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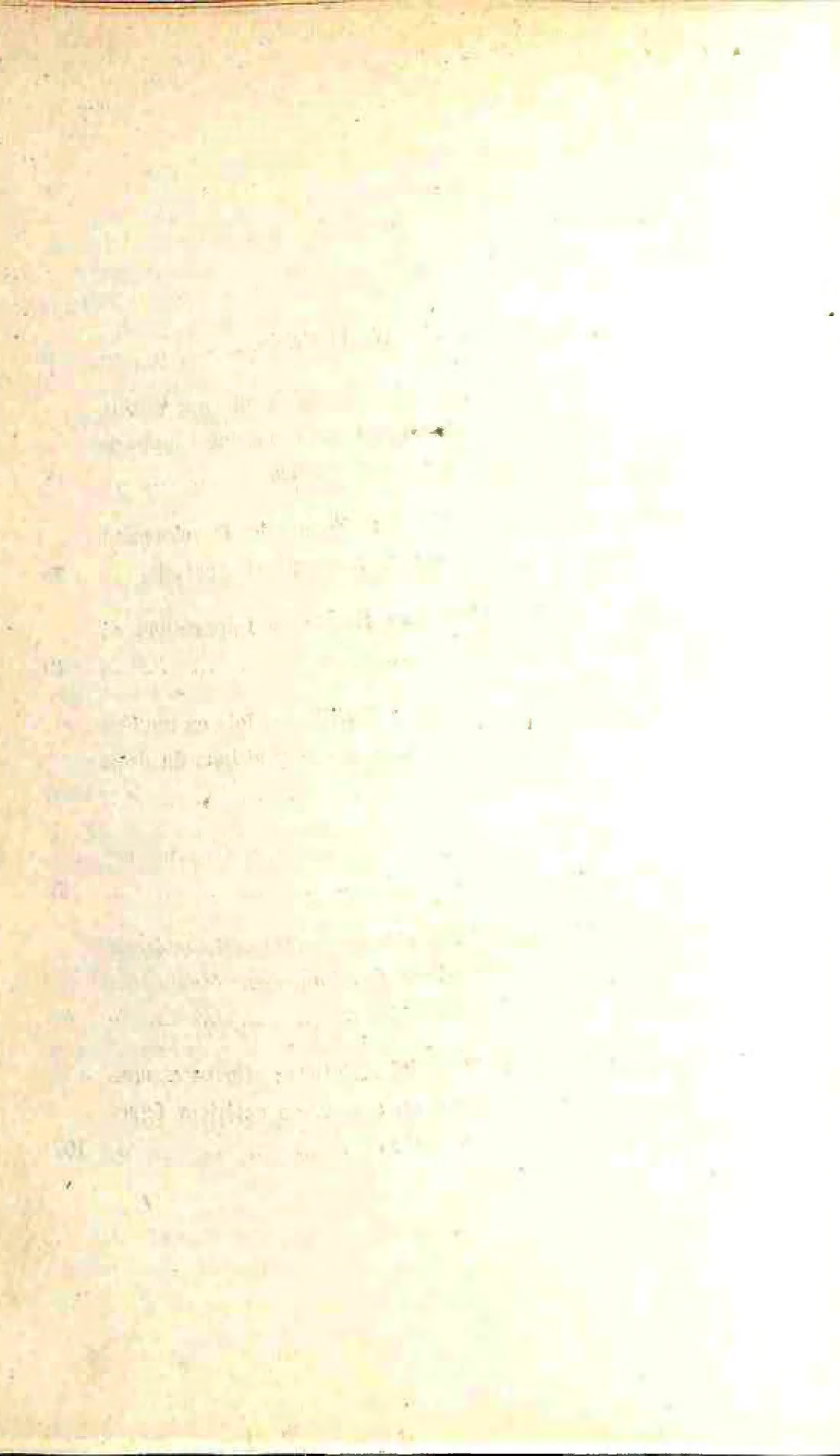
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THE WORLD CRISIS

By

Prof. JOAN ROBINSON

I always feel rather sad when I am introduced as a distinguished economist, because I am becoming more and more doubtful whether economics is really any good, and specially in the present situation. It seems to me that the task of the economists to understand what is going on is not being fulfilled. And I certainly think that the orthodox teaching of economics is positively misleading. But I am not sure if the critical economics, which we keep going in Cambridge, is really of any greater practical use in the question of the world crisis which is an extremely serious one for all nations at present. The spokesmen of finance are trying to pretend that this is just a recession such as we have often had before, and that we will soon be on the road to recovery. But I think that this is wishful thinking.

The slump of 1974 came after a long run of more or less continuous growth. There were of course recessions and recoveries; but each time the world economy went into a recession it was pulled up again. And people began to believe that there had really been a change in capitalism, and that permanent prosperity was now established. So the fact that there was a severe slump has been a very great shock, and the mere fact of this shock, I think, has caused the recession to be prolonged.

But as Keynes pointed out, the rhythm of growth depends upon expectations, and the convention of believing that the future is going to be like the past very strongly supports this but it has no foundation in reality. And where there is a setback of the magnitude that we are now experiencing, then all that faith is broken, and expectations will take a very long time to recover. So that the main contribution of what I call the age of growth—the 25 years after the end of the war—to making the slump worse is precisely this, that the hopes that were developing during that period have now been shattered. But there were also some

* A lecture delivered at the Société Egyptienne d'Economie Politique de Statistique et de Législation, Cairo, on Dec. 19th 1977.

special features of the age of growth which make the situation now all the more difficult.

The first problem is that during that period inflation became endemic, and the western nations experienced inflation of 3 per cent per annum or 4 per cent per annum. Now, looking back, it seems extremely mild. It seems almost as though it was a kind of stability. But you cannot go on even with the mild rate of inflation continuously year after year without it beginning to accelerate; because people begin to expect future prices to be higher, to make their bargains and plans on the basis of higher prices and this very fact causes prices to rise.

