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HISTORICAL PERSPECTIVES AND NEW DIRECTIONS IN THE EXPLOITATION OF LATIN AMERICAN PETROLEUM RESOURCES

*Henry B. Steele**

Introduction

This paper constitutes an attempt, in a very brief compass, to provide an historical survey of the traditional roles of government and private enterprise in the exploitation of Latin American petroleum resources, to evaluate the current situation, and to speculate in a limited manner on the future implications of present developments. The basic analytical frame of reference is that of economics, but since the petroleum industry is a world industry, developments in the Latin American petroleum industry must be placed in the wider context of world oil industry economics and politics. From the standpoint of economic analysis, the major conflict between companies and governments appears to be their divergent goals: the companies strive to minimize costs, while the governments insist upon maximizing the companies' contribution to national treasuries. Expropriation is of course the most dramatic of the recurring themes in Latin American petroleum, and can be understood not only in terms of the vulnerability of foreign private investment to local military force, but also as a matter of economic logic in an extractive industry such as petroleum. In addition, the decision to expropriate may reflect the belief that the nation's oil industry is growing too rapidly. This growth may seem excessive relative to reserves, or it may be feared that unchecked growth over too long a time may produce an industry too large for the state to control. Regardless of intentions, expropriation generally reduces the role of a nation's oil industry in world trade and orients it increasingly toward domestic consumption rather than export specialization.

Relationship of Latin American Oil to the World Petroleum Industry

The petroleum industry has always been world-wide due to a

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combination of features: (1) universal demand for refined products; (2) widely dispersed sources of supply, often located at great distances from consuming centers; and (3) low cost of large-volume transport, particularly by water. In the nineteenth century, Russia and the United States were the main producers, with domestic reserves adequate for even their rapidly expanding operations. During this period, the international operations of the major producers were oriented primarily toward seeking markets rather than raw materials. In this endeavor, Russian and American companies were joined by British, Dutch, and French producer-distributors. Significant "foreign" production was first achieved by the Dutch in exploiting petroleum deposits in their Asiatic colonies. To market this production, Royal Dutch-Shell developed as the first integrated international petroleum company. Shortly thereafter, England obtained control of large reserves in Persia through the formation of the Anglo-Persian Oil Company. British, Dutch, and French companies had also been conducting operations in Russia, which were seized after the 1917 revolution.

The emphasis in international operations switched from marketing to exploration and production with the beginning of the twentieth century. As industrialized countries found both their economies and their navies increasingly dependent upon petroleum, and as "secure" supplies declined relative to prospective demands, the governments of these countries put increasing pressure upon their own oil companies to increase their production and reserves. These efforts were intensified during and after the First World War. Prior to 1914, companies based in the United States had done little exploration abroad and had secured production in only two foreign countries—Mexico and Rumania. During the period 1914-1918, United States-based companies undertook exploration in Peru, China, Colombia, and Argentina, and increased their operations in Mexico.[1] Beginning in 1919, the United States State Department took an active role in urging domestic companies to explore abroad, promising strong diplomatic support. At that time there was a fear that British, Dutch, and French companies would successfully exclude United States companies from developing foreign petroleum reserves. Although these European-based companies were operating in the Western Hemisphere and in the United States itself, they had taken steps to exclude United States companies from the major Eastern Hemisphere oil and gas provinces. The

1. L. FANNING, AMERICAN OIL OPERATIONS ABROAD, 2 (1947).

First World War had witnessed the eclipse of the Russian petroleum industry, and as a consequence of the breaking up of the Turkish Empire, rights to explore and produce in the Middle East were being divided up between British, Dutch, and French companies. Only after vigorous diplomatic action were United States companies permitted some participation in major fields in the Middle East and Far East.[2]

It was during the period after 1918 that interest was expressed in exploration in Latin America. United States efforts were greatly increased, particularly in Mexico, Venezuela, and Colombia, and British and Dutch companies also increased their investment in this area, partly in retaliation for United States entrance into the Eastern Hemisphere. Although significant new reserves were found in Venezuela, the major discoveries in the world oil industry continued to be in the Eastern Hemisphere, particularly in the Arabian peninsula, where United States companies assumed increasing importance in the 1930's. While Venezuela became the world's leading oil exporter in the 1930's, its reserves were only a small fraction of those of the Persian Gulf region, the development of which was delayed until after the Second World War. At that time, the center of gravity of the world petroleum industry had shifted from the United States to the Middle East. World prices gradually ceased to be based on United States Gulf Coast quotations and gravitated toward Persian Gulf postings. Although world oil demand increased quite rapidly after 1945, the expansion of very low-cost supply was even more dramatic. Persian Gulf oil production costs were in the range of five cents per barrel, and a posted price of two dollars could provide approximately a dollar profit to the producing company after payment of a dollar as a contribution to the rulers of the exporting region. Excess supply and competition among companies, however, resulted in a prolonged price erosion between 1956 and 1970. In order to halt this competitive price decline, and hopefully to reverse it, the major petroleum exporting countries formed a cartel in 1960, with the intent of forcing prices up through tax increases and production limitation. The cartel was not successful in any degree until 1970, when a radical regime in Libya took the lead by demonstrating the validity of its then novel hypothesis that the consuming countries were unwilling to provide their national companies with effective support of any kind. The Libyan price increases of 1970 were followed by Persian Gulf price

