

## OIL-PRICING POLICY AND GOVERNMENT REVENUES PER BARREL OF EXPORTS IN THE OPEC COUNTRIES (1973-1979)<sup>1,2</sup>

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### ABSTRACT

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This paper covers the evolution of government revenues per barrel of exported crude oil in the OPEC countries as from 1973, when the first oil crisis triggered a radical change in the power balance between oil companies and oil-importing countries on the one hand, and oil-exporting countries on the other hand, through 1979.

The background of price-increasing decisions is given in the light of common and clashing interests within OPEC and the mutual dependence of oil-importing and -exporting countries.

In figures the government revenues per barrel of exported crude, volumes of exported crude, and total government revenues are given for four representative OPEC countries (Saudi Arabia, Libya, Venezuela and Indonesia) and for the total OPEC, both in current and in constant 1973 dollars. Furthermore, an overall picture of oil prices, pricing systems and government revenues is presented.

### INTRODUCTION

Since the oil crisis of October 1973 two main changes have occurred which determine the present oil scene. The first one is the fact that the oil prices are imposed by governments of the producing countries, while prior to this date oil prices were mainly established by the oil companies. The second one is the full control taken by the producing countries on production and export destination.

However, as the governments took away the responsibility on these two issues from the oil companies, the former were faced with the difficult problem how to cope with maintaining or even improving the terms of trade of oil on the one hand, and on the other hand not to create an economic and political mess in the importing countries. The latter had become a real possibility, since the international petrodollar flow had risen to staggering proportions and, consequently, even a slight increase in oil prices would affect the over-all economic situation in the industrialized countries. Economic and political instability would certainly be no use to the OPEC-countries, since for their own development the bulk of their oil revenues has to be spent in the industrialized countries, and the military defence of several member countries largely depends on these industrialized countries. The presence of these two contradictory interests has governed OPEC policy making for the last six years and will continue to do so as long as the OPEC-countries depend on the industrialized countries for the development and safeguarding of their own economies.

At the root of this problem is the utter necessity for the OPEC-countries<sup>4</sup> to make the best out of their oil revenues, since at some future time their resources will be depleted. As stated in the 1975 Solemn Declarations of OPEC: 'With

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<sup>4</sup> The 13 members of OPEC (Organization of Petroleum Exporting Countries) are: Saudi Arabia, Venezuela, Iran, Iraq, Kuwait (1960, founders) and the United Arab Emirates, Qatar, Libya, Algeria, Nigeria, Gabon, Ecuador, and Indonesia. Together they produced 48% of world's output in 1978, which represented 82% of the international crude and refined products trade between 13 world areas (Source: World Oil, PIW, BP Statistical Review of World Oil Industry).

regard to the depletable natural resources, as OPEC's petroleum resources are, it is essential that the transfer of technology must be commensurate, in speed and in volume, with the rate of their depletion, which is being accelerated for the benefit and growth of the economies of the developed countries'.

The aim of this study is to give the background of OPEC's decisions to increase the oil price for the period from 1973 through 1979 and especially the revenues per barrel of exports received by the OPEC-countries<sup>5</sup>. To be able to compare the differing dollar values over that particular period, recourse will be had to constant 1973 dollars, as derived by means of the United Nations Index of Exports of Manufactured Goods. In tables and figures, total exports, total revenues and revenues per barrel will be given for the OPEC as a whole and broken down for four representative OPEC countries (Saudi Arabia, Libya, Venezuela and Indonesia). For OPEC as such revenues in constant 1973 dollars will also be calculated on the basis of an import index as used by OPEC in price claims.

Furthermore, the study will deal with factors affecting OPEC oil policy in general, and also go into some related problems.

#### MAIN FACTS SINCE 1973 CONCERNING PRICING POLICY<sup>6</sup>

Until the Tehran Pricing Agreement (1)<sup>7</sup> (March 1971), the oil companies fully controlled the establishing of posted prices (2), except for some incidental occasions when individual OPEC-members forced the companies to raise them. From this agreement till October 1973, a transitional period with evermore favourable conditions for the producing countries preceded the situation in which they fully controlled the price determination.

In this transitional period, OPEC, as a complement to the Tehran Agreement, concluded the Geneva I Agreement, intended to safeguard as from January 1972 the purchasing power of oil against fluctuations of the value of the dollar with respect to a basket of nine currencies (3). The terms were as follows: a quarterly adjustment of the posted price was to be made anytime the arithmetic average of the basket would show a variation on either side of two per cent or more. In addition to these fluctuation measures posted prices were increased with 30 cts/bbl.

<sup>5</sup> With respect to the period 1957-1973 reference is made to 'Government Revenues per barrel in the OPEC-countries, 1957-1973' by R. G. Tamboezer (*Geologie en Mijnbouw* 53: 177-187).

<sup>6</sup> An overall picture of the different pricing systems and their terms is given in figure 1 together with the oilprices and revenues per barrel (the latter both in current and in constant 1973 dollars).

<sup>7</sup> The numbers in the text between brackets refer to notes in the appendix.

1973

In May 1973, this agreement was amended into the Geneva II Agreement which was adopted by the six Gulf states (4) and, in June 1973, by Nigeria and Lybia. The following items were included: a monthly adjustment of the posted price whenever the arithmetic average of a basket of eleven currencies (5) would show a variation on either side of one per cent or more.

In June 1973, Abu Dhabi succeeded in realizing a low sulphur premium on top of the basic price of its crude, although this was contrary to an OPEC resolution, stating that price differentials between the different crudes would only be determined by gravity and location (6). Soon, other producing countries were to follow this example.

On October 6th, 1973, (Yom Kippur day) Arabian armies invaded their Israeli-occupied territory. Ten days later, the Tehran Agreement was replaced by a pricing system according to which the posted prices were always to be at least 140% of an OPEC-determined market price. This meant a radical change in the power balance of the oil industry: in contrast with the transitional period, crude prices were no more subject to negotiation between producing countries and companies. From this moment on, the OPEC could ask any price they wanted, provided they would act as a united cartel. We will see, however, that this would henceforth appear to be the crucial issue, since many contradictory interests within OPEC would make unity as to pricing policy often impossible (note: no decision taken by OPEC is binding for its member countries).

The Yom Kippur war drove the Arab countries to concerted action in order to press the western oil importing nations to alter their pro-Israel attitude. With successful production cutbacks, nationalizations and oil embargoes (7) the Arab producing countries suddenly became aware of their political power. Hence, it did not take long to discard the Geneva II Agreement and the OPEC-determined market price system. At the price meeting in Tehran (November 1973) the OPEC countries decided to raise the oil prices by 130% as from January 1st, 1974. They thought this possible because of the excessive prices (about \$20/bbl) the consumers were ready to pay on the spotmarket during the embargo period. Furthermore, during this meeting, oil prices for the first time were compared with alternative energy, which strengthened OPEC in its conviction that the price rises were realistic.