The special feature of the inflation in the prosperous part of the world, in the industrial countries, arises out of the very fact of prosperity, because the classes are struggling with each other. Employers and employees are struggling with each other to catch the benefit, so that there is a continuous pressure for money wages to rise, and as money wages rise prices are put up. As prices rise are put up the workers demand a share to compensate, and so the rise of prices pushes up wages, and the rise of wages pushes up prices.

But there is another element in the inflation which was running in the latter part of this period of growth, and that was the problem of the terms of trade. This slump that we are experiencing now is very different from the slump of the thirties. The great slump of the thirties precipitated a great fall in the prices of raw materials. The result of the fall of prices was that those countries which formerly have been buying from the western world lost their purchasing power. They began to get into protection, import substitution, and the industrial countries suffered from unemployment because of too low prices for materials. In the first decade of this age of growth, the raw material prices remained more or less in step. There was the boom of the Korean war, the slump following the break of that boom, but generally speaking prices of raw materials were keeping more or less level with the manufactured prices.

But towards the end of this great age of growth, there were developing shortages and supply was overtaken by demand, because of the big consumption of materials of all kinds in the industrial world, when this rapid growth was going on. This was pouring oil on the fire of the inflation; because when material prices rise the businessmen have to add

to their price to cover the cost. This means then that the prices have risen relatively to money wages, so the real wages are depressed and therefore the other half of the inflation force (the demand of the workers to maintain their real wages and to keep up with growth) comes into play. So the rise of material price causes a rise in wages and so we get a double kind of vicious spiral — the conflict between employers and employees and the conflict between material prices and manufactured prices. And this built-in tendency to inflation remains after recession has set in, to what we have now is quite contrary to what it says in the books. In the economics books it says that where there is a fall in demand prices fall. Now we have heavy unemployment and at the same time prices continue to rise.

The special feature of this situation is that the underlying scarcity of materials still exists, because as soon as there is a decline in demand material prices fall. Some people have calculated that even the price of oil in real terms has now fallen below the level of 1974. Statisticians of course can always argue about figures, I did not know whether this is correct, but certainly there has been a very big fall in all material prices and this, for the time being, restored the terms of trade for the industrial countries. But that only remains as long as the recession continues. If a revival comes, if there is a very big swing towards high investment in the western countries and in the developing countries, then the terms of trade will turn again in favour of the materials and the inflation mechanism would set in again. This is the peculiar feature of this slump compared to the thirties, which makes it far more difficult to deal with.

The third feature of the age of growth which is now tormenting us is the great development of what I call the neo-mercantilism.

The economists of the western world, orthodox economists of the western world, are still preaching the virtues of free trade. But governments all over the world are always struggling to have surplus of exports.

There is a mercantilist drive for each country to cut down imports relative to exports. Now obviously it is impossible for all the countries of the world to have an export surplus. Surplus in the world as a whole must add up to zero. And this creates tremendous tension, and the success of some countries is at the expense of failure of the others. Now in Britain we suffered from the success of West Germany. Americans are suffering from the success of Japan. And the Third World countries

also are struggling to maintain their balance of payments and they are obliged to do that by cutting down on imports. So that this uneven development in the trading world has brought about a chaotic situation in the monetary system.

In the first stages of the age of growth, the dollar was dominant and succeeded in imposing a system of fixed exchanges under the rules of the (IMF). But then this tension between the growing countries and the failing countries led to a deliberate movement to alter exchange rates. First of all, the British had to devalue, and they should have done it sooner than they did. By delaying doing it they imposed a great loss on themselves. Then the American began to demand that the Germans should appreciate. The Germans were very reluctant to appreciate the Deutsch Mark, because they believed, as everybody believed at that time, that the high exchange is bad for the balance of trade; it makes your exports expensive, it makes it easier to buy imports and turns a favourable balance into an unfavourable balance. So they resisted it. But then they found afterwards, when they did appreciate the Deutsch Mark, that their balance of payments is stronger than ever. And certainly the British found when they depreciated that their balance of payments is weaker than ever. So the old rules in the textbooks are found not to apply.

This process of deliberate exchange manipulation will undermine the whole system which had replaced the gold standard and the Dollar standard. And this created very big problems for the financial world, for the trading world, and the very great nuisance which we are suffering from now of hot money. Because the exchange rates are not determined by the actual balance of payments system or the actual financial position of the country; they are determined by what the world speculators expect them to be. So we have these large amounts now of finance rushing around the world, going from one exchange rate to another. And now, the very strange phenomenon that the allmighty dollar is being attacked and speculation against the dollar is bringing about a completely chaotic situation in the world trading system.

There is another feature of this financial development, which I am sure you must have suffered from here. And that is that very great amount of lending which is going on. First of all, it is supposed the Americans and other countries were giving aid to the developing world.

It means they were giving them loans. It was called aid, but actually it was loans at a slightly more favourable terms than what you can get on the market. And so they are demanding payment. Then during 1972-1973, there was a high burst of borrowing from the commercial banks, such as those in the Euro-dollar market.

This piling up of debt began with the so-called aid, and then went on to a great orgy of borrowing from the commercial banks largely through the Euro-Dollar market. In the atmosphere of growth, easy finance which developed in 1972 and 1973. There was a great increase in indebtedness. And then on top of that, the rise in the price of oil threw a greater burden on to the balance of payments of all these countries who have not got oil of their own. And therefore they are restricted in their imports. They have to try and restore their balance of payments by cutting down. Now this cutting down of imports by the debtor countries of course has a very bad consequence on the industrial countries. Because to them, it takes the form of unemployment. And this was happening, apart from the oil crises; if there have not been a sudden rise in the price of oil from O P E C, there still would have been a very serious problem. But the action of O P E C of course, made it very nice for them, but very bad for all the rest of the world. The rise of the price of oil took a great mouthful out of world demand.

For those countries who had to pay more for their oil, therefore, could not buy so much of other things. And the money which went to the OPEC countries, was not spent. As far as finance is concerned, of course it was quite all right. They recycled the financial burden through the American banking system and the British banking system. But as far as the flow of demand is concerned, it was a big mouthful out of the whole demand for production in the world. So, this was an added blow on a crisis, which would I think, probably have happened in any case.