2. *Id.* at 90.

increases in 1971, and this gave rise to further Libyan price increases, and so on. Between 1971 and 1973, a series of further price increases took place on a variety of pretexts, alternately in accordance with, and in violation of, previous agreements. Finally, in October 1973, a price increase of about 300 per cent was engineered, and substantially maintained thereafter, by the producing countries operating through the mechanism of an embargo. With this price increase, the character of the world oil market was substantially altered. In economic terms, the higher price level can only be interpreted as economic warfare. Under competition, prices must bear a close relation to production costs, but the revenues of Persian Gulf producers are approximately one hundred times as great as their production costs. Under monopoly, prices must not be so high as to stimulate the development of cheaper substitutes, but oil prices after 1973 have been above the long run monopoly price, being not only high enough to stimulate large investments in searching for oil and gas in new areas, but even generous enough to make the development of synthetic liquid fuels profitable in the long run. In the period following the 1973 price increase, the rulers of the exporting regions implemented plans to expropriate the operations of the international companies, although such implementation is not yet entirely complete.

The current crisis in the petroleum industry has thus originated in the Eastern Hemisphere, but has definite implications for Western Hemisphere producers and exporters. As long as the cartel maintains its monopoly control of supply, crude oil reserves in the ground have an enhanced value. Hence, the rewards of expropriation are increased. It also appears, from the appeasement policies adopted readily by the importing countries, that the direct cost of expropriation will not be significant. The major difficulties would appear to be in the area of maintaining the efficiency and productivity of nationalized operations. Politically, of course, the future is more clouded. While Latin American countries are relatively free to expropriate petroleum properties, this is economically rewarding only so long as the cartel maintains its monopoly power. The main danger at present is that the cartel will overreach itself through further price increases and/or further embargoes. The political motivation of the cartel is the source of its surprising strength, but also of potential weakness. Private cartels, based solely on greed, would not set prices above the long run monopoly level. But prices at economic warfare levels are based not only on greed, but also on envy, hatred, and a rather misguided desire for revenge. Another, and more effective, embargo would in all probability cause the fall of moderate governments in one or more major

consuming countries and result in military action against major members of the cartel. Although Latin American members would not be included in such hostilities, the post-cartel prospects for countries with nationalized industries would be less promising than for those which had resisted the temptation. And even if the cartel maintains its stranglehold on supply, those countries which expropriate will in all likelihood grow less rapidly in the petroleum sector than those which do not.

Historical Developments in Latin American Petroleum Production

Historically, foreign private investment in Latin American petroleum operations has waxed and waned in accordance with the terms upon which host governments permit industry operations. Assuming the geology of an area to be reasonably attractive, if generous concession terms are offered, foreign private investors may explore more or less intensively for decades even though no major fields are found. Once fields are found, the natural impulse of a state is to raise the taxes and other contributions made to it by the companies. It must moderate this impulse if significant, long term production is to be established, particularly in higher cost areas. If the impulse is moderated, and if further large reserves are found, it may be well to postpone tax increases until the state's petroleum resources appear to be in an advanced state of development. At such a time, the fixed assets of private investors will constitute economic hostages of such large value that the company's freedom to maneuver will be severely limited. If the resource base is fully developed, and if efficiency losses from expropriation will not be severe, then expropriation will appear to be in the interest of the state. In actual practice, seizures, confiscations, and expropriations have been conditioned on political considerations rather than economic calculations, and have generally been premature. In the following section, the economic logic of expropriation is outlined.[3]

The rulers of states naturally reason that they are not sovereign unless they control all industries within their borders. In most producing countries, however, control of the petroleum industry has been difficult since each stage requires large capital outlays and highly skilled services, with exploration ventures being particularly costly and risky. New oil is found typically in non-

3. Steele, *A Primer on Expropriation*, in I THE ENERGY QUESTION: AN INTERNATIONAL FAILURE OF POLICY xxi-xxii (E. Erickson & L. Waverman eds. 1970).

industrialized countries, which lack capital and knowledge, and which cannot afford to finance their own petroleum industry. Hence foreign private investment seems essential. Initially, with little knowledge of the resource base, risks are high and host states must offer liberal concession terms to induce exploration and development by competent operators. Once large discoveries are achieved, however, investors will regard exploratory risks as reduced, and new operators can be attracted with less liberal concessions.

As a profitable industry is established in a given country, two factors change the relative bargaining power of company versus country. First, the regulatory authorities of the country typically require detailed reports which permit them to appraise the potential of explored areas and the profitability of current operations. Secondly, as indicated above, the concession operator invests increasing amounts in the country, and thus becomes less flexible with regard to alternative sources of supply, its fixed assets achieving the status of hostages. The situation thus created permits the country to appropriate an increasing share of the profits of oil operations. Up to a point this outcome is consistent with the economic theory of private enterprise under competitive conditions, in that the "economic rents" of high profits, which accrue to the exploitation of a low-cost resource (*e.g.*, rich oil fields) can be appropriated in full by the "owner" of that resource without affecting the rate of production from that resource. Unfortunately, however, the politics of industry control are not as self-regulating as the economics of competitive markets. Changes in world market conditions, such as relative production and transportation costs, can reduce the competitive advantage of a given oil field and hence diminish its profitability. The rulers of producing regions have in general shown greater awareness of the opportunities for increasing taxes, rentals, and royalties, than of the need for their reduction when market conditions at least temporarily deteriorate. It may be less costly for a company to reduce output or even temporarily cease production in a given field than to persist in operating under adverse tax and regulatory conditions. It is in such circumstances that friction arises, with possible threats of property seizure. In the past, the structure of the international oil industry was such that there were practical considerations which usually tempered a country's urge to expropriate. Although the producers were captive, the final consumers were usually not, since most oil was exported. Also, the producers were generally internationally integrated companies, with the ability (until the last few years) to replace confiscated production in one country with increased pro-