At the same meeting, OPEC decided to introduce a marker-crude (8) which was intended to be the benchmark for the pricing of other crudes. Henceforth, only the marker-crude would have to be negotiated and, provided a price differential system would be agreed upon, the prices of other crudes would automatically be determined. However, as we will see, the differential issue ever remained, and still is today, a bone of contention within OPEC.

1974

In many respects 1974 proved to be a year of extraordinary turbulence, due to the sudden price increases, the ever growing nationalization efforts, and the political situation in the Middle East.

As a result of the price increases, the relation between the industrialized nations and OPEC grew bitter and the climate between the two parties became one of confrontation (9). The industrialized countries felt the necessity to co-ordinate their energy policies in order to be able to face, *inter alia*, a disruption in their oil supply. In November 1974, 20 countries established to this end the International Energy Agency (IEA) with its headquarters in Paris (10). Further, OPEC thought it necessary to adapt the tax and royalty percentages to the higher prices, because of the excessive profits the oil companies made. Therefore, it decided on its XL Conference in Quito (June 1974) to raise the royalty rate from 12.5% to 14.5% as from July, 1st, which meant a slight increase in government take (11).

At its XLI Conference (September 13th, Vienna), OPEC, in order to compensate for the inflation in the industrialized countries, raised both royalty and tax rate. The former from 14.5% to 16.67%, the latter from 55% to 65.75%. The last (and definitive) increases in royalty and tax were made on November 10th, 1974, during an OPEC Gulf States Meeting in Abu Dhabi (12). Royalty was raised to 20% and tax to 85% to decrease the too wide margins of the oil companies. Posted prices were reduced by 40 cents per barrel to ease the consumers' economy. These so called 'Abu Dhabi decisions' were generally accepted by OPEC during its XLII Conference (December 12th, Vienna) to be effective as from January 1st, 1975. Another reason to accept this new pricing system was to switch the profitability of the upstream sector to the downstream sector of the oil industry, resulting in a more attractive situation for the producing countries to invest in the downstream sector (13). A last issue during 1974 as to posted price levels was Saudi Arabia's wish to lower them, but this encountered firm opposition on the part of the other OPEC countries which, on the contrary, wanted a system of production control within OPEC to keep prices high. Saudi Arabia, however, has always strongly opposed this idea, because, as Yamani stated: 'Saudi production level is not a matter of OPEC' (14).

The second cause of turbulence in 1974 were the negotiations on nationalization to obtain a majority share in the concession agreements of the producing companies.

A controversial issue related to it was the pricing of buy-back and direct-sale crude (15). Eventually, the destination embargo affecting the U.S. and Holland was lifted (March and June 1974 respectively) since the U.S. deployed great activity in reaching a peaceful situation in the Middle East and Holland modified its pro-Israel attitude.

1975

Contrary to the year 1974, when the oil problems had a more or less short-term character, 1975 saw the rise of long-term problems which hitherto have not been solved. These are:

- (1) the erosion of the purchasing power of the US dollar and its impact on the terms of trade of oil;
- (2) the OPEC current account surpluses and the difficulty to invest them;
- (3) the technological and economic backwardness of the Third World;
- (4) the price differentials among the various crudes.

In January 1975, the Oil, Foreign and Finance Ministers of OPEC gathered in Algiers to hammer out a well-balanced strategy for the future. On the one hand, they were ready to abandon any price increase in real terms through 1980 with the partial and gradually increasing compensation for inflation from 1976 to full compensation in 1978 through 1980; they were ready to guarantee the future world oil supply and to execute a plan for the recycling of petrodollars to the OECD-countries (16) because of their balance of payments difficulties.

On the other hand, as a *quid pro quo*, the industrialized nations should undertake to end the confrontation tactics and make a constructive dialogue between OPEC, Third World and OECD possible. Furthermore, there had to be a fair exchange relation between oil and imported goods and services. As a third item, OPEC wanted the industrialized countries to transfer their technology and open their markets to the Third World. Fourth, there should be no limitations as to investments by OPEC in OECD-countries, and fifth, the international monetary system should be reformed to allow the Third World to take part in the decision making. Most of these desiderata are, however, very difficult, if not impossible, to fulfill. Probably, some of them are even contradictory, but still OPEC would henceforth use these ideas as its main policy towards the consuming nations (17). As a means to enforce this policy, OPEC would use the threat of production cutbacks, and both the threat and execution of price rises.

From April and May, 1975, onwards dialogues were resumed between the industrialized and developing countries. These talks, long drawn out and unsuccessful as they were, very much annoyed OPEC. Nevertheless, at its XLIV Conference (June 1975, Gabon), OPEC decided to freeze the prices until the fourth quarter of 1975, and from then on to adjust the oil price according to variations in the dollar-SDR-ratio (18), despite Iran's efforts to link the price to a 'basket of goods and commodities in international trade'. However, on the XLV Conference (September 1975, Vienna), the SDR-decision was revoked through opposition by Saudi Arabia and Algeria versus the rest (19). The conference reached a compromise: price increases of 10% as from October 1st, and a price freeze through June, 1976 were adopted.

During 1975, OPEC became aware of the problems caused by its current account surpluses. It had to find right ratio between recycling of petrodollars, aid to developing countries, and foreign investments (20). Due to its increased monetary role, OPEC was granted a heavier voting weight by IMF and the World Bank.

At the end of 1975, the lack of a co-ordinated price differential system became a serious problem to OPEC. Each producing country, according to its own view, could establish the price differentials of its crudes with respect to the marker-crude. As stated above, this situation, with some restrictions, was to last until the present day.

### 1976

Due to the economic recession in the industrialized world, which was partly a result of the oil-price hikes, 1975 and the first half of 1976 showed an OPEC production surplus. Several countries decreased their crude prices and solidarity within OPEC to keep prices at the agreed level was threatened. That was the reason for Iraq, in March 1976, to campaign for production programming by OPEC, but to no avail.

In April 1976, Saudi Arabia started criticizing western use of oil and would henceforth continue to press the industrialized nations to alter their energy-wasting economy. On the XLVII Conference (May 1976, Bali) OPEC decided to freeze the price for the time being (21), despite the high rate of worldwide inflation. The reason was to give the Western economy time to recover. At the same meeting, Algeria proposed a price differential system which, to some extent (22) but not for long, remedied the difficulties so far encountered as to price differentials.