Now, we are in a totally ridiculous situation; because the finances for the rich countries demand repayment, and therefore cut down on their possibilities of selling goods to the Third World. Each country of course has to play for its own hand. The oil countries, suddenly got this tremendous increase in wealth, and they naturally want to make use of it by joining in the capitalist financial world. It will be much better for of us if the oil countries remained very patriotic for the Third World, gave their money to the countries which need it. For them they will be able

to buy from the Western World, and then we would all be in a better position. But, this is a utopian idea because every nation, as soon as it gets some wealth, becomes very egoistic and wants to keep the wealth to itself. And this applies just as much to under - developed countries as it does to the capitalist countries.

So now we are in a really ridiculous situation. The debts are not good to the creditors, but they cannot forgive them. We have had this long series of conversation, we call it between the north and the south, about whether it would be possible to recycle the debt, and so to release purchasing power to permit revival to take place.

Nearly all the developing countries said that they have had to cut down on their budget expenditure, they have had to cut down their investment plans, so they are also getting a terrible amount of unemployment. And the whole thing is in order to maintain the authority of finance over industry. For this system, of indebtedness is causing anxiety for the bankers of the western world because, if they were obliged to forgive these debts or for more countries to default them, the whole structure of the financial system in the west would collapse at the failure in some of the big respectable banks.

Now the Swedes are always very virtuous. Sweden is a very virtuous country and they have offered to forgive the debts which are owed to them by some of the poorest of the Third World countries. But the other nations are quite trembling because if this came in fashion, the whole system of finance would collapse. But this system of finance is all nonsense, because it is not doing anybody any good. The creditors do not want to receive their payments, the debtors do not want to go on cutting down in order to squeeze out some financial payments they can take.

So, this is the biggest example of how you play on rules of the game which suited the 19th century capitalism. The British in particular gained a great deal from it. And the operation of the gold standard kept the currency system under control.

Now to go on playing according to the same rules of the game can lead into a completely ridiculous situation which is not doing anybody any good. But yet no one can see a way out. They have now put a committee, with Willy Brandt, as the chairman. Now he has to

try and find some way out. But I do not think there is a way out. It seems to me the whole situation will become entangled in the mechanisms of finance, and finance is crushing actual economy and industry. But the worst part of this whole situation – the situation which exasperated very much, is that the financiers and the governments and the economists, I am sorry to say, of the world, have taken up the monetarist doctrine. There are two levels of this. The first is, the view that inflation is a greater menace than unemployment. But this seems to me to be a very false dot of values. For unemployment is causing real misery to real people. Inflation is certainly a nuisance I mean you have experienced it here and you know it is a great nuisance. And it is a troublesome phenomenon, and it creates certain injustice, it makes business unstable and so on. So it is agreed that inflation is a great nuisance. But it cannot be such a great evil as unemployment, which is reducing people to actual misery and starvation. and causing enormous real loss of the potential output they might be making. So, here we have on the one side financial troubles, and on the other side real loss.

This doctrine that inflation is the biggest menace has come very much into fashion. Of course, for people who are in the game : the IMF, the bankers and so on, their business is finance and they look at it in those terms. But they persuade the governments that the problem of inflation is the biggest problem. So this is the first flap, so to say, in the doctrine of monetarism.

The second flap is that they have adopted the view that by causing employment you will mitigate inflation. And, in fact, this is not true; because by making monetary restraint you cut down the market, you create unemployment and you reduce real supplies. Real supplies of goods and services are cut down. And therefore to restrict monetary demand and reduce real supplies, is not of course a remedy for inflation; it makes the situation still worse. I do not know how far these monetarist doctrines are in fashion here. I imagine with your experience you will be able to see another angle to them.

But they are certainly very prominent in Western Europe and in America and are havin a big influence on the squeeze which is being put on the world. Ngw, what is the basis of this monetary theory ?

I remember once to have met Mr. Milton Friedman and I asked him what does he mean that an increase in the quantity of money will cause a rise in prices. He has never been able to explain it.

The work on the old formula $M V = P T$, if you take the quantity of money and multiply it by velocity of circulation, that gives you the flow of transactions carried out in terms of money. And on the other side of the equation you have prices multiplied by the volume of transaction. So, you have the flow of transactions carried out in the terms of money, equal to the flow of transactions carried out in the terms of money. There is no causal mechanism, you can certainly see that easy money low interest rates, free expansion of finance will tend to bring about an increase in output, increase in investment, and if this runs into bottlenecks, then it will bring a rise of prices. If it merely increases output of course the increase in output and not inflation is caused by easy money. There is a certain relationship between the supply of money and the level of activity and this is fully allowed for, in Keynes' theory. If you work it the other way, so you restrict the supply of money, then what happens? If prices are rising for some real reason, because of the relations of employers and employees bringing about a rise in money wages, or because the increase in trade is bringing about bottlenecks and raising prices of materials. Something real is happening to tend to push up prices. So $P T$ goes up. Now, to restrict money you do not allow the quantity of money to increase, then all you can do is to reduce the real output. So, in trying to prevent $P T$ from rising you cannot check P , but you reduce T . Let us say the volume of transactions is restricted by the monetary stringency.

That is one element in it. Another element is the very crude idea that government expenditure is pernicious and that private expenditure by business is fine—that is what we want. This really goes back to the old 19th. century doctrine of laissez — faire. So, the government expenditure causes inflation and private expenditure does not. And this is being woven into the monetary system. So that the I M F judges countries by the public sector borrowing. They think that if you can stop the public sector borrowing from rising, then you prevent prices from rising. This is totally nonsense; what is the difference between private expenditure and government expenditure? The whole question is whether the expenditure is wisely chosen and is promoting real growth, or is promoting some

social benefits ? This is the question, not the question of whether it is government or private.

So this revival of monetarist theory, which is completely hollow, has strengthened the hands of the financiers and the IMF and has become quite a religion. And the fanatical believers are making use of it. But the underlying motive is still to establish the authority of finance over industry, and for that reason we are all suffering.