duction in another. Hence, the expropriation would leave the state with marketing difficulties, and it might have to cut prices significantly to sell the seized oil.

Effective cartelization after 1970, however, has changed all that. With total output limited to force prices up, confiscated production in one country cannot easily be replaced. This naturally increased the threat of expropriation by reducing the penalties likely to be experienced by the exporting country. Rulers felt increasingly free to experiment with more onerous regulation and taxation, and the private response was frequently reduced to making the best of a deteriorating situation. Thus, for countries with established exporting industries, cartelization became a substitute for nationalization, and the private companies, even before expropriation, became tax collecting agencies and service contractors by function despite the retention of the formal status of independent companies. But if a country has not yet attained the status of an established exporter, it must still offer attractive concession terms and other inducements to prospective private foreign investors. Only after a petroleum industry has been developed can it be controlled.

Historically, the first Latin American country to develop a significant petroleum industry was Mexico. In order to promote mineral exploration, Mexico in 1884 passed a law which transferred title to minerals from the state to the owner of the surface land, and United States, British, and Dutch groups promptly began exploration. Within the next twenty years, the four major oil and gas provinces of Mexico had been discovered and in varying degrees developed. These fields were developed more intensively during the First World War, and in 1921 Mexican production reached a peak. Production declined rather rapidly thereafter for several reasons. First, the bandit depredations and revolutionary uprisings of the 1910's culminated in the new constitution of 1917, which transferred mineral ownership back to the state. This not only choked off new private exploratory investment, but also created doubts about the tenure of holders of existing lands if the new legislation were to be retroactively applied. Secondly, field development was also depressed, such that production declines in existing wells were not offset by more intensive development of related fields. Thirdly, by the 1920's a surplus of new oil had been built up in world markets, and there were more promising new prospects elsewhere in Latin America.[4]

4. G. BARROWS, II INTERNATIONAL PETROLEUM INDUSTRY 16 (1967).

In 1938, the Mexican oil industry was nationalized, and United States, British, and Dutch companies were expelled. A government oil monopoly company, Petroleos Mexicanos (Pemex) was created to operate the seized properties. Authorities generally agree that Pemex has done a creditable job in handling an unpromising situation over a period of years. Immediately after expropriation, exports declined in retaliation. Pemex then tried to cultivate the domestic market more extensively, a policy that was all the more successful in view of the low, subsidized prices which the government saw fit to charge for home consumption. Thus, profitable export markets were exchanged for at best mariginally remunerative domestic sales. Despite reasonably efficient exploration operations, domestic production declined while consumption increased, so that the export surplus disappeared in the late 1950's.

Although it is the most successful of the national monopoly oil companies, Pemex shares the weaknesses of such operations. First, operations are generally confined to the domestic market since such companies are not internationally integrated. Secondly, public policy keeps domestic prices low, providing a subsidy for the consumer. Thirdly, the state tends to allocate investment funds for riskier operations such as the drilling of exploratory wells on the scale required to maintain reserves. Fourthly, the state monopoly is subsidized in various indirect ways, chiefly in matters of taxation. Under conditions such as these, operations tend to be less efficient than for a company in the private sector, which must meet the tests of market competition and be able to charge equilibrium market prices.

In 1959, however, Pemex was permitted to charge higher prices domestically, reducing the subsidy to the Mexican consumer. And in the early 1970's, with higher oil prices and greater rewards for oil exploration, the allocation of exploration funds to Pemex was increased, with the result that extremely large new oil deposits were found in areas already rather highly developed. Thus, the high cartel price stimulated successful new exploration with major results.

Argentina provides a case history of a less adaptive national response to the problems posed by petroleum development activities. The beginning was auspicious—the country's first discovery well, in 1907 in the Rivadavia field, was drilled by the government oil company. Private companies began operations in 1910, first finding oil in 1916. The various oil operations of the government were consolidated in 1922 in an agency entitled Yacimientos Petroliferos Fiscales (YPF). The private companies, both domestic and

foreign, continued to operate as such until 1964. Government policies, however, limited these firms to acreages held as of the early 1920's, and restricted their output in other ways. Private oil output thus declined for a long period of time, with only a temporary reversal after 1958 when the Frondizi regime concluded a number of service contracts with private firms, permitting them to invest their own funds to find and develop oil which they would then sell to YPF for a per-barrel service fee. These contracts were successful in tripling Argentine oil output between 1958 and 1963, making the country 70 per cent self-sufficient in oil.