From August, 1976 onwards 8 industrialized and 19 developing countries met in Paris at the Conference on International Economic Co-operation (CIEC) to discuss, *inter alia*, such issues as transfer of technology, opening of Western markets to Third World industrial products, development aid, raw materials, paying off debts, etc.

Sheikh Yamani, a long-time advocate of increased aid to developing countries, said with reference to CIEC, that at the next OPEC Conference (in December 1976), crude prices were going to depend on the actual concessions made by the industrialized countries to the developing countries in these fields. Furthermore, Saudi Arabia made it clear to the Western nations that it produced more oil than its own financial needs required, and suggested that, in recognition thereof, the developed countries offer good possibilities to invest its oil income surplus. Throughout 1976, inflation more and more (23) eroded the purchasing power of crude oil, and OPEC-countries continued to express their apprehension. On December 17th, 1976, OPEC, when having its XLVIII Conference (Doha, Qatar), could not reach agreement on a unified price increase. Saudi Arabia and the United Arab Emirates (UAE), on the one hand, decided to increase the oil price with only 5% in the interest of world economy. The

eleven other OPEC countries on the other hand, decided to raise prices by 10% as from January 1st, 1977, and by another 5% as from July 1st, 1977. To keep prices at this level, they agreed to decrease their oil production on a pro rata basis in case Saudi Arabia augmented its output.

### 1977

The conference resulted in a two-tier pricing split which would last through the first half of 1977 (24). Saudi Arabia expected on the part of the consuming nations appreciation for its moderate price increase by proceedings in the North-South dialogue and in the Arab-Israel conflict. The two-tier pricing system and an increased Saudi output caused the eleven OPEC-members serious trouble as to the sale of their crude during the first half of 1977 (25).

In June 1977, Saudi Arabia was ready to increase prices by 5%, 3% because of inflation, and 2% because of the failure of CIEC. At the same time, the eleven countries abandoned their 5% increase plan and prices were re-unified as from July 1st. However, the price differential issue remained unsolved.

At the end of 1977, OPEC was divided as to further price hikes. Saudi Arabia, the UAE, Iran, Kuwait and Qatar (together 67% of OPEC production) were in favour of a price freeze because of:

- (1) the surplus situation on the oil market essentially caused by the increased Alaska and North Sea production;
- (2) the ailing world economy;
- (3) the bad condition of the dollar.

The rest of OPEC wanted a price increase to compensate the erosion of the purchasing power due to the dollar devaluation (5-10% in 1977) and world inflation, and furthermore because of the increased prices of alternative energy. At its L Conference (December 1977, Caracas), OPEC could not reach a price agreement, which meant a *de facto* freeze. This situation would last throughout December, 1978.

### 1978

During 1978, some events rather drastically changed the political scene in the Middle East. In May, the United States promised F-15 combat planes to Israel, Egypt and Saudi Arabia. This meant a modified attitude of the US towards the Middle East, highly appreciated by Saudi Arabia. The Soviet Union more than ever infiltrated in this area, causing thereby a great deal of concern, especially to Saudi Arabia (26). In September, Egypt and Israel, through the intermediary of President Carter of the USA, decided to conclude a peace treaty. The Arab World protested vehemently against this so-called Camp David Agreement and banned Egypt from most Arab organizations and cut aid projects.

In November, political instability in Iran increased to culminate in the Shah's leaving the country in January, 1979. Strikes in the oil fields affected Iran's oil output, which then

fluctuated through April, 1979 between nil and 5 million b/d, creating a wide-spread shortage on the oil market.

The OPEC current account surplus during 1978 dropped to its lowest value since 1974 (27), due to:

- (1) sharply increased imports of services, foods and goods;
- (2) the depreciation of the dollar, which increased import costs;
- (3) slow increase of OPEC oil revenues during 1977 as compared with 1976, due to slow economic growth of consuming nations and to bigger than expected oil production from the North Sea, Alaska and Mexico;
- (4) sharp increase in development aid by OPEC.

On the LII OPEC Conference (November 1978, Abu Dhabi), the decision was taken to raise prices in four stages during 1979, which would result in an average 1979 increase of 10% (28). This already had been agreed before the meeting in Abu Dhabi, and the conference was astonished at the 'absurd reactions' to these decisions on the part of the oil importing nations. Actually, after a price freeze of two years during which inflation and dollar depreciation seriously affected the terms of trade for oil (29), these measures were rather mild. Other issues of the conference were: price differentials, production programming and indexation of oil prices to a basket of currencies. The latter two issues were, as always, strongly opposed by Saudi Arabia, the first one for the reasons stated above, the second one because of its large dollar assets.

### 1979

The oil scene of 1979 was completely dominated by the political instability in Iran. The year started with strikes in this country and, consequently, the oil market turned very nervous. Saudi Arabia increased its production ceiling by 1 million b/d to 9.5 million b/d in an attempt to ease the market. However, Saudi Arabia already had lost its price leadership. Its extra output was sold at the price, anticipated for the fourth quarter of 1979. Oil prices on the spotmarkets reached unprecedented heights, and most OPEC countries took the opportunity to charge premia in addition to the first quarter Government Sales Price (GSP), though this was not in conformity with the decisions taken at the last OPEC conference.

In March, President Carter succeeded in conciliating Egypt and Israel, and the Arab countries felt betrayed.

At the end of March 1979, OPEC held its LIII Conference (Geneva) and, considering the high level of the spotmarket prices, decided to bring forward the fourth quarter prices to the second quarter, and maintain them through December 1979. But these would be only be 'base-prices', on top of which member-countries could charge premia which they 'deemed justifiable in the light of their own circumstances'. In other words: anarchy; prices were 'free for all'.

A multi-tier price structure arose and four 'tiers' could be distinguished (31). Spotmarket prices kept on rising during

the second quarter (to about twice the GSP), and official GSP's were adapted to it. Saudi Arabia had its production ceiling of 8.5 million barrels per day reintroduced, because Iran had attained its planned level of 4 million barrels per day. Nevertheless, pressure was all around. At the end of June, Iraq negotiated with the oil companies the 'most-favoured-seller' clause (32), which soon would be followed by other countries.

At the end of June 1979, OPEC, during its LIV Conference (Geneva), agreed on a maximum GSP of \$23.50, including quality and freight differentials and premia. Premia were agreed not to exceed \$2/bbl. Saudi Arabia, retroactively as from June 1st 1979, raised its marker-crude from \$14.546 to \$18.00. Iran settled its Iranian Light at \$21 to \$22/bbl. Hence, in practical effect, a new two-tier system was in force. Though by no means a unified price was reached, this situation was better than the 'free for all' of the second quarter (33). The conference further cautioned the oil companies to supply the developing countries with oil, and again discussed the attitude of the Western countries towards the developing countries.