The fashion now has turned very much against Keynes. Keynes explained these phenomena in the slump of the thirties. He showed what little grain of truth there is in the quantity theory of money and how we must approach the understanding of the financial and economic mechanisms of a capitalist economy. He hoped that, when people could see that it was possible by a wise management to have full employment, they would insist upon it.

But now the governments and financiers of the world have got themselves into this rightful, middle, and they are blaming it on Keynes. They said Keynes told us we could manage the economy so as to have full employment and now look at it. And so people think he was quite wrong. But, my own reaction to the Keynesian revolution, was that it had left out the biggest question.

Because you see, we are having a tremendous argument from the thirtieth until the outbreak of the Second World War between economists and between the civil servants and the economists. The argument was about whether it is true that government expenditure could increase employment. The argument was that the government should spend money when there is some unemployment on whatever : widening the roads or building houses, etc. Let the government spend some and this would generate employment, and it would also raise the whole national income; for those people who are now employed will spend their money at the multiplier effect. And so a budget deficit would be helpful in a slump, and the trying to balance the budget in a slump does harm, because it takes money away in taxation and reduces expenditure and reduces employment. That is what Keynes had said.

Well, we had this tremendous argument, you would not believe really the kind of doctrine we were up against. And the orthodox economists were saying that there is natural tendency to full employment, because

full employment is the equilibrium point of the system. If you do not interfere with the system, it will reach full employment. They were still saying this in 1932, and went on saying it right up till the outbreak of the war.

Well, now the war-time experience of course was a very good lesson bulgar Keynesianism. You can see it was not true that when governments spend money they will only create inflation and not increase activity. And we found it was possible to have full employment. And even after the war in Great Britain, after we got the demobilization problem, we had a long run of years in which statistical unemployment was put at 2% sometimes at 1%. So, we see now what it was possible to have full employment. So, they could not go on saying that it is not possible, they had to accept Keynes' doctrine.

Now as soon as the doctrine was accepted, they should have changed the question. It is no longer the question of : can the government do something to maintain full employment, but what should the employment be for ? What do we want ? Now this is the great unasked question in economic theory. Nobody discussed it. In the conservative orthodox view they say: Well, leave it to the businessmen, Businessmen know best. Let them make investment. They will make wise choice. And the radicals just do not face the question. They do not ever ask what it is supposed to be for.

High employment is not an end in itself, it should be the bible to the well-managed economy. Leaving people unemployed is wasting resources. I mean quite apart from the human misery, it is simply waste. Why should not you organize your economy in such a way that everybody can contribute and everybody can gain something from the process of growth? But you have got to have a clear view of what is it you want. And this, of course, raises a great number of very different questions, particularly questions about the distribution of income and the pattern of consumption of the country. So neither in the developed world nor in the so-called developing world is this question ever asked. And this is the question that we ought to be thinking about now.

TARIFF PROBLEMS WITHIN REGIONAL ECONOMIC GROUPINGS, WITH SPECIAL EMPHASIS ON FREE ZONES IN SOME ARAB COUNTRIES

by

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1.—It is a pleasure to participate in the discussion dealing with ways and means of promoting inter-Arab investment. My purpose is to make some observations regarding tariff problems that may confront Arab countries in their attempt to achieve economic integration, with special emphasis on free zones. Despite the diversified nature and complexities of the problems, these observations will bear, whenever it is feasible, on the harmonization of investment incentives in the region,

2.—The paper is organized in the following sections : Section I offers a brief analysis of the link between harmonization of investment incentives and economic integration, as both aim at accelerating the flow of investment and trade among the Arab countries. It also covers the different approaches to harmonization. Section II deals with the tariff as an investment incentive, the principal features of the tariff structure in some Arab countries, and the problems that may arise in the Arab Common Market in connection with establishing a common external tariff. Section III analyzes the role of the free zones, with special attention to taxation of enterprises located in these zones and the effects of such taxation on national as well as regional investment. As a basis for discussion, I have taken into account a recent survey of the investment laws of some of the members of the Council of Arab Economic Unity (CAEU) and the experience of some regional economic groupings, especially the Economic Union of Central and Equatorial Africa (UDEAC), the Economic Community of West Africa, of which Mauritania is a member, and the Central American Common Market. (2)

1) The views expressed do not necessarily reflect the position of the International Monetary Fund.

2) See A.M. Abdel-Rahman, "A Survey of the Investment Laws of Selected Members of the Council of Arab Economic Unity," (Technical Assistance Report submitted to the CAEU by the International Monetary Fund, September 16, 1976).

I. Harmonization of Investment Incentives : Link with Economic Integration and Approaches

3.—In their attempt to achieve economic development with stability, Arab countries, despite differences in the structure of their economies, have accepted investment incentives as a means to accelerate the inflow of capital, skilled labor, and technology. Capital exporting countries in the region are no exception in offering tax concessions and other benefits; their purpose, however, is not to attract capital but rather to encourage investment of domestic savings, and the use of advanced technology in capital-intensive industries. There is a clear tendency among capital importing countries in the Arab region to improve the effectiveness of their investment schemes. Jordan and Syria are reviewing their investment laws to broaden their coverage, increase tax benefits, and provide equal treatment to domestic, Arab, and foreign investment. In Egypt, the 1974 law is being reformed to deal with the problems that experience has already revealed. Mauritania, after its departure from the franc zone and the African Financial Community (Communauté Financière Africaine (CFA), has recently revised the 1971 investment law, mainly to guarantee the repatriation of profits and capital of approved enterprises.

4.—Because of the interdependence of investment incentives and economic integration, regional economic groupings emphasize the harmonization of these incentives to avoid or to correct intraregional disparities. The CAEU regards harmonization of investment incentives as a complementary step to the various measures already taken over the last ten years to encourage, directly or indirectly, freer movement of capital, commodities, and services among member states. These measures cover the wide area of trade, investment, and most recently, Arab joint ventures. The principal measures already introduced are (1) the agreement on the Arab Common Market, (1) (2) agreement on

1) Actually, the Arab Common Market amounts to a free trade area as a common external tariff has not yet been adopted. Free trade areas do not always have the advantages of a customs union, especially those related to the allocation of resources. Difficulties which may arise in adopting a common external tariff have been examined recently by the CAEU. For further details, see Council of Arab Economic Unity, UN Conference on Trade and Development, and UN Economic Commission for Western Asia, Seminar on Problems of Trade Expansion and Economic Integration Among Arab Countries (Cairo, 1974).