In 1962, however, Frondizi was overthrown and service contract payments were at first delayed and then annulled. Production declined while imports sharply increased to supply rising domestic demand. By 1966, the government was again reversing its policy, promising to encourage private investment, to eliminate the monopoly control of YPF over importing and marketing, and to allow competitive pricing of oil. At best these reforms were short-lived, and some were never implemented. Even so, several large offshore tracts were awarded to foreign private investors, additional service contracts were granted, and new onshore concessions were granted. During 1968-1970 output increased by almost 10 per cent per year, but, in 1971, steps were again taken to weaken the position of the private firms. YPF regained its import monopoly status and was given the power to limit the allotment of oil to private refineries, thus discouraging further investment on their part. YPF embarked on a determined program to enlarge its domestic sales at the expense of its rivals in the private sector. The terms of new service contracts were made so onerous that all of the potential bidders cancelled their bids, leaving YPF with the task of doing all the exploration on its own behalf. Since the Argentine government has never allocated sufficient capital to YPF for exploration purposes, it is unlikely (despite some recent discoveries) that YPF will be able to keep the country even at its present fraction of self-sufficiency in oil production.[5]

The sequence of oil developments in Bolivia has many parallels with that of Argentina, but on a much smaller scale and with even more baffling changes of policy. Major exploration began in 1921, when concessions were obtained by the Standard Oil Company of New Jersey, and commercial production began in the early 1930's. In 1937, Bolivia seized the Jersey properties, basing the confisca-

5. WORLD PETROLEUM REPORT 18 (1973).

tion on what appears to have been a fraudulent pretext. In 1943, compensation equal to about one-fourth of the value of the seized properties was paid. Jersey's facilities were transferred to a state monopoly company, Yacimientos Petroliferos Fiscales Bolivianos (YPFB), which found some new oil, built pipelines and refineries, and eventually achieved self-sufficiency in oil for the Bolivian economy. In the early 1950's, Bolivia wished to develop export capacity but lacked the capital to finance YPFB. Beginning in 1952, concessions were offered to selected foreign companies, and, in 1956, a new oil law permitted large-scale investment by foreign private capital. Of the dozen or more firms that undertook exploration, only Gulf made major discoveries. YPFB continued to develop its own assigned areas in Bolivia, but—similar to other national oil companies—was hampered by public policies that subsidized internal consumption through low prices and free deliveries to government users. In 1969, Bolivia nationalized the Gulf properties, a move which caused other foreign private companies to cease their Bolivian operations. Bolivian production and reserves dropped sharply, and, by 1972, the country was again trying to induce the companies to return, this time with a new law offering lightly-taxed service contracts. Response to this plan was very cautious indeed, but within three years several foreign companies were engaged in exploration and drilling, some of them experiencing reasonable success.[6]

In Brazil, oil production has always been under a state monopoly. Exploration has been rationally and extensively conducted by the national company, but with very little success—not because of incompetent management, but because the resource base of Brazilian petroleum appears to be extremely scanty. Offshore exploration in recent years has been mildly successful, but the main hope for fuel self-sufficiency lies in the development of Brazil's enormous oil shale deposits, which would seem to be economical at present cartel prices for oil.

The Brazilian national monopoly oil company, Petroleos Brasileros (Petrobras) monopolizes exploration, development, and production but permits very minor private investment in refining and transportation, and more substantial private investment in marketing. Petrobras is the beneficiary of special treatment as a public company, in effect being subsidized through its various privileges

6. INTERNATIONAL PETROLEUM ENCYCLOPEDIA 178 (1975).

of tax immunity, tariff protection, monopoly status, and priority in foreign exchange allocations.

In Chile, a 1926 law conferred upon the state monopoly powers over all phases of oil industry operations. Since 1950, the state monopoly company has been known as Empresa Nacional del Petroleo, or ENAP. ENAP's first exploratory well, drilled in 1945 in the extreme Southern part of the country, was a producer—but in thirty years of exploration since that time, no further fields have been discovered. ENAP permits private investment in marketing, with a domestic private company occupying half the market and two major international companies dividing the remainder between them. A scheme to nationalize marketing was not implemented. In 1974, high oil import costs forced Chile to admit foreign private companies for exploration within its borders. To date, little success has been encountered.[7]

Exploration in Colombia began before 1900, but did not accelerate rapidly until after 1916, when companies began to turn away from Mexico because of the changed status of mineral rights tenure under the new constitution. Compared with Venezuela, the economics of Colombian exploration have always been relatively unfavorable. The oil fields are located far inland in mountainous jungle areas, with resulting high costs of all phases of oil operations. United States, Dutch, and British companies control the great bulk of production; the national company, Empresa Columbiana de Petroleos (Ecopetrol) operates chiefly from declining and relinquished fields, and in partnership with other companies for secondary recovery and further exploration.[8]

Colombian government-industry relations have been reasonably good, but not perfectly harmonious. In 1955, Colombia tried to encourage a higher rate of exploration by increasing incentives, and activity did in fact accelerate. Within a few years, however, the interpretation of these incentives became more restrictive, and investment declined. After 1966, renewed interest developed in providing higher incentives, and exploration accordingly increased. Interest intensified in 1971-72 as the prospect of production declines became more threatening, and, by 1972, Colombia was offering not only service contracts under new laws, but additional concessions under older laws. Exploratory activity increased considerably, although results to date have not been very encour-