Finally, OPEC decided to meet in an Extraordinary Conference to decide on a basket of currencies, in case the dollar continued to drop. Price differentials remained in complete disorder.

In September, Saudi Arabia raised again its production ceiling to 9.5 million b/d because, according to an official statement, it needed the money to finance the developing projects of its five-year plan. Probably, the reason was to quieten the market. At the end of September, spotmarket prices went down. Calm had more or less returned, but uncertainty remained.

In October, it became ever more clear that the oil producing countries were increasingly circumventing the oil majors and selling their crude directly to third party refiners on the spotmarket. Libya, for example, had its long-term contracts reduced by 20-30% and Algeria by 5%. This maneuver reflects a growing fragmentation of the oil market. Though petroleum supplies were relatively plentiful, prices remained high, because of the unstable supply-demand equilibrium as created by a number of factors. These factors were:

- (1) the aforementioned fragmentation tendency: the total volume of crude traded on the spotmarket would, at the end of 1979, grow up to 15% of the crude in international trade;
- (2) uncertainty about the future output in Iran and Saudi Arabia (the latter as to maintaining the production ceiling of 9.5 million b/d), and, as a consequence thereof, a nervous stockbuilding of the refined products to cover winter demand (for about 100 days).

As a result of this situation on the spotmarket, some OPEC countries at the end of October did no more abide with the maximum GSP of \$23.50/bbl and raised their crude prices above this level. At the same time, they proclaimed that all crude-selling contracts for 1980 would have to be

renegotiated to make them even more profitable for the OPEC countries.

In November 1979, instability in Iran led to the seizure by students of the US-embassy in Tehran. This act was backed by the Iranian government, which made relations between the two countries almost explosive. President Carter of the USA froze Iranian assets in the US-banks, a move which was understood, but nevertheless criticized by other oil producing countries since they felt that their own assets in the USA were not anymore as safe as before.

In December 1979, OPEC had its LV Conference (Caracas). At a pre-meeting, Saudi-Arabia, the UAE, Qatar and Venezuela had decided to raise prices by 33% (the marker-crude rose from \$18.00 to 24.00/bbl) (34) with the goal to return order to the disparate pricing system. The Saudis, when giving a justification for their price increase, stated that the USA and other oil importing countries had failed to conserve their oil and that western greediness, not OPEC actions, had pushed up prices on the spotmarket (up to \$45 at the end of 1979). Just before the meeting began, Iran announced that its crude would be sold for \$28.50 and Libya declared that it was lifting its price to \$30/bbl. Not to be outdone, the Nigerians jumped to \$30/bbl, too. The Saudis took great pains to reach a compromise, but all attempts to come to a unified pricing system failed. As stated Iraq's oil minister Karim: 'We agreed not to agree'. And Yamani said with reference to the high oil prices: 'There will definitely be a global recession. We will notice a sharp drop in the spotmarket. Then there will be some sort of unification of price levels among OPEC members'. Some days before the conference Yamani had announced, to great relief of the oil importing countries, that Saudi Arabia would maintain its production level of 9.5 million bbl/d at least through April 1980 (35).

1980

OPEC entered the 1980's in such disarray, that the organization itself began questioning about its future. In the conclusion of this paper, it will be explained that the world oil supply may have become so tight that the producing countries do not need eachother anymore to settle prices. Market forces, the law of supply and demand, will have a much bigger influence than before.

#### FACTORS AFFECTING OPEC PRODUCTION LEVEL

In the preceding chapter, some issues were mentioned on which over the last six years, OPEC's willingness to meet the world's demand for oil has depended. They were:

- (1) the consumer's attitude in the Middle East conflict (only concerning the willingness of the Arab members of OPEC);
- (2) possibilities for the OPEC-countries to invest their money surplus in the OECD-countries;

- (3) proceedings in the North-South dialogue;
- (4) transfer of technology by the industrialized nations to the developing countries;
- (5) conservation measures taken by the oil importing countries.

However, the most important issue has not yet been mentioned: the long-term policy concerning production levels which is based on *domestic* factors. In this light, one has to consider the following:

(1) *A country's production capacity* – The maximum sustainable output as allowed by responsible depletion is determined by geological circumstances and their influence on technical feasibility.

(2) *The financial needs of the producing country* – The higher the oil prices, the lower production can be to satisfy the financial needs. In this light, one has to draw a distinction between the so-called non-absorbers (Saudi Arabia, UAE and Kuwait) and absorbers (rest of OPEC). The former produce more oil than they need for their economic development program, the latter fully absorb their oil revenues to this purpose. This makes the policy of these two groups with respect to oil prices and production levels basically different.

(3) *The ratio of economic development achievements to depletion of the ultimately recoverable resources* – Most oil producing countries are almost totally dependent on their oil revenues to finance their development projects. Hence, they have to take good care that the ratio of oil produced to ultimately recoverable oil be equal to the ratio of economic development achievements to the eventual economic development target. This is, of course, a very difficult matter to determine.

(4) *The yearly oil discoveries* – Several countries with rapidly declining resources had oil output depend on the yearly ratio of newly discovered oil to oil produced in that year. Libya, for example, even wanted each barrel produced to be replaced by a new discovered barrel (in which case this ratio equals unity).

The above mentioned issues control the total production level of each single producing country. However, it does not fully control the *export* availability, because therefore one should also consider the local consumption. This very item is likely to encroach seriously on export availability, because of the energy needs of the producing countries which are growing commensurate with the rate of their development.

#### GOVERNMENT REVENUES PER BARREL OF EXPORTS

Figure 1 and the graph for the total OPEC in figure 2 show that, in consequence of the ever improving pricing systems, the nominal government revenues per exported OPEC-barrel (36) have increased since the early 1970's, except for a slight decrease in 1978. With respect to the preceding year, 1974 and 1979 showed a sharp hike in revenues per barrel