Arab investment and its free flow among member states, (3) the investment guarantee against noncommercial or political risk, and (4) agreement to avoid double taxation and to cooperate in tax collection.

5.— The close link between the harmonization of investment incentives and economic integration among developing countries stems from the fact that industrialization ranks high among the goals of both integration and investment incentives. Economic integration among developing countries cannot be based only on trade liberalization and freer trade, as the acceleration of economic growth is equally important. Fiscal incentives, by broadening markets, tend to reinforce and supplement efforts to create conditions necessary for successful economic integration ⁽¹⁾.

6.— Within regional economic communities, harmonization of investment incentives are a necessary step toward a regional investment policy, which aims, among other things, at stimulating the growth of regional industries with markets covering more than one country. While enlarging these markets would meet one of the most important conditions for economic integration harmonization of incentives would, meanwhile, render incentives accorded to intraregional investment more effective. For the CAEU, harmonization of investment incentives, especially if adequately coordinated with other measures, can enhance the region's industrialization, reduce unused productive capacities, and eliminate duplication in the form of enterprises producing the same product and

1) The conventional theory of customs unions as developed by Viner and Mead has small relevance to developing countries. It has been argued, instead, that for these countries the theoretical analysis of customs unions should be directed more toward their impact on the direction of investment or future output rather than be limited to the analysis of welfare implications. The low level of industrial development and the low level of intra-regional trade, which are the main characteristics of developing countries, should reinforce the case for economic groupings. In this context, harmonization of investment incentives would enlarge the market for existing enterprises and would provide the necessary incentives to create new productive capacity. For further discussion of conditions relevant for successful integration in developing countries, see R. F. Mkesell, "The Theory of Common Markets as Applied to Regional Arrangements Among Developing Countries", *International Trade Theory in a Developing World*, ed. Roy Farrod (London, MacMillan, 1963), pp. 205-40, and C. A. Cooper and B. Massell, "Toward a General Theory of Customs Unions for Developing Countries," *Journal of Political Economy*, Vol. 73, No. 5 (October 1965).

competing for the same market. Harmonization can also reinforce the role of Arab joint ventures, which, as large enterprises, can undertake outlays for applied research and technological development. Here, the argument that large-scale enterprises employing advanced technology will reduce costs seems to be supported. Harmonization of investment incentives will minimize the factors influencing the enterprises' location — other than those directly related to production and optimum resource allocation — and it will promote economies of scale in the fields of management, manpower requirements, and marketing.

7.—**Definition.** So far, the term harmonization of investment incentives has been used without being given any specific definition. Despite the fact that the term is widely used, its precise meaning is by no means self-explanatory. The CAEU agreement, for example, does not define tax and incentive harmonization. Lacking an acceptable definition of the term, the appropriate approach can be oriented toward the main objectives of creating a unified Arab Common Market within which fiscal as well as tariff frontiers are to be reduced if not eliminated. In harmonizing investment incentives, the broader but more complicated subject of tax harmonization cannot be overlooked. As fiscal incentives, to be effective at the national level, should be harmonized with national tax policy, so regional investment incentives should be coordinated with major regional tax issues and problems.

8.—Based on the work of the EEC Fiscal and Financial Committee on harmonizing the tax structures of the member countries of the Community, and on analytical work that has been done on tax harmonization, there are three possible approaches to harmonizing investment incentives. (1) The advantages and limitations of these approaches are summarized in the following discussions :

9.—**Equalization approach.** The equalization approach implies, among other things, equal tax exemptions and identical conditions for

1) For further analysis, see Communauté Economique Européenne, *Rapport Général des Sous-groupes A, B et C, créés pour examiner différentes possibilités en vue d'une harmonisation des taxes sur le chiffre d'affaires* (Brussels, January 1962), and Carl S. Shoup (ed.) *Fiscal Harmonization in Common Markets* (Columbia University Press, New York, 1967, 2 vols.), and Clara K. Sullivan, *The Search for Tax Principles in the European Economic Community* (Harvard Law School, International Program in Taxation, Cambridge, 1963).

approved enterprises in all member states. If this approach is accepted; a unified investment law would be the outcome of the harmonization of investment schemes. It has the benefit of simplicity and it conforms to the basic objective of removing the barriers to the free movement of capital and goods. It follows the customs union approach, more than other forms of regional grouping, of equalizing external tariffs through a common external tariff. The current conditions in CAEU member countries do not seem to support this approach because (1) the common external tariff for the Arab Common Market has not yet been adopted and (2) the uneven distribution of production factors among member countries would reduce the efficiency of a unified investment scheme, as the policy goals and means in capital importing countries differ from those in capital exporting ones. This approach also is not adequately oriented toward reform and rationalization of the investment schemes in individual countries, which should be kept, at least at this stage, as a quite separate issue from harmonization. It may be desirable to emphasize here that rationalization of these schemes should precede harmonization.

10.—**Differential approach.** The differential approach is quite distinct from the equalization approach, as it assumes the existence of diversified national policy objectives. It does not seek the uniformity of investment incentives for the sake of unity. The question is how much harmonization of incentives is necessary to achieve the goals of the community and how far the existing disparities can be left unchanged. Under this approach, the active role of national investment laws would be allowed in pursuing a range of national economic goals, but without impairing or hindering the goals of the regional community.

11.—**Standard approach.** According to the standard approach, member countries continue to maintain their individual investment schemes, but they agree that their schemes will not be in direct conflict with a "standard regional investment law" which conforms to agreed criteria. Accordingly, a model investment law is drawn up, reflecting certain standards regarding eligible enterprises, duration of tax exemptions, forms of tax incentives, etc. Furthermore, member countries agree to undertake changes that may bring their incentive scheme closer to the model law. The principal difficulties of this approach arise in agreeing on the standards to be incorporated in the model regional law.

