to privatise or at least commercialize their oil industry to survive in the future in order to allow 'low extraction cost oil' to translate in 'low production cost oil'.

The next round of concentration or cartelization could very well be a colusive group of private and public firms, which combines the interests of large vertically integrated, but more significantly crude processing, private companies and large vertically integrated, but more apparently crude producing, state oil companies. The OPEC has no natural claim to market dominance.

It is also conceivable that a smaller group of countries, which wish and can act together on the international oil market, can maintain state dominance over the market. Such a less heterogeneous group than OPEC is now could serve the group interests much better, provided that it has a sufficient market share. However, the best candidates for this group, the countries of the Persian/Arabian Gulf are still divided by political, strategic and religious controversies. Furthermore, the members of this group are characterised by the differing degrees to which state oil companies are vertically integrated and internationalised. These rifts may be too large to overcome.

## Notes

1. This article is the revised version of a paper that has been presented at the 1994 Annual Meeting of the Dutch Political Science Association (Politicologenetmaal) in Soesterberg to the workshop on Alliances. The content of this article is the sole responsibility of the authors and should not be attributed to the government of the Netherlands.

2. A crude oil buyers' market is defined as a market where crude oil producers can or want to sell more than buyers are prepared to buy at a given price level.
3. OPEC production in July 1990 was set at 22.491 million b/d (Van der Linde 1991: 174, Table 5.5; British Petroleum 1994:5).
4. In these sections we draw on Van der Linde (1991).
5. See De Jong (1985) for a full discussion of the growth cycle, market conditions, developments and structure.
6. Daoudi (1985) surveys the various conflicting definitions which would or would not include OPEC within the definition.
7. Griffin (1985: 954-963) tests four competing models for suppliers on the world oil market: cartel behaviour, competitive behaviour, revenue maximization, and shifts in property rights. This investigation offers empirical support for the assumption that OPEC countries behave as a cartel and that non-OPEC members act as competitive-price takers.
8. Moran (1978:iii): 'When as in the case of OPEC, the demand for the producers group's output is relatively inelastic while the demand for any individual producer's output is highly elastic, and the marginal production costs are small compared to the group's asking price, the rewards for cheating are great. As a consequence, to maintain the oligopoly, each member must exercise self-discipline in the common good and be assured that his fellow members will do likewise.'
9. Hotelling's theory deals with pricing behaviour of natural resource producers and the determination of marginal costs. The renewed interest was initiated by the emergence of OPEC as a strong international market participant. The underlying assumption of the theory of depletable resources is that producers of such a resource will aim at maximizing its present value, see J.M. Griffin and D.J. Teece (1982: 14). For a sophisticated discussion of the Prisoner's dilemma involved in oligopoly pricing see Rasmusen (1989: 21-29).
10. A backstop fuel is a fuel that is (economically and technically) able to replace oil as the main fuel in the future (like crude oil produced from tar sands, oil shales and coal) if prices rise. The pricing goals will be influenced by the expected supply of a backstop fuel at a certain date in the future.
11. In Article 2 sub A, B, and C, Chapter 1 of the Statute of the Organization of the Petroleum Exporting Countries, the main aims are set forth: the coordination and unification of the petroleum policies of members states; the determination of the best means for safeguarding the individual and collective interests of the member states; stability of prices in international crude oil markets in order to eliminate harmful and unnecessary fluctuations; due regard to the interests of the producing nations and to the necessity to secure a steady income; an efficient, economic and regular supply of petroleum to consuming countries; and a fair return on capital to those investing in the oil industry (OPEC 1990:32).
12. Actually, marginal cost is strictly positive. So again we overestimate OPEC's productivity.
13. The Central Planning Bureau (1992: 229-233) recently developed five scenario's for world energy demand. The CPB assumes that the world's energy consumption increases annually by between 1.0 and 2.4 per cent, in the Balanced Growth scenario (which includes an energy tax) and the Global Shift scenario (which assumes substantial growth in Asia) respectively. So again we overestimate OPEC's market power to some extent. The qualitative results, however, are not substantially influenced by assumptions about the growth rate of world oil demand in the range of zero up to five per cent a year. This range is sufficiently large to deal with uncertainty and unpredictability of the world economic system.

14. In 1980, the member states, except Saudi Arabia, decided no longer to compensate for the loss in Iranian production (as a result of the revolution), and reduced production with 4.011 million b/d. In 1981, they decided to cut production with an additional 10% in order to defend the new market prices (the market crude was set at \$36 in May 1981). Saudi Arabia continued to produce at full capacity (9.9 million b/d in 1980 and 9.55 million b/d in 1981). In October 1991, the price structure was reunified and the marker set at \$34. Saudi Arabia had lacked the production capacity to bring the oil price down (Van der Linde 1991: 171-72).
15. Between 1990 and 1992, oil export income of Algeria, Gabon, Indonesia, Iran, Libya, Nigeria, Qatar and Venezuela declined (United Nations 1993: 256).
16. See UN (1993: 142).