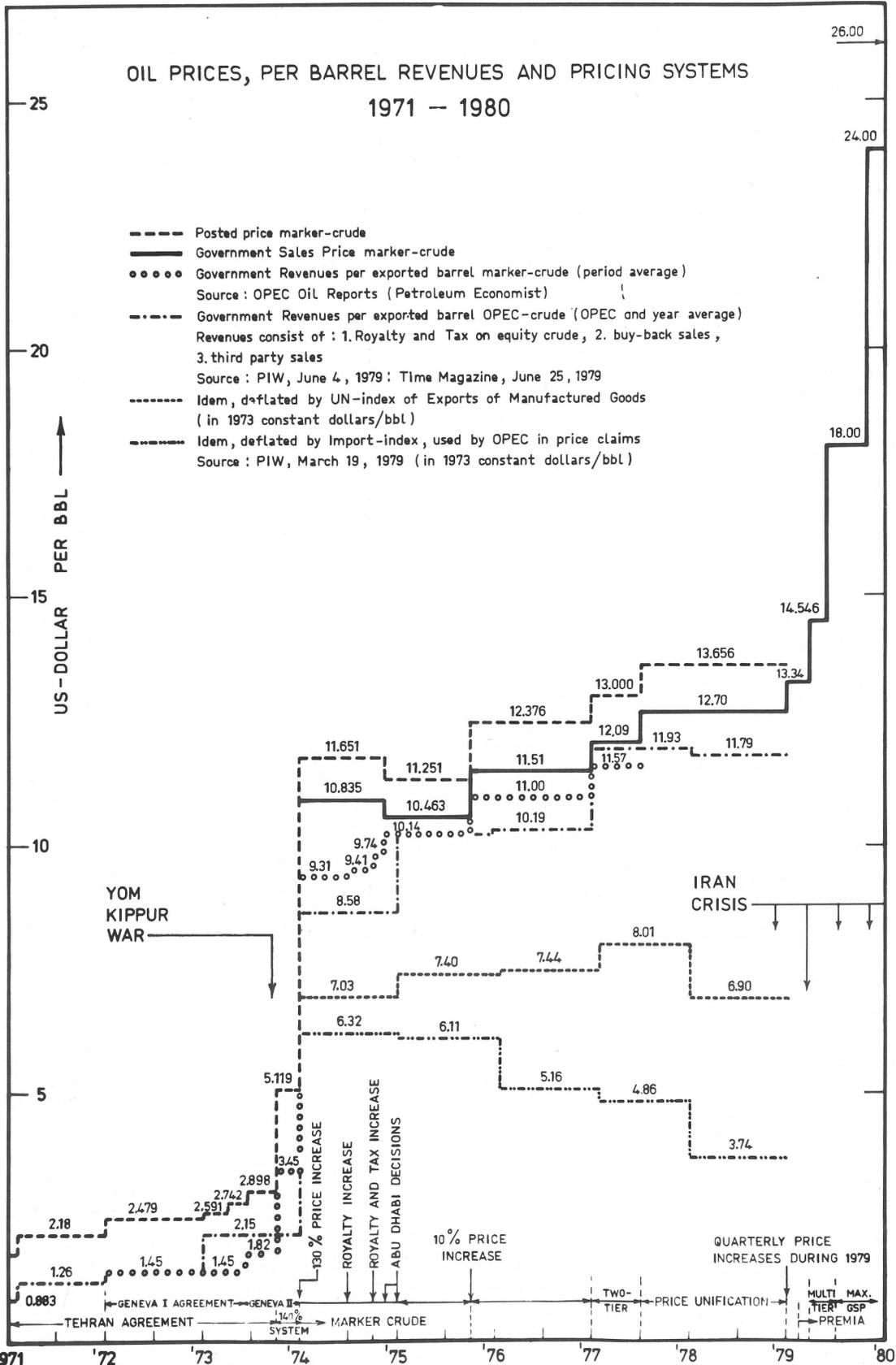
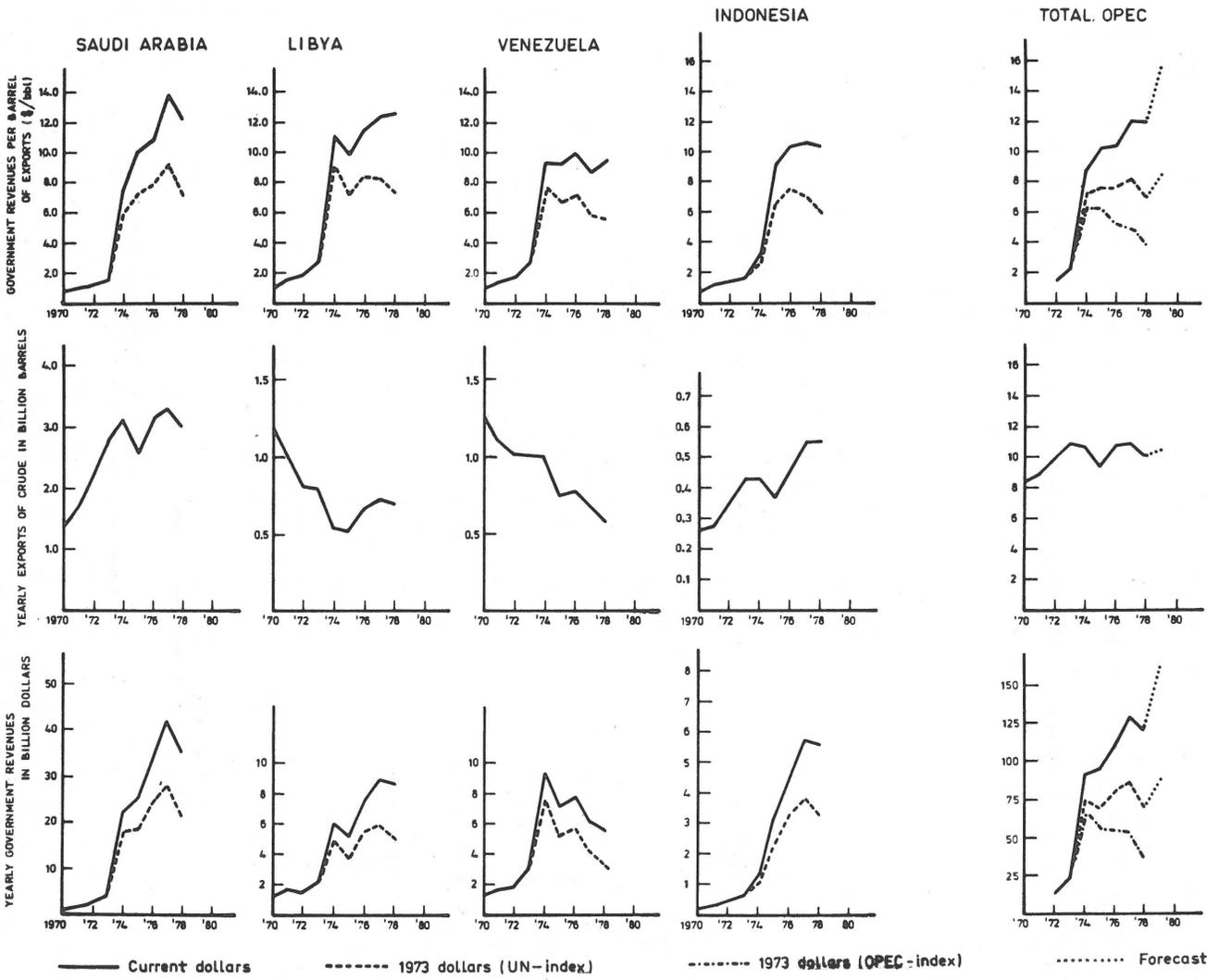


fig. 1  
oil prices from 1971 to 1980, per barrel revenues and pricing systems.