These differences tend to be less complicated in the Arab region because there is already some degree of structural similarity in the investment laws of the Arab countries. The issue is not, however, equalization of the investment policy of member countries; rather, it is adjustment of the individual laws to conform to regional investment policies.

12.—Having briefly stated the aims and functions of harmonization of investment incentives in a regional community and the general approaches that might be followed in designing a harmonized regional incentive scheme, it may be desirable to turn to the experience of some economic communities. In contrast to the CAEU, some regional economic communities stipulate conditions and approaches for harmonizing investment schemes. Their approaches range from a unified equalized investment law to a combination of the differential and the standard approaches.

13.—Article 1 of the Central American Agreement on Fiscal Incentives to Industrial Development provides that "the contracting states agree to establish a uniform Central American regime of fiscal incentives ... that will promote integration and balanced development in Central America." Member states aim, through the unified scheme, at avoiding competition to win industries from each other by offering larger incentives. By adopting a uniform classification of eligible enterprises, periods of exemption, and conditions of approval, etc., member states may reduce distortion in investments and loss of revenue. (1) The authors of the Agreement on Fiscal Incentives were concerned about the revenue effects of competitive tax exemptions which may not be compensated for by the benefits to the region. By means of the Agreement, the Central American governments hope to limit the tax exemptions to be offered and thus prevent competitive increases in exemptions, loss of revenue, and possible misallocation of investment.

14.—The member states of the Central African Customs and Economic Union (UDEAC) maintain the distinction between the investment laws of member states (Cameroon, Central African Empire, People's Republic of the Congo, and Gabon) and the Common Investment

1) For a detailed analysis of the unification of tax exemptions as fiscal incentives, see Marion Hamilton Gillon, "The Fiscal Aspects of the Central American Common Market," *Fiscal Harmonization in Common Markets: Vol. II, Practice*, ed. Carl S. Shoup (Columbia University Press, 1967), pp. 487-508.

Convention. Enterprises operating on a national level may be approved under the investment law of the state in which the enterprise is located. For such enterprises the investment schemes continue to reflect differences in the economic goals and therefore these schemes are not unified or equalized. On the other hand, Article 45 of the Brazzaville Treaty establishing the UDEAC stipulates that the investment laws of member states should not be in direct conflict with the Common Investment Convention. Enterprises with markets extending to more than one of the UDEAC countries receive larger exemptions and benefits than those benefiting from the national investment laws. The most important feature of the regional incentives is the single tax (*taxe unique*), which replaces all duties and taxes on imports as well as internal turnover taxes. The single tax has the characteristics of a turnover tax and is currently paid at the stage of consumption. Its rate is set by the UDEAC's management committee, and it may be less than the amount of taxes which the enterprise would otherwise pay. It varies among industries and among enterprises carrying on the same activities in different member states. The advantages of the single tax include a reduction in the tax burden and deferring payment of duties and taxes until the end of production. Firms operating at the national level attempt to expand their activities to the regional market to benefit from this tax. ⁽¹⁾

15.—The West African Economic Community (CEAO), which replaced the West African Customs Union (UDEAO) with effect from January 1, 1974, has not introduced specific measures to harmonize the investment laws of the member states. ⁽²⁾ A considerable degree of similarity exists, however, regarding conditions of approval, tax benefits, and other concessions because of the influence of French experience and concepts. A significant feature of the investment laws in the members of this community and in other French-speaking countries is the stabilization scheme granted to enterprises of exceptional importance. Under the enterprise agreement (*convention d'établissement*), tax rates are stabilized for a period of 20-25 years. In Mauritania, this period is for 20 years, to be extended by 5 years in case of delays in installing

1) For a detailed study of the UDEAC investment convention, see Commission des Communautés Européennes, *Codes des Investissements des Etats africains, malgache et mauricien associés* (Bruxelles, VIII/1119/74-F, 1974), pp. 20/1 - 20/16.

2) Ivory Coast, Mali, Mauritania, Niger, Senegal, and Upper Volta.

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18.—As "tariff duties" on intraregional trade among the member countries of the Arab Common Market have already been removed, other problems, stemming mainly from differences in the taxation of domestic production and transactions, have to be solved to achieve freer trade. The removal of these duties needs to be complemented by eliminating the elements of "a protective tariff" that may be incorporated in internal turnover taxes and other charges in some countries. Elements of a protective tariff refer to charges levied on imported goods in excess of corresponding charges on domestic production. Unless removed, these charges can, in addition to other factors, deflect intraregional trade, causing serious injury to production in some member countries.

19.—To eliminate these protective elements and provide member states with desirable flexibility in the revenue structure, the experience of the European Free Trade Association (EFTA) is relevant. The Association introduced the distinction between revenue duties and protective duties. Revenue duties are customs or other similar charges applied primarily to raise revenue. They are fiscal charges in nature, levied on imported goods, even those from member states, provided they do not exceed internal turnover taxes applied to similar domestic goods. Revenue duties cannot be levied on goods not domestically produced in substantial quantity.⁽¹⁾ The same principle is already applied but for a different purpose in the Maghreb countries, where internal turnover taxes are extended to imports to achieve equal treatment of locally produced goods and competitive imports.

20.—Exemption from import duties and taxes is one of the most essential investment incentives offered in developing countries and the Arab countries are no exception. The importance of these exemptions stems from (a) the relatively high burden of the tariff in some countries because of the importance of import duties and taxes as a source of tax revenue, and (b) exemption from import duties and taxes reduces the investment requirement, as well as the cost of production. Such incentives become more significant when, as is the case in some Arab countries, they are reinforced by special tariff protection. The existing

1) For a further analysis of revenue duties and elements of a protective tariff, see European Free Trade Association, *The European Free Trade Association: Structure, Rules and Operation* (EFTA Secretariat, Geneva, 1976), pp. 35 - 37, and Peter Gerosa, "Revenue Duties and Internal Taxes," *EFTA Bulletin*, IV (July 1963), pp. 4 - 5.

differences in tariff structure and burden, as well as in the exemptions offered, influence the location of regional industries and, unless harmonized can have undesirable effects on resource allocation and on intra-regional trade.