7. BARROWS, note 4 *supra*, at 51.

8. INTERNATIONAL PETROLEUM ENCYCLOPEDIA 182 (1975).

aging. Effective in 1974, new concessions were abolished in favor of exclusive concentration on service contracts. Exports were prohibited, and since domestic market prices were controlled at very low levels (eleven cents per gallon for gasoline), four companies ceased operations. Prices were then increased, and activity recovered to some extent.[9]

Oil exploration in Ecuador began before 1910, but until the early 1970's the country's only production came from small coastal fields. Although explorations had been conducted in the interior jungles since the 1920's, nothing was found until 1967 when several large discoveries were made. The necessity of constructing pipelines delayed production until 1972, but once completed, output soared from 4,000 barrels per day in 1971 to over 250,000 in 1973. Before the oil boom, Ecuador was the only country in South America without a national oil company. The Anglo-Ecuadorian oil company produced almost all of the country's oil, but was required to sell locally at prices below the world market level. In 1965, the investment climate was improved by the proclamation of a decree that reduced taxes and improved operating conditions. After the major discoveries of 1967, however, policies changed; royalties were increased, the size of new concession blocks was reduced, and a national oil company, Corporacion Estatal Petrolera Ecuatoriana (CEPE) was established and authorized to operate in all phases of the industry. CEPE made rapid vigorous efforts to achieve a *de facto* takeover of existing private interests in refining and production. Taxes were raised to increase Ecuador's share in oil revenues to 80 per cent, and, in 1973, Ecuador joined the cartel. Naturally, difficulties ensued and production declined in 1974. Even though the resource base in Ecuador is very promising, Ecuador appears to have rather rapidly overreached itself in the pricing and taxing of its oil. Taxes at present probably make it uneconomical to explore for any but the richest deposits, since only the lowest-cost oil will be sufficiently profitable to produce.[10]

Ecuador's rapid entry into the cartel is also interesting. In joining, it became only the second Western Hemisphere member, with interests logically opposed to those of Venezuela. As an established exporter with a low ratio of reserves to production, Venezuela has long favored a policy of output restriction and high prices. As a new producer with an initially high ratio of reserves to production, Ecuador should logically desire to increase its production rapidly,

9. *Id.* at 183.
10. *Id.* at 186.

which is hard to do without offering some direct or indirect price concessions. The Ecuadorian experience tends to illustrate the principle that larger cartels are harder to coordinate. In gaining a member, the cartel has lost a customer and added a competitor, complicating the implementation of schemes to limit output and raise prices.

Although Peru has the oldest petroleum industry in South America, its activities were relatively stagnant until the late 1960's. Despite extensive exploration, no major new fields had been found for more than twenty years, and production rates began to decline by 1970. As in most Latin American countries, internal consumption was subsidized by low prices, and, by about 1960, domestic demand exceeded supply and ended the traditional export surplus. A more liberal oil law had been passed in 1952, but private foreign response was only moderate, and only minor new fields were found. In the late 1960's, however, the major discoveries in the interior of Ecuador stimulated much interest in adjoining areas in Peru, where geology was similar. Increased interest in leasing was depressed temporarily by Peru's seizure of the properties of a Jersey subsidiary which was the country's largest producer. The confiscated properties were transferred to the state oil company, Petroleos del Peru (Petroperu). By 1971, however, the desire to explore overcame the fear of expropriation; the signing of a "model contract" with Occidental Oil led many other companies to seek similar arrangements, and soon United States and British companies were joined by other private interests from France, Germany, Japan, and Spain. The first major discovery was made by Petroperu, and other wells were successfully completed. In the hope that Peruvian deposits might in the long run prove to be considerably greater than those of Ecuador, judging by comparative volumes of promising sedimentary basin formations, Peru built a $650 million pipeline over the Andes. Unfortunately, drilling results to date have been most disappointing, and at present oil reserves are far from sufficient to justify the pipeline investment.[11]

Petroleum activity in Uruguay has been very minor. Oil operations have always been monopolized by a state company, Administration Nacional de Combustiles, Alcohol y Portland (ANCAP). ANCAP has from time to time conducted some exploration and drilling activities, but without success. Attempts to offer service

11. OIL & Gas J., Jan. 26, 1976, at 128.

contracts for offshore operations in the early 1970's failed because of inability to agree on terms. Within the past year, private participation in service contract arrangements has been secured, but the projects are not yet fully operable.[12]

Oil concessions were granted in Venezuela as early as 1878, although commercial production did not occur until 1913. After 1917, however, exploratory and development activity in Venezuela increased rapidly over a period of many years. There were several major reasons for this increasing interest on the part of the industry. First, as conditions in Mexico deteriorated even prior to expropriation, efforts were shifted increasingly to Venezuela and Colombia. Secondly, the concession terms offered the companies by the dictator Gomez were extremely attractive. Thirdly, low cost oil in large amounts was discovered over a period of years. Lastly, as Mexican production declined; a good market developed for Venezuelan oil.