Source : 1970-1976, OPEC Oil Report (Petr. Economist)  
 1977-1978, Petr. Economist, June 1979

Source : OPEC Oil Report, Time Magazine, June 25, 1979  
 (PIW Compilation)

Fig. 2  
 Government revenues per barrel of exports (\$/bbl).

(Yom Kippur war and Iran crisis respectively).

In the first part of this paper it was stated that erosion of the purchasing power of oil through world-wide inflation and depreciation of the US dollar with respect to other currencies were the main reasons to increase oil prices. It would be interesting, therefore, to see whether OPEC succeeded in maintaining the purchasing power of oil. To this end, one should be able to compare the changing value of the US dollar to a reference dollar. For this reference dollar will be chosen the value of the dollar in 1973, and in more recent periods dollars will be divided by an index, in which inflation, dollar depreciation and a basket of international traded goods and services have been taken into account.

Figures 1 and 2 show that for the OPEC as a whole the revenues per barrel have improved somewhat since 1974 (except for a slight decrease in 1978), provided we take the U.N.

Index of Exports of Manufactured Goods as a guide (37). However, if we deflate the current revenues per barrel by a much faster climbing index as used by the OPEC in price claims (38), then it appears that revenues per barrel have ever decreased since 1974.

It is difficult to say which index we should rely upon. The OPEC index is perhaps too stiff because of OPEC's wish to justify its price increases. The U.N. index is perhaps slightly too low, because of the faster risen costs for imported services which have not been taken into account in this index. Therefore, it would be justifiable to state that government revenues per barrel of exports (expressed in constant dollars) remained about the same from 1974 through 1977, showed a decrease in 1978, and attained its maximum in 1979.

In other words, since 1974 the OPEC has achieved in 1979 only an improvement in the purchasing power of oil.

## CONCLUSIONS

The OPEC countries aim at a mature and diversified economy for the time that their crude available for export will be depleted. Only then they would be able to maintain a high standard of living. To this end, they have to maximize their oil revenues and this they tried to do by raising oil prices, raising royalties and taxes, and by ever more favourable sales contracts. Furthermore, the OPEC has ever since the early 1970's thought of linking the oil price to a basket of currencies in order to safeguard the purchasing power of crude oil against the declining value of the US dollar, which practically is the only currency being used for crude purchases. At one time (June, 1975) it decided to do so, but soon it abandoned the plan, mainly because the dollar was recovering. In spite of these measures, since 1974 OPEC succeeded in improving the purchasing power of oil only in 1979, enabled to do this by the shortfall in oil supply brought about by the Iran crisis.

OPEC will continue to live as long as the members need each other to settle the oil prices. Yamani stated that three main phases in the future of the oil markets are to be distinguished. The first is a situation of surplus, the second one of balance and the third one of shortfall. The three gradually fade, one into the other. When the third phase will have come, oil prices will not be determined by OPEC anymore, but by the supply-demand mechanism only. Will that be the end of OPEC, or will its members keep together to form a political block? Or will a group within OPEC, e.g. the OAPEC (39) stick together to achieve its common political aims?

Some experts contest a shortfall situation in the near future, some even in the long run. They quote optimistic statements from geologists (40) about world's resources. But even if these resources are as large as being told, one yet has to reckon with:

- (1) the huge investments and sacrifices to the economy the developments of new, mainly offshore, oil fields will require: production of oil will become much more expensive;
- (2) the time it will take to explore and develop the new oil fields, which may take so long that several periods of shortfall will occur;

(3) the willingness of the producing countries (OPEC and non-OPEC) to satisfy the world's demand for oil. This last factor probably always will remain an incalculable one.

The consuming countries can roughly be divided into three groups, viz. the OECD, the LDC's (less developed countries), and Comecon. Only the LDC's can, for the time being, be certain of a sufficient oil supply from the OPEC countries, according to several official OPEC statements. Hitherto Comecon was not an important consumer of OPEC crude, but it is likely in the near future to make a growing appeal to this crude, since its own production will probably not keep pace with its growing energy needs. As a consequence, the market situation may grow ever more tense and the difficulty with the purchasing of crude may result in a conflict between the OECD and Comecon, or possibly, between the two superpowers, the USA and the USSR. Whether the Soviet invasion of Afghanistan at the end of December, 1979, has to be seen in this context is not yet clear.

The OECD countries may ever more be forced to make concessions and alter their policies in favour of OPEC. Israel, e.g., gradually loses the support of western countries. It cannot expect the Western world to continue this support and pay the high price of oil shortage and its far-reaching consequences on economics.

Therefore, in order to avoid political blackmailing, it is essential to the Western countries to diversify their energy resources and reduce their dependence on OPEC crude. In these turbulent times with opposing vital interests to come, sensible leadership of all different parties is of the utmost necessity.

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## APPENDIX: NOTES

*Abbreviations:* PIW = Petroleum Intelligence Weekly  
MEES = Middle East Economic Survey

(1) For the essentials of the Tehran Agreement, reference is made to R. G. Tamboezer: 'Government Revenues per barrel in the OPEC-countries, 1957-1973' (Geol. Mijnbouw 53: 179, 1974).

(2) The posted price (PP) or tax-reference price had been introduced to calculate the tax on each barrel of export crude lifted by the oil companies. Originally, this fob price was a fair reflection of the market value of the exported crude. However, since August 1960 the PP in the Middle East lost this relation to market value and turned into a tax-reference price. The PP has always been expressed in US dollars.

(3) The nine currencies were: Belgian franc, French franc, German mark, Italian lire, Japanese yen, Dutch guilder, Swedish krone, UK pound sterling and Swiss franc (PIW, January 31st, 1972).

(4) Saudi Arabia, Qatar, United Arab Emirates (UAE), Kuwait, Iraq and Iran.

(5) Besides the nine currencies mentioned in note (3), the basket contains the Canadian and Australian dollar (PIW, June 11th, 1973).

(6) Low-gravity crude (i.e. high API-value) has less per barrel freight costs than higher-gravity crude, since tanker freight rates are expressed in \$/LT (long ton). Furthermore, the gravity can be subject to market forces because of the different product yields in the refineries.

Location differential: difference in crude prices due to difference in distance of oil terminal with respect to market.