### Bibliography

- Ayres, I., and J. Braithwaite (1992), *Responsive regulation: Transcending the deregulation debate*. New York: Oxford University Press.
- Barnikel, H.-H. (1972), *Theorie und Praxis der Kartelle*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Bayard, T.O., J. Pelzman and J.F. Perez-Lopez (1983), 'An economic model of United States and Western controls on exports to the Soviet Union and Eastern Europe'. In: Joint Economic Committee of the Congress of the United States of America, *Soviet economy in the 1980s: Problems and prospects*. Washington: Government Printing Office.
- Van Bergeijk, P.A.G. (1987), 'The paradox of OPEC revenue'. *ABN Economic Review* 22, p. 14.
- Van Bergeijk, P.A.G. (1994), *Economic diplomacy, trade and commercial policy: Positive and negative sanctions in a new world order*. London: Edward Elgar.
- British Petroleum (1994), *Statistical review of world energy*. London: British Petroleum.
- Central Planning Bureau (1992), *Scanning the future: A long-term scenario study of the world economy 1990-2015*. The Hague: Central Planning Bureau.
- Cox, H. (1981), 'Kartell-Strukturanalyse, Wettbewerbswirkungen und wettbewerbspolitische Behandlungen'. In: H. Cox, U. Jens and K. Martert (eds), *Handbuch des Wettbewerbs*. Munchen: Franz Vahlen.
- Daoudi, M.S. (1985), *The politics of international cartels: Economic illusions, political realities and OPEC*. Ann Arbor: University Microfilms International.
- Van Dyne, C. (1975), 'Commodity cartels and the theory of derived demand'. *Kyklos* 28, p. 597-612.
- Elster, J. (1989), *The cement of society. A study of social order*. Cambridge: Cambridge University Press.
- Griffin, J.M. (1985), 'OPEC behavior: A test of alternative hypotheses'. *American Economic Review* 75, p.954-963.
- Griffin, J.M., and D.J. Teece (1982), 'Introduction'. In: J.M. Griffin and D.J. Teece (eds), *OPEC behavior and world oil prices*. London: George Allen & Unwin.
- Hufbauer, G.C., and J.J. Schott (1990), *Economic sanctions reconsidered: History and current policy*. Washington: Institute for International Economics.
- Jacquemin, A. (1987), *The new industrial organization*. Oxford: Clarendon Press.

- Johany, A.D. (1982), *The myth of the OPEC cartel: The role of Saudi Arabia*. Chichester: Wiley & Sons.
- Jonge, W.H. de (1985), *Dynamische markttheorie*. Leiden: Stenfert Kroese.
- Linde, C. van der (1991), *Dynamic international oil markets: Oil market developments and structure 1860-1990*. Dordrecht: Kluwer.
- Linde, C. van der (1992), 'De olie-achtergrond van de Golfoorlog'. *Armex Defensie Magazine*, January.
- Linde, C. van der (1993), *Redrawing the boundaries between state and company: Oil producing countries and their national companies*. Discussion paper. London: Royal Institute for International Affairs.
- Moran, T.H. (1978), *Oil prices and the future of OPEC: The political economy of tension and stability in the Organization of Petroleum Exporting Countries*. Research Paper R-8. Washington: Resources for the Future.
- Moran, T.H. (1981), 'Modelling OPEC behavior: Economic and political alternatives'. *International Organization* 35.
- OPEC (1986), *Facts and figures: A graphical analysis of world energy up to 1985*. Vienna: OPEC.
- OPEC (1991), *Annual Statistical Bulletin*. Vienna: OPEC.
- OPEC (1991), *Official Resolutions and Press Releases*. Vienna: OPEC.
- Rasmusen, E. (1989), *Games and information: An introduction to game theory*. Oxford: Basil Blackwell.
- Subruto (1992), 'How OPEC Perceives the energy outlook for this decade'. *OPEC Bulletin*, April.
- Tirole, J. (1988), *The theory of industrial organization*. Cambridge: MIT Press.
- United Nations (1993), *United Nations world economic survey 1993*. New York: United Nations.
- Walde, T. (1988), 'Investment policies in the international petroleum industry: Responses to current crisis'. In: N. Beredjick and T. Walde (eds), *Petroleum investment in developing countries*. London: Graham and Trotman.

## A lasting alliance? On the creation, evolution, and future of NATO

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### 1. Introduction

This article serves a twofold purpose. Firstly, an attempt is made to ascertain the main determinants accounting for the birth of the Atlantic Alliance in the late 1940s as well as for the subsequent functioning of this organisation until the end of the Cold War 40 years later. What patterns of behaviour and events have favoured the cohesion of the North Atlantic Treaty Organization (NATO) and what have undermined it? Secondly, an explanation is sought for the alleged anomaly of the Alliance's continued existence in view of the disappearance of its original *raison d'être*, i.e., the perceived threat posed by the Soviet Union. The main thrust of the argument is that the established literature on alliances (whether historical-inductive or based on rational choice assumptions) is little helpful to understand the unique character of the Western Alliance. Other theoretical perspectives such as neoliberal institutionalism, which conceives NATO as an international regime, may offer a better vantage point to analyse the Alliance's future. Indeed NATO differs from pre-World War II alliances by having built at peacetime an elaborate and complex structure of common institutions, rules and procedures tying a wide family of nations together. For that reason, to vary Mark Twain's famous words, the numerous reports on its forthcoming death may be grossly exaggerated.

Alliances can be loosely defined as co-operative arrangements in the field of military security obliging the member states to assist each other under certain circumstances. In contrast to systems of collective security the membership of alliances is limited by definition while common action is foreseen towards outside powers rather than towards one of the members. In reality, however, the difference between the two kinds of security systems may be smaller because alliances, too, can fulfil internal functions, like the peaceful settlement of disputes among member states. NATO's repeated efforts in the past to reduce the tensions between Greece and Turkey (two western allies) are a case in point. Conversely, regional systems of collective security (such