21.—Tariff exemptions as offered in Arab countries may be divided by the type of import into (a) machinery and equipment and (b) raw materials and semifinished goods necessary for production. Virtually, all countries grant tariff exemption to machinery and equipment. The duration of the exemption may be limited to the normal period of installation; or it may be unlimited, covering the entire period of production (Kuwait and the Sudan); or it may be limited to five or ten years (Iraq and Jordan). Enterprises undertaking substantial expansion admitted as an approved activity may receive exemption on machinery and equipment needed for the expansion.

22.—The exemption of raw materials, semifinished goods, and other components is not granted under all investment laws. In some countries, the incentives policy regarding raw materials differs from that applied to machinery and equipment. Iraq, Kuwait, and the Sudan do not distinguish between raw materials and machinery in granting exemptions. Egypt and Jordan, for enterprises located in free trade zones, do not exempt raw materials. Morocco and Tunisia distinguish between enterprises producing for domestic markets and those producing for export; the latter benefit from complete exemption from duties and taxes on raw materials and semifinished goods.

23.—The coverage of exemptions varies among the Arab countries, reflecting differences in their tariff structures. In most of the countries the exemption, when granted, covers "duties and taxes on imports", but in Algeria, Mauritania, Morocco, and Tunisia the situation is rather different because of the important role of the turnover tax. These countries, in contrast to the other Arab countries, apply a broadly based turnover tax, following the principle of the value-added tax. The tax is levied on top of import duties and other taxes. Algeria exempts raw materials and semifinished goods from the turnover tax (*taxe unique globale à la production*) but not from import duties. Morocco applies the reverse treatment as the exemption is only from import duties and is not extended to the production tax (*taxe sur les produits*). In Tunisia, the exemption of approved enterprises covers both import duties and the turnover tax (*taxe à la production*). Mauritania does not exempt raw

materials from either import duties or the turnover tax. For equipment and machinery, Mauritania grants exemption from duties and taxes, but without specification and it may be partial or complete, depending on the relative importance of the investment undertaken by the approved enterprise.

24.—The impact of taxing raw materials and semifinished goods may be aggravated by defects in the tariff structure. In some countries raws materials and semifinished goods are subject to higher rates than those levied on finished goods in the preparation of which these raw materials are partially or completely incorporated. Such a structural defect limits the value of the preferential tariff treatment extended to goods originating in the region and puts national and regional industries at a comparative disadvantage with foreign imported goods. Under these conditions tariff exemptions, to be effective, have to be excessively generous. The removal of these defects should precede the establishment of a common external tariff and the harmonization of incentive schemes. Similar tariff defects and related inconsistent rate patterns emphasize the need for tariff reforms. These reforms usually require detailed statistical studies to show the actual revenue generated and consequently the tariff burden according to the Standard International Trade Classification-Revised (SITC-R). Import data compiled on this basis are not available in many Arab countries, and efforts should be undertaken to produce such data as they are indispensable in reforming the tariff structure at the national level and are useful in establishing a meaningful common external tariff.

25.—Improving the tariff structure would reduce the need for tariff exemption under the investment schemes and therefore would enhance their harmonization. The majority of the Arab countries base their tariffs on the Customs Cooperation Council Nomenclature (CCCN), formerly known as the Brussels Tariff Nomenclature (BTN), which should facilitate producing data on the SITC basis. These data would be completed by showing revenue generated from each product and by origin and consequently the actual tariff burden on imports in different countries. It is the existing disparity in these burdens which has to be eliminated if conditions of economic integration are to be met.

26.—In some Arab countries the defects in the tariff structure tend to intensify the pressure to benefits from investment schemes because exemptions from import duties become quite significant. Many countries accord preferential tariff treatment to capital goods and raw materials

on a general basis through the tariff that is, it is granted to all enterprises irrespective of their approval status. This approach is reinforced in the Arab countries by the fact that no capital goods are produced and that economic policies aim at industrialization. Duty-free imports of capital goods that are not locally produced would be consistent with such a policy. The argument for free imports of capital goods should not be weakened by the fact that such exemption may result in a bias favoring capital-intensive methods of production. The Syrian experience comes close to this approach, as the 1969 investment law does not provide exemption from import duties to approved enterprises. Following the Industrial Act of 1952, tariff rates on investment goods and raw materials have been substantially reduced.

27.—In some Arab countries, special tariff protection accorded to approved enterprises is a more important incentive than tariff exemptions. The importance of tariff protection follows the wide acceptance of import substitution based on developing new industries or expanding already existing ones. Tariff protection is usually sought by approved enterprises because it reduces the high costs and the special risks connected with setting up a new enterprise or undertaking a new activity. In principle, tariffs are expected to provide built-in protection through lower rates on, or exemption of raw materials, semifinished goods, and machinery, and higher rates on imports competing with locally produced goods. Egypt, Iraq, Jordan, and Syria do not provide specified tariff protection other than that available under the general tariff schedules, while in Kuwait and the Sudan special higher rates on imports for a period of up to ten years can be granted to approved enterprises. In North African countries special tariff protection seems to be the practice despite the limited scope of the tariff exemptions accorded, in some cases, to approved enterprises. In Mauritania, in contrast to the majority of the members of the West African Economic Community, the recent investment law provides special tariff protection. Tunisia guarantees that no other investment in the same industry or activity will be approved during a period of three years.

28.—The experience of developing countries in granting special tariff protection is unsatisfactory. Tariff protection discourages the expansion and modernization of protected enterprises. It leads, especially when extended to enterprises that have already reached their normal productive capacity, to higher prices and to higher costs by raising the

prices of domestic substitutes. When confined to manufactures, it may prohibit competition, regional as well as foreign. These undesirable effects are aggravated by extending the monopoly of exploitation and marketing, as is the case in Mauritania and Tunisia. Monopolistic privileges and special tariff protection result in more extensive and costly incentives.