Until the Second World War, the combination of factors present in the Venezuelan environment was ideal for the development of a large export industry financed by foreign private capital. The most profitable oil is that which is found in very large amounts very near a seacoast, such as the Texas Gulf Coast fields found in the early 1900's. Venezuela's major fields in Lake Maracaibo, found in the early and middle 1920's, were similarly rewarding. In the 1930's, additional large fields were found in the interior. Equally important was the cooperation of the dictator Gomez, whose policy of moderate taxation on increasingly large volumes of oil production permitted him to build up a strong, well-equipped army in order to secure his dictatorial rule. In the early 1920's, as a gesture of goodwill, Gomez went so far as to allow the oil companies to draw up their own legislation, and then proclaimed it as law.[13] Even so, the revenues received by Gomez were not negligible, averaging about 15 per cent of the value of the oil in the 1920's and 1930's.

During the Second World War, Venezuelan output declined as the threat of German submarines impeded tanker shipments. This reduction of output cut Venezuelan tax revenues, and, in 1943, the country first began to impose an income tax on oil earnings. This income tax was initially moderate but, in conjunction with increased royalty payments, was designed to achieve a roughly equal division of oil industry net profits between the companies and the

12. INTERNATIONAL PETROLEUM ENCYCLOPEDIA 186 (1975).
13. ENCYCLOPEDIA OF LATIN AMERICA 253 (Delpar ed. 1975).

nation. In 1948, the 50-50 scheme was more firmly established by amending the law so as to make the total tax burden for each company equal to the company's net profits after taxes, by the imposition of an additional tax surcharge.

In this regard, Venezuelan taxation changes set the pattern for similar changes in the world petroleum industry. Persian Gulf producers, in particular, demanded a 50-50 division of earnings, and the United States government cooperated by interpreting the sort of levies imposed by foreign rulers as equivalent to income taxes. Under United States tax law, of course, income taxes paid to foreign governments can be deducted directly as a credit against United States income tax liabilities—hence royalties, taxes, and other contributions to foreign rulers could be increased up to 50 per cent of taxable profits without increasing the companies' costs. But while American companies could do this, British companies could not go as far, since English tax law was not as generous in the matter of permitting foreign tax credits. When Iran demanded a 50-50 split, the Anglo-Iranian oil company shut down its operations for a period of several years rather than comply. During the dispute, the company kept its production levels up by producing in Kuwait rather than from Iranian fields. Eventually a compromise agreement was reached. It is likely, however, that if the British company had not made such large captive investments in refinery facilities in Iran, any agreement would have been delayed much longer.

After 1944, production began to grow rapidly in Venezuela, and the ratio of reserves to production began to fall, in part because no new areas had been opened up for concessions for a number of years. In 1956-57, however, subsequent to a change of government, new concessions were offered, and the major United States and Dutch companies, which had previously controlled over 90 per cent of production, were joined by a dozen or more smaller firms. New reserves were found in the new concession areas, and production and reserves both increased during the next ten years.

In 1958, a new government assumed power, and tax rates were increased so that the government's share of profits increased from 52 per cent in 1957 to 65 per cent in 1958 and 69 per cent in 1959. This tax increase put Venezuelan oil at a cost disadvantage relative to most oil produced for export elsewhere in the world, and companies in Venezuela began to disinvest, or at least to cut back on expansion plans. Other factors which reduced Venezuelan exports included the rapid development of Middle Eastern oil resources, which created a supply surplus in world markets, and

United States import controls, which, in 1959, restricted demand in Venezuela's major market.

Venezuela established a national oil company, Corporacion Venezolana del Petroleo (CVP) in 1960 to undertake various operations. CVP was not for some time as active as other national oil companies, confining its activities largely to domestic marketing—which, as in other Latin American areas, was relatively unprofitable due to consumer subsidy through prices controlled at low levels in the internal market.

Until 1966, tax liabilities were based on oil prices actually received by the companies, and not on artificially high "posted prices" as in the Middle East. After 1958, however, it became increasingly necessary for sellers of Venezuelan oil to discount their prices, as competition became increasingly sharp with the larger number of sellers, combined with the decline in demand resulting from United States import controls, and the reduction in oil tanker rates which offset Venezuela's proximity advantage to Atlantic markets compared with Persian Gulf shipping distances. In 1966, tax laws were revised so that not only was the tax rate increased, but profits for tax purposes were based on arbitrary "tax reference prices," and past tax liabilities were increased by $560 million on the pretext that prices in the past should have been higher. As a result of these tax changes, the government's share in profits rose to about 72 per cent.[14]

These maneuvers did nothing to improve the investment climate for private foreign companies, and reserves continued to decline. The major problem, however, was that no new areas were opened up to concessionaires after 1957. Rather than award further concessions, the country devoted its efforts after 1965 in trying to devise service contract arrangements under the terms of which specified services would be provided by private companies under contract to CVP. The first service contracts (for exploration of certain tracts in South Lake Maracaibo) were not awarded until 1971. In the same year, Venezuela increased tax reference prices by about 60 cents per barrel and nationalized the natural gas industry. In December 1971, a further tax reference price rise increased these arbitrary tax prices by 26 cents per barrel. Also, in 1971, a new decree anticipated expropriation by limiting the control of companies over their own properties in the period before 1983, when the concessions were to expire, and went farther by claiming the right

14. WORLD PETROLEUM REPORT 102 (1972).

to all assets related to the concessions, although not physically located upon them, such as refineries and office buildings. As Persian Gulf oil prices increased during 1970-73, Venezuelan prices increased in a parallel manner. After 1973, Venezuela proceeded to implement a program designed to expropriate foreign private interests as rapidly as feasible.

