

The Economic Impact of Oil Prices

by Rurik Krymm

During the last three months of 1973, the tax-paid costs of typical grades of crude petroleum in the main producing areas of the world, around the Persian Gulf, were roughly quadrupled, rising for typical Iranian and Arabian light crudes from about \$1.85 per barrel in September 1973 to more than \$7.00 by 1 January 1974, or from approximately \$13.30 to more than \$50.00 per ton. Since the cost of production represents an insignificantly small fraction of the new cost level (less than 2%) and subject to complex adjustments reflecting varying qualities of crude oils and advantages of geographical location, the producing countries may expect to receive a minimum average revenue of \$50.00 per ton of crude oil produced on their territory instead of \$12.50. If we ignore the purchases which carried the prices of relatively small amounts of oil to the \$100-\$150 range, this figure of \$50.00 per ton with future adjustments for inflation represents a probable guide line for future cost estimates. The change affects exports of close to 1.4 billion tons of oil and consequently involves an immediate shift of financial resources of close to 60 billion dollars per year from the oil-consuming to the oil-producing countries. Tables 1, 2 and 3 give an idea of the distribution of this burden by main geographical regions and of its possible evolution over the next seven years.

The figures involved are so large that comparisons have been made by some authors with the reparations proposals advanced by the Allies at the end of the First World War. It has been pointed out that the market price of a typical quality of crude such as Arabian light had in fact fallen from \$1.93 per barrel in 1955 to \$1.26 in 1970. When the intervening industrial price inflation is taken into account this means that the price of oil had in fact been divided by 3 during a period when oil consumption was growing at an annual rate of more than 7% and oil was displacing coal as the major fuel of the world. During the same span of time, the tax revenues of the producing countries per unit produced remained approximately constant in the \$6 - \$7 per ton range and their real purchasing power was cut in two. Meanwhile excise and income taxes levied by the consuming countries themselves on oil products derived from imported crude exceeded the payments made to the producing states by a factor of 3 to 4, a contention which an examination of Table 4 will undoubtedly support.

TABLE 1. PAST AND ESTIMATED CONSUMPTION AND IMPORTS OF CRUDE OIL AND OIL PRODUCTS IN MAJOR AREAS (millions of tons)

	1973		1980	
	Oil Consumption	Net Imports from OPEC Countries	Oil Consumption	Net Imports from OPEC Countries
Enlarged European Community	620	600	860	670
United States	800	260	1 000	300
Japan	270	270	380	380
Other industrial countries	220	100	300	150
Developing countries	330	220	500	300
OPEC countries	60	-	90	-
Socialist countries	500	-	800	-
World Total	2 800	1 450	3 930	1 800

TABLE 2. PAST AND ESTIMATED PETROLEUM EXPORTS FROM MAJOR OPEC COUNTRIES (millions of tons)

	1973	1980
Saudi Arabia	350	450
Iran	275	380
Kuwait	150	140
Iraq	90	140
Others in Middle East	100	100
Libya	95	100
Nigeria	100	130
Algeria	50	55
Venezuela	175	175
Indonesia	55	75
Others	10	55
TOTAL	1 450	1 800

Note: This table should be viewed with particular caution not only with regard to 1980 projections which reflect plausible developments rather than firm plans which with the exception of a few countries like Iran do not at present exist, but also with regard to 1973 figures for exports on which the effect of the oil embargo of the last few months in 1973 is not yet fully clarified.

TABLE 3. ESTIMATED ANNUAL TAX AND ROYALTY OIL PAYMENTS TO OPEC OIL-PRODUCING COUNTRIES (billions of constant 1973 US \$)

	1973	1974	1980
Enlarged European Community	9	33	35
United States of America	4	14	15
Japan	4	16	20
Other industrial countries	1.5	6	8
Developing countries	3	13	15
TOTAL	21.5	82	93

TABLE 4. AVERAGE BREAKDOWN OF REVENUES DERIVED FROM THE SALE OF OIL PRODUCTS REFINED FROM ONE TON OF CRUDE OIL IN WESTERN EUROPE (1973 US \$)

	July 1973	%	1974	%
Cost of production of one ton of Mid-Eastern crude	1	1.2	1	0.8
Cost of transport, refining, distribution and marketing	25	29.4	25	20.4
Profits of companies	4	4.7	4	3.3
Royalties and taxes paid to producing countries	12.50	14.7	50	40.8
Taxes levied by consuming countries	42.50	50	42.50	34.7
Total paid by ultimate consumers	85		122.50	

Note: The figures for 1974 assume that only the royalties and taxes received by the producing countries will change in 1974, all the other components remaining the same. This is an unlikely but unavoidable hypothesis.

THE PROBABLE EVOLUTION OF OIL SUPPLY AND DEMAND OVER THE NEXT SEVEN YEARS.

If the profit margins of the oil companies and the average transportation costs are assumed to remain unaltered, the average price of crude oil delivered to the harbours of consuming countries would range around \$60.00 per ton instead of \$20.00 per ton before the crisis. True, this threefold increase resulting from the fourfold rise of producers' revenues would not lead to a proportional rise of prices to the ultimate

consumers simply because of the large internal taxation, marketing, distribution and refining components of the final prices of oil products. It will be seen from **Table 4** that in the extreme case of Western Europe where taxes on gasoline are particularly high, these components account for close to 85% of the 1973 final outlays and that a uniform increase of 45% in products price paid by the ultimate consumers would be sufficient to meet the additional crude costs. In reality, these increases will of course vary from country to country and from product to product in accordance with the market assessments made by the oil companies and the national policy guide lines established by governments.