The low-sulphur premium could be realized, since the low-sulphur crude entails lower refining costs and less pollution.

(7) Production cutback of Saudi Arabia was 22% (from 8.3 mb/d to 6.5 mb/d) at the end of October. At the beginning of November, cutback of the Arabian states rose to 25%.

Furthermore US and Dutch interests in the Iraq Petroleum Company were nationalized by Iraq and a destination embargo to the USA and to The Netherlands was installed. The embargo would be lifted in case Israel would agree to withdraw from occupied territories according to a timetable. Production would be resumed proportionate to the rate of withdrawal of the Israeli troops. However, the Arab producing countries did not abide by this threat.

(8) 34° API Arabian Light was designated to be the marker, because of the vast resources of it, high production (about 5-6 million b/d) and intermediate characteristics as to gravity and sulphur content. The crude contains 2% sulphur.

(9) In January 1974, US President Ford and Secretary of State Schlesinger spoke of a possible military intervention and food embargo by the USA as a countermeasure against OPEC. In May, a plan had arisen in London to raise a consortium of oil consumers, which was intended to function as a strong and united opponent to OPEC. This was violently criticized by Yamani, Saudi Arabia's Oil Minister. In October 1974, the atmosphere between OPEC and the USA grew even more tense in consequence of a speech by Ford and Kissinger, and of US efforts to bring about demand cutbacks with the goal to split the OPEC. As a matter of fact, OPEC output had dropped to 31 million b/d, while its estimated capacity was 37 million b/d.

(10) The International Energy Agency is an autonomous body which was established in November 1974 within the framework of the OECD (cf. note 16) to implement an international energy program. It carries out a comprehensive programme of energy co-operation among 20 of

the OECD's 24 member countries. IEA member countries are: Australia, Austria, Belgium, Canada, Denmark, West-Germany, Greece, Ireland, Italy, Japan, Luxemburg, The Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, Turkey, United Kingdom and the USA.

The basic aims of IEA are:

(a) Co-operation among IEA participating countries to reduce excessive dependence on oil through energy conservation, development of alternative energy sources and energy research and development.

(b) An information system on the international oil market as well as consultation with oil companies.

(c) Co-operation with oil producing and other oil consuming countries with a view to developing a stable international energy trade as well as the rational management and use of world energy resources in the interest of all countries.

(d) A plan to prepare participating countries against the risk of a major disruption of oil supplies and to share available oil in the event of an emergency.

Source: Energy Conservation in the IEA - 1978 Review (United Nations publication).

(11) Government take (GT) consists of royalty (R) on the full posted price (PP) plus tax on the PP minus royalty minus production costs (PC). In a formula:  $GT = R + Tax (\%) \times (PP - R - PC)$  and  $R = royalty \% \times PP$ .

(12) Effective as from November 1st, 1974, in Saudi Arabia, Qatar and UAE.

(13) The functions of the upstream sector of the oil industry consist in exploration, developing of oil fields, producing of the crude from the wells, preparing of the crude for transportation and for the refineries, and transportation of the crude to the oil terminal, where it is transferred to tankers or to a pipeline.

The functions of the downstream sector consist in crude freight by tankers or by pipeline, refining of the crude, and marketing of the refined products. It has always been the wish of the producing countries to be able to invest in the downstream sector to get more influence in the oil industry. Hitherto, the bulk of the profits was made in the upstream because of tax advantages.

In consequence of the Abu Dhabi decisions the margin of the upstream production side became 22 cts/bbl, which was too tight to ensure any profitability in the overall integrated oil industry. Hence, the prices of refined products had to rise, which made investing in the downstream more attractive. At the same time, price ceilings were installed by OPEC for direct-sale crude (i.e. sold to third parties without the intermediary of oil companies operating in the upstream sector) in order to counter the companies' passing the increase in government take on to the consumers. Each separate sector of the integrated oil industry was henceforth to yield a proportionate share in the return on investment.

(14) MEES - April 2nd, 1977 - from an interview with Yamani.

(15) Four crude types are to be distinguished in international trade:

(a) *Equity crude* - crude representing the company's equity share of oil produced from the concession area. The price the companies pay to the government is equal to the Government Take (GT, cf. note 10)

(b) *Buy-back crude* - government's equity share of oil produced from the concession area which is sold under contractual arrangement to the companies, due to lack of government market outlet. The price paid for the BB crude (the BBP) initially was 93% of the posted price (PP) and turned to 94.8% in July 1974 when Kuwait reached an agreement with BP and Gulf. During the Abu Dhabi meeting, November 1974, the informal decision was made to use generally the

latter percentage.

(c) *Direct-sale contractual crude* – sold by government to third parties under contractual agreement. The price for this crude is the official Government Sales Price (GSP), which often equals the BBP.

(d) *Direct-sale no contract crude* – sold on spotmarket by government without contractual agreement. The price is determined by the free market.

(16) OECD – Organization for Economic Co-operation and Development, to which 24 industrialized Western nations belong (including Japan).

(17) Besides the ever present Middle East conflict, the energy waste in the oil importing nations would in the future become a major policy-determining issue.

(18) The SDR (Special Drawing Rights) is a basket of 16 currencies introduced in July 1974 by the IMF in order to partially take over the role of gold and foreign values as national value reserve. This would ease the pressure on gold and foreign values in case of fluctuating exchange rates. The 16 currencies are:

Currency	Share in SDR (%)
US \$	33
DM	12.5
£ (UK)	9
F.Fr.	7.5
Yen	7.5
Can. \$	6
Lire	6
Dfl.	4.5
B.Fr.	3.5
Sw.Kr.	2.5
Austr. \$	1.5
DK.Kr.	1.5
Nor.Kr.	1.5
Sp.Peseta	1.5
Osternr.Sh.	1
S.Afr.Rand	1

Source: MEES July 19th, 1974.

(19) Saudi Arabia always had a very strong bargaining position during the OPEC conferences because of its vast surplus production capacity. This has often enabled the Saudis to dictate their moderate policy to the so-called 'price hawks'.

(20) An interesting note here is the advice of the Organization of Arabian Petroleum Exporting Countries (OAPEC) to its members not to invest their surplus money in the exploitation of the North Sea because of the absence of a British guarantee against nationalization (*Sic!*) – MEES, February 2nd, 1976.

(21) This price freeze would last through December, 1976.

(22) MEES, June 7th, 1976 – Supplement.