The net impact of all these actions has been to reduce Venezuela's role in the world oil industry. Having smaller reserves of high-cost, relatively low-quality oil in comparison with supplies available elsewhere, its attempts to increase its per-barrel revenues contributed to a shrinkage in reserves and a decline in output when exports were increasing rapidly in every other producing country. While a decline in the rate of output increase was desired by Venezuela (as early as 1959, the country had articulated its long run strategy of desiring to sell less oil at higher prices per barrel), the actual decrease in output was certainly not welcome.

Conclusions

What can be concluded from this survey? First, the "traditional" role of private investment in the Latin American petroleum industry has been to bear the major risks of exploration, development, and production, providing capital and technical skills for long periods of time prior to the development (if any) of commercial-scale production. Secondly, the traditional role of the government has been to provide land access under various arrangements, supply the police power necessary to secure the properties of the companies against indigenous depredation, regulate and control the industry, and to engage itself in certain phases of the industry, usually the less risky and less capital intensive phases.

As to the economic role of state monopoly oil companies, while it differs from country to country, some generalizations can be offered. In no country where the state has always had a complete monopoly of oil production has significant production been developed—although this is not to imply any cause-and-effect relationship. In most countries, state companies concentrate upon domestic marketing, to their economic detriment, since public policy usually keeps prices at less than competitive levels. Where national companies operate in exploration, production, and refining, they depend mostly upon exploiting marginal or submarginal properties, which have been relinquished by private companies, although they may also operate profitable properties, which have been seized from successful concessionaires. As to marketing, their

domestic operations are usually rather unprofitable, and their export activities, if any, are generally parasitic upon those of established major companies—although not to the extent that this is true in the Eastern Hemisphere. The technical competence of national oil company personnel may be very high, as in Venezuela and in Mexico. The major weaknesses are in the areas of management and finance; mineral industries are not particularly well suited for bureaucratic public management. How can a political minister defend the spending of millions of dollars in dry-hole drilling? Even with the numerous direct and indirect subsidies given most national oil companies, their operations tend to be underfinanced regarding the need for exploration and field development.

It appears that most governments have been premature in their efforts at expropriation; only Venezuela, given its particular goals in the world industry, may have timed its actions shrewdly. The drama of expropriation reveals both the strengths and weaknesses of the private companies relative to governments. The companies' comparative advantage is in the field of production—its ability to combine technical, financial, informational, and management resources, and to motivate its employees effectively. The government's comparative advantage is political—its monopoly over the elements of coercion and force. Correspondingly, the private company's major weakness is its vulnerability to the use of force, while the government company typically lacks productive skills and motivational techniques. The company's major defense against the use of government force is its option to withdraw from the region within which the government is competent to employ force. Complete withdrawal, however, is basically a political rather than an economic strategy—it is the strategy of warfare, where one side is resigned to sustaining some injury if it can inflict greater injury upon the other.

A distinction should be drawn between reasonable tax increases and expropriation. As mentioned at the beginning of this paper, economic theory predicts that the owner of a scarce resource will be able to extract all earnings above the necessary rate of return on the resources actually employed in production. The difficulty lies in determining the magnitude of that necessary rate of return, since it is influenced by the perceived risks of investors. The large increases in oil taxes levied in the major producing areas in the 1940's, for example, were not such as to reduce investment and production, since production risks had declined, and expropriation risks had not yet been perceived. But taxes levied on an arbitrary

basis, and particularly taxes applied retroactively on various pretexts, are fundamentally destructive to investor motivation. Such maneuvers, combined with incidents of expropriation, increase perceived political risks in areas where risks of exploratory failure may be rather small, and result in reluctance to invest except in cases where the prospective rate of return is very high, so that good earnings may be made in a short period of time, hopefully prior to property seizure. Obviously this is not the sort of investment which a country desires to attract, but this may be the only kind which a government with a reputation for arbitrary action can obtain. On the other hand, expropriation on a major scale appears to be a country's way of telling itself and the world that it actually does not desire to increase its role in the world market. Non-industrialized countries in general appear to have a profund, if often unconscious, desire not to export raw materials. If conscious, this desire logically translates into the judgment that economic development is less important than other goals—or that economic growth will somehow "happen" even if export industries are not fully exploited.

This point is worth expanding upon, for it transcends the issues of Latin American petroleum development. The main agencies for economic growth in non-industrialized countries are the numerous multinational corporations, whose activities are so heavily criticized in such countries. Most of the arguments against these companies reduce to arguments against economic development itself, and would arise in the course of a wholly international development program managed without foreign investment.[15] First, an employer may be accused of ruining an economy by paying wages higher than the going rate—a charge often made against international oil companies. Actually, the payment of higher wages is a competitive consequence of the introduction of superior techniques, which increase the productivity of labor. Under such circumstances, paying lower wages (which would not be possible if the labor market in the country were fully competitive) would simply mean labor exploitation in the sense that wages were less than productivity. Secondly, a company may be criticized for introducing labor-saving technology when unemployment exists. However, the technology would ordinarily not be introduced unless it were more productive than more labor-intensive methods, and

15. Collade, *Multinational Corporations and National Economic Policy*, in I THE ENERGY QUESTION: AN INTERNATIONAL FAILURE OF POLICY, note 3 *supra*, at 201-02.

part of the benefits of higher productivity could be invested in projects to alleviate unemployment. Thirdly, the nation may object to the fact that industrialization, by increasing national income, increases the importation of desired consumption goods, which could not be purchased at lower income levels. To object to this is to object to increasing incomes and is basically a rejection of the benefits of economic development. Fourthly, the entry of efficient foreign private companies may make higher-cost, less efficient domestic enterprises non-competitive, and this is particularly dangerous if these enterprises are government backed. Again, one can only observe that a country that wishes to maintain inefficient enterprises is not interested in economic development.