Be that as it may, average price increases of ultimate product prices of the order of 50% to 150% are likely to take place and, for most commodities, increase of this size are supposed to set in motion powerful countervailing forces both on the demand and on the supply side. Demand should decrease through more efficient use and massive recourse to substitutes, and supply expand through increased production from existing sources and rapid development of new ones.

Each of these four elements will no doubt operate in the case of oil, but on a much smaller scale and at a much slower rate than for other commodities. Inelasticity of demand with regard to prices is characteristic of some oil products which are an essential ingredient of some industrial processes or consumer services, while their costs represents but a small fraction of that of the final product as, for instance, naphtha in the production of plastics or gasoline in the operation of a car. Substitutes are, of course, being developed but major technologies such as the production of oil from shale and coal, or electricity from nuclear stations, will require more than a decade before they can make a significant impact; the only short term possibility is the limited switching from oil to coal in some existing power plants and heavy industrial process. Two-thirds of the most flexible present sources of the supply are now held by an association of governments which already control prices and will increasingly control output. New producing areas outside of this association require substantial spans of time for their development.

These considerations lie at the basis of the projections contained in **Tables 1 to 4** which reflect a plausible though by no means certain scenario for the next seven years. The annual **growth rates** of oil consumption prevailing for the last 10 years have been cut by one-third for the United States and Western Europe, by one-half for Japan and by varying amounts for the different groups of developing countries, while increased production from areas already under development has been taken into account on the potential supply side.

The unavoidable uncertainty of these figures does not preclude some qualitative conclusions on the immediate and long-term impact of the present changes.

THE CONSEQUENCES ON THE ECONOMIES OF CONSUMING AND PRODUCING COUNTRIES.

The additional amounts of money which will have to be transferred from the oil-importing to the oil-exporting countries as a result of the oil crisis will exceed the 60 billion US dollar level in 1974. Estimates for future years are based on the assumption that oil prices will keep pace with general inflation and, on that basis, the 1980 figure might exceed 90 billion when expressed in 1973 dollars, or 125 billion in current dollars,

if an average 5% annual inflation rate is assumed over the period. The figures involved and their significance can be looked at from several angles:

- a) In absolute terms, sudden shifts of such magnitude in international payments to a relatively small group of countries are without precedent in the economic history of the world.
- b) Seen in relative terms, the payments required from the importing countries are a relatively small fraction of their total gross national product (3% for the group as a whole), although individual cases such as Japan among the industrial countries and several developing states far exceed this average. For the OPEC countries the opposite conclusion holds, the impact being roughly equivalent to a 250% rise in GNP for the group as a whole, although the divergences between individual states are so large as to make any overall average rather meaningless.

However, the effects of these transfers cannot be analyzed without going into a tentative assessment of their impact on the future national incomes and balances of trade of the countries involved. A basic assumption for such analysis is that only a few OPEC countries will be able to use the bulk of the additional revenues for immediate purchases of commodities or equipment from the oil-importing states, especially in view of the fact that some major producers have small populations and are only in the early stages of economic development. Annual surpluses will be of the order of 50 billion dollars in the initial years and, if no suitable systems of investment or recycling are found, the foreign currency reserves of these countries might exceed 300 billion 1973 dollars by the end of the decade. Such a trend of events will have serious implications for the importing countries on the economic, financial and commercial levels:

- a) At the economic level, the withdrawal of 60 billion dollars a year from the national economies of oil-importing countries will be theoretically equivalent to additional taxation by the same amount with only small counterpart spending. Through multiplying effects, it may cause serious recessions which only anti-deflationary policies would arrest. Considering, however, that such policies, lower taxes and easier credit will add to the direct effects of the rise of oil product prices, an acceleration of inflation in the world seems to be the only alternative to a general economic slow-down.
- b) At the financial level, additional charges on the balances of trade will be of the order of 10 billion dollars for the USA, 25 billions for the Economic Community, 12 billions for Japan, and 10 billions for the developing nations. They will cause trade deficits for most of the industrial countries, at least in the next two or three years, and in the case of developing nations, offset the impact of all official international aid*. Meanwhile, the accumulation of some 300 billion dollars will give a small group of countries control over amounts of funds more than twice as large as the present world total of international reserves. The use of these funds is at present difficult to predict but the potential for instability in foreign exchange markets is of unprecedented proportion.

* Official international assistance to developing countries in 1973 was of the order of 10 billion US dollars, private investment flows of the order of 9 billion.

- c) At the commercial level, the pressures on balances of trade will no doubt lead to increasing private and governmental drives towards promoting industrial exports through bilateral barter deals with oil producers. A substantial part of these exports will take the form of refining and petrochemical plants, which will permit the producing countries to substitute exports of oil products for those of crude oil. To the extent that the capacity of these plants will exceed the national requirements of the producing nations, their sale will of course only partially postpone the problem of trade imbalances at the risk of amplifying it later.

Looking towards the immediate future it seems that the only way to alleviate the effects of the recent crisis lies in a much more drastic reduction of oil demand than the present tentative plans of the industrial countries (which lie at the basis of the projections of this paper) seem to imply. If the next seven to ten years are successfully bridged there is no reason to doubt that the long term needs of the world will be adequately met. Oil from shales and tar sands, gas from coal, electricity from nuclear fission, geothermal heat and finally solar and fusion energy will ensure a supply of energy of such magnitude that consumption will be limited by ecological rather than by economic constraints. However, as the Chinese proverb goes "Even nine wives can not make a baby in one month". The world of energy is pregnant with change. The strains and stresses unleashed by the oil crisis should not be permitted to cause a miscarriage.