(23) The inflation statistics in that year varied widely. A study made by PIRINC showed, that the inflation of OPEC-imported goods and services during the period October 1975 to October 1976 was only 2.7%. The price index of OPEC imports during the period January 1974 through October 1976 had raised, according to this study, by 25.8%, while the price of the marker-crude had raised by 18%. Hence, a price increase of not over 7.8% would be justifiable at the next OPEC meeting in December 1976. OPEC, however, objected to those figures and noted that they were based on fob-values and not, as they should be, on cif-values. OPEC claimed the cif-figures had risen by

40% since October 1975 (MEES, November 22nd, 1976).

(24) Yamani defended Saudi Arabia's decision by the following argument. As he said, inflation of the US dollar, since October 1975, was less than 4% and the inflation of the IMF-index was less than 5%, while inflation in the OPEC countries was 26%, owing to two domestic economic phenomena:

(a) because of the numerous developing projects, labour became scarce and expensive;

(b) because of many serious problems in the ports waiting times for ships became too long.

Yamani said it would not be fair to charge the oil importing countries for this domestic – and not imported – inflation (MEES, January 10th 1977 – Supplement).

(25) In January, Iranian direct-sale dropped by 41% and Kuwait had to lower its production. Iran even feared a serious deficiency on its balance of payments. Actually, Saudi Arabia had abolished its production ceiling of 8.5 million b/d as from January 1977. This ceiling, however, was to be reintroduced as from January, 1978.

(26) To be mentioned: The Horn of Africa (Somalia), South Yemen, both close to Saudi Arabia, and Afghanistan.

(27) The OPEC current account surplus during the period 1974 through 1979, according to figures from a Chase-study, was (in billion dollars): 1974: 58.78; 1975: 38.97; 1976: 40.82; 1977: 40.55; 1978 (1st and 2nd quarter: 5.97 (MEES, May 28th. 1979).

(28) The figures of price increases during 1979 were to be: 1st quarter: 5%; 2nd quarter: 3.809%; 3rd quarter: 2.294%; 4th quarter: 2.691%. This would mean for the marker crude respectively: 13.335, 13.843, 14.161 and 14.542 \$/bbl.

(29)	OPEC TERMS OF TRADE		
	Oil prices (a)	Import prices (b)	Terms of trade (c)
1970-1972	19	66	28
1973	31	84	37
1974	100	100	100
1975	98	111	89
1976	106	113	94
1977	114	124	92
1978	117	144	81
4 Qtr	117	153	77
1979 (d)	145	159	92
1 Qtr	125	154	81
April	148	156	95

(a) Official sales price of OPEC 'marker crude' in US dollars through 1978; weighted average of all OPEC prices thereafter, including surcharges.

(b) Wholesale prices of non-food manufactures in industrialized countries expressed in US dollars terms and weighted by these countries' share in OPEC imports.

(c) Oil prices divided by import prices

(d) Projected

Source: MEES, June 14th, 1979.

(30) In this context, the OPEC secretary stated: 'Conference decisions concerning the level of prices cannot refrain member-countries from increasing the prices if circumstances have changed. This is in conformity with the OPEC statutes and with the sovereign rights of its members. Therefore, members are not blamed for violating the solidarity and unity of OPEC' (MEES, March 12th, 1979).

(31) The four 'tiers' were:

(a) spotmarket prices, some dollars above the level of the new sur-

- charged OPEC prices;  
 (b) North African Light, low-sulphur crude with unprecedented premia for the differentials;  
 (c) surcharged Gulf crudes;  
 (d) unsurcharged Gulf crudes sold by Saudi Arabia.  
 Source: MEES, April 2nd, 1979.

(32) The M.F.S. clause means the favouring as to crude-sales of those companies, which offer the highest price asked by any other OPEC country in the Gulf or Mediterranean for its crude.

(33) At this LIV Conference, Saudi Arabia did not put much pressure on the so-called 'price-hawks' to moderate crude-price increases. During the second half of 1979, the Saudi government even seemed to have adopted an attitude which favoured further price increases. Does this signify an alteration of its policy towards the consuming nations? Possibly, the Saudi's have lost their patience as to Western proceedings in the Middle East conflict and in conservation measures. They may have concluded that political and economic costs for their moderate attitude have gone too high.

(34) Later, it would appear that Saudi Arabia had raised its marker-crude to \$ 24 retroactively as from November 1, 1979. At the end of January, 1980, the Saudis decided to raise their marker by another \$ 2 (i.e. to \$ 26/bbl) retroactively as from January 1, 1980.

(35) During the last quarter of 1979, economists were increasingly saying that rising oil prices certainly dampened the economies of the industrial world, but not nearly so much as having to face an inadequate supply. Although after Yamani's announcement it was believed that oil supplies could be sufficient for the next year, few analysts expected a recurrence of the glut of 1975-76. With a number of countries producing more than they would prefer to, output could be quickly reduced to keep oil markets tight (New York Times, Dec. 15, 1979).

(36) The figure of governments revenues per barrel of exports is calculated from the quotient of total revenues (in current dollars) and total exports (in barrels).

Total revenues include royalties and income tax obligations in respect of equity crude, the proceeds of buy-back sales under partici-

pation agreements, and third-party sales by state oil companies.

(37) The United Nations Index of Exports of Manufactured Goods applies to goods exported by South Africa, Canada, USA, Israel, Japan, Western Europe (including Yugoslavia but excluding Turkey), Australia and New Zealand. In 1975, the manufactured goods of these countries accounted for 83.7% of the world total.

From the UN Monthly Bulletin of Statistics, June 1976 and June 1979 an index can be derived with 1973 as base-year. This yields:

1973	1974	1975	1976	1977	1978	1979-1Q
100	122	137	137	149	171	184

(38) A quarterly import price index since 1973 was annexed to an OPEC paper presented at the First Arab Energy Conference in Abu Dhabi, March 1974 (PIW - March 19th, 1974). From this, the following yearly index can be derived:

1973	1974	1975	1976	1977	1978
100	135.84	165.84	197.54	245.27	315.63

How the quarterly index was arrived at was not revealed.

(39) OAPEC - Organization of Arab Petroleum Exporting Countries.

(40) In September 1979, the independent oil producer Halbouty stated at the 10th World Petroleum Congress in Bucarest that half of the world's cumulative petroleum resources still have to be found (141 billion metric tons). Hitherto, 163 billion metric tons have been discovered, 48 of which have been produced through 1975. He pointed out that within 20 years more than half of the world's production will come from oil fields which have not yet been discovered.

However, he also stressed that even if these fields will be developed, the potential demand for oil in the late 1980's will exceed supply. 'For the first time in history the rate of oil production will exceed the rate of new discoveries', Halbouty noted. 'The future of the world's oil industry depends to a great deal on political developments. Governments and politicians will have to agree on a frame of rules and laws, which stimulate the development, exploration and production of new oil finds' (author's translation).