Criticism of the activities of foreign private companies need not imply a complete rejection of the process of economic development, but rather of the direction that such development takes. Here is a point which deserves some consideration. The sort of economic development that is fostered by the activities of multinational corporations proceeds along the lines of maximizing the international comparative advantage of production complexes in different parts of the world. Admittedly, this sort of activity would be more nearly optimal in a politically and economically unified world where all resources were free to move geographically and among occupations with an absolute minimum of institutional barriers. Under such conditions there would be no uneconomic desire to "develop" climatically unpromising areas like Alaska, Libya, the Arabian peninsula, or even West Texas. Such areas could be specialized for production rather than residence, and incomes from production could permit inhabitants of these areas to move to environmentally more congenial regions. But with populations at present largely captive for political and inertial reasons within the boundaries of states, the rulers of such states may desire very different types of economic development rather than that which comes from the activities of foreign private investment. In general, rulers will wish to develop their economies along lines that maximize the visibility of the ruler's contributions to the economy, and in particular, which secure for the ruler an unshakeable grasp on political power. The case of Gomez in Venezuela is instructive. As an absolute dictator, despised by progressive elements in his own country, he not only poured oil royalties into a formidably armed and well trained army, but also invested extensively in highly visible types of public works projects.

In countries where political power is more widely dispersed, as in present day Venezuela, the character of economic development

is biased in favor of achieving greater internal autonomy over the operations of the economy. Consistent with such wishes, not only are foreign owned properties confiscated, but their activities are logically devoted increasingly to domestic rather than foreign activities. The resulting reduction in export earnings certainly complicates the process of economic development, but this is a prospect that the country may be willing to face. More than likely, however, there will be a tendency to hope that foreign capital can still be induced to invest, even though it will be controlled so as to serve national rather than investor interests.

As to likely future developments, it then appears reasonable to conclude that the role of foreign private investment in the Latin American petroleum industry will decline. Frankly, the risks of such investment appear to be increasing to a point that private borrowers cannot prudently accept. In theory, the idea of the service contract is a sound one. Investors should not be able to reap excess profits above and beyond the amounts needed to elicit their investment. But on the other hand, investors will simply not invest where the prospect for profit is below the minimum competitive level consistent with perceived risks. Service contracts have the best chance for succeeding in areas where the sale of services as such is paramount. Prudent investors will certainly seek to minimize their fixed capital investment in future arrangements—and, as necessary, to disinvest in existing facilities controlled by foreign governments which do not permit adequate rates of return. Indeed, under such conditions, considerations of a strategic and security nature will become at least as important as orthodox economic concerns.

There is, in fact, some question as to whether or not sufficient investment can be made in the world petroleum industry to permit the continuance of even a reduced level of export trade. In the long run, it would be logical for companies to sever investment relations with the exporting countries as such, and deal with them only through transport intermediaries, such as chartered tankers whose more mobile properties would be less subject to confiscation. The long run goal would be for the consuming countries to place effective price pressure on producers, which would be more feasible once the international companies are freed from their status as "captive" producers in foreign areas. The exporting countries might possibly circumvent this strategy to some extent by integrating refining and transportation, which would be a logical outlet for their excess foreign earnings on exports. Even more promising would be integrating forward into marketing outlets in the con-

suming countries—except that expropriation is a two-edged sword, and such investments would be vulnerable to retaliatory action by the governments of importing countries.

The basic conclusions are that Latin American petroleum exporters fundamentally do not want to export their natural resources, and will increasingly turn their attentions to their own domestic markets, even at the cost of a reduced rate of economic development. Expropriation is essentially a decision in favor of reducing a country's role in export trade. As to future government-private investment relationships, the old type of concession agreements are obviously obsolete, and even the economically more logical service contracts will probably not prove workable in the majority of circumstances. Private foreign investment will decline, but public investment may not fill in the gap. Although some national oil companies, such as Pemex and Petrobras have functioned with reasonable efficiency over a long period of time, these are the exceptions, and it is unlikely that such companies will be able to develop adequate new reserves, even though they may manage to handle most other aspects of petroleum operations within the borders of their own countries. By default as well as design, Latin American petroleum industries may come increasingly to concentrate upon supplying their own internal markets.

Since the Latin American petroleum market is a minor part of the world market, developments in the Western Hemisphere are contingent upon what happens to the cartel, whose power base is in the Eastern Hemisphere. Continued success on the part of the cartel in its policy of economic warfare upon consuming countries will ease the problems of Latin American producers; cartel failure will greatly intensify them.