29.—No study has been made of the effective rate of tariff protection in most Arab countries ⁽¹⁾. However, in rationalizing or harmonizing regional investment incentives, it would be essential to keep special protection and monopolistic privileges from being guaranteed on the regional level. Regionalizing these monopolies would be a departure from the principal goals of the Arab Common Market, namely, creating healthy competition by reducing or eliminating customs tariffs and protection in its member countries.

III. Free Zones

30.—The investment policies in some Arab countries emphasize free trade zones as an instrument of industrial development through which the flow of capital and modern technology may be induced.

31.—Chapter IV of Egyptian Law No. 43-1974 (the investment law) sets out the framework and the provisions governing the establishment of free zones, the activities and projects to be carried on inside such zones, the tax exemption accorded, and other concessions extended. ⁽²⁾ Most of the activities and projects in the Egyptian free zones amount to services facilitating transit trade, encouraging the transshipment of goods, and developing warehousing. According to Article 35 of Law No. 43/1974, the principal activities in these zones are (1) storage of transit goods, local goods destined for export, and import goods arriving in the country, (2) storing, clearing, mixing, blending, and similar

1) For a further discussion of the impact of tariff protection, see Tibor Scitovsky, "Prospects for Latin American Industrialization within the Framework of Economic Integration: Bases for Analysis," in *The Process of Industrialization in Latin America*, statements and documents of a roundtable discussion held in Guatemala City (Inter-American Development Bank, 1969), pp. 34 - 48.

2) For a detailed discussion of industrial zones and their main characteristics, see UN Industrial Development Organization, *Industrial Estates in Europe and the Middle East* (New York, 1968).

activities, and (3) any manufacturing and processing which needs the benefit of a free zone and the country's geographical location. These functions are quite similar to those to be established for entrepot trade in customs areas in accordance with Customs Law No. 66-63. Projects and industries authorized by the investment law are almost identical to those specified by Article 88 of the customs law.

32.—In Syria, free zones are governed by Legislative Decree No. 84-1972, which authorizes a wide range of activities and stipulates the following conditions : (1) Enterprises located in free zones should neither duplicate nor compete with those already existing elsewhere in the country. Exception is allowed, however, when there is "interdependence" between the two enterprises. (2) Enterprises should use domestic raw materials and locally semifinished goods. (3) Enterprises should carry on activities that will be integrated with local industries and should apply advanced technology. (4) Enterprises should meet the demand of domestic consumption and reduce reliance on imports. (5) Enterprises should contribute to the employment of domestic manpower.

33.—In Jordan, industrial enterprises and those contributing to the development of foreign trade can be established in the free zone of Aqabah. These enterprises can be accorded the exemptions and facilities provided by the Industrial Law of 1972. In contrast to the equal treatment accorded in Jordan to the two types of enterprise (inside and outside free zones), Egyptian free zone enterprises benefit from greater exemptions and concessions than other firms approved under the investment law.

34.—The nature of the free zones in Arab countries is not quite clear, as they can be equated with customs facilities for entrepot trade or may be considered as industrial zones. Whatever the nature of these zones, their role has not been adequately coordinated with the investment objectives as reflected in some countries' investment laws. There is an apparent lack of coordination of the two regimes and an inconsistency in taxing goods produced by firms operating in the free zones but consumed locally. Many countries in Latin America, the Far East, and Africa have sought to employ free zones as a tool of national economic development. Frequently facilities in these areas take the form of combining free trade and free industrial zones, not only to improve the possibilities for use of national ports but also to facilitate the development of export

industries utilizing foreign materials.⁽¹⁾ It should be pointed out that alternative systems, such as drawback, and the tax treatment of exporting enterprises located outside free zones can offer advantages comparable to those of free zones. The efficacy of such alternatives depends primarily upon the flexibility of the legal framework and the effectiveness with which they are administered.

35.—The growing interest of developing countries in free zones is an indication of the shift in the policy of these countries from import substitution to export promotion. During the last two decades considerable emphasis was placed on import substitution. This policy engendered difficulties and limitations, but the encouragement of export industries through free zones has its limitations also : (1) The continuous reduction of import duties and taxes has dominated the tariff policy of industrialized countries and some developing countries during the last two decades. These reductions are quite evident in the case of raw materials and capital equipment. Therefore, export industries that depend on foreign components and are located in free zones would not receive comparative advantage from import duty exemption. Exemption from tariff and import duties tends to be less important—contrary to what is widely believed in promoting exports requiring foreign materials. (2) The wide spread of free zones in both developed and developing countries reduces their influence in developing manufacturing industries, except those located in countries with substantial comparative advantages. (3) The argument that manufacturing enterprises located in free zones in developing countries may have considerable savings in the cost of labor is sometimes exaggerated. The key aspect is not the low cost of labor, but rather labor cost by unit and the productivity of the workers. (4) Manufacturing enterprises located in free zones usually evaluate the advantages by comparing other location factors, such as cost and availability of skilled labor, transportation facilities, availability of land and buildings. The influence of these factors sometimes exceeds the value of tariff exemptions and other tax incentives accorded to enterprises in free zones.⁽²⁾

1) U.S. Department of Commerce, Bureau of International Commerce, *Free Trade Zones and Related Facilities Abroad* (Government Printing Office, Washington, 1970) p. 10.

2) For a detailed analysis of locational factors and manufacturing in free zones, see W.A. Dymsha, *Foreign Trade Zones and International Business*, (School of Business, Rutgers University, 1964) pp. 157 - 164.

36.—Free zones oriented to facilitate international trade as a customs area tend to be out of line with the development priorities of developing countries. The application of the free zone concept to foster manufactures based on imported raw materials for re-export or for domestic consumption requires, however, careful analysis of the investment incentives as well as taxation of goods produced in free zones and consumed domestically. Enterprises located in Syrian free zones are authorized to sell up to 20 per cent of their products on the domestic market. In Egypt and Jordan such authorization is not explicitly stated, but it is implied that these firms can sell domestically. The taxation of goods produced in free zones and consumed domestically tends to limit the quantity consumed domestically. The incidence of this taxation can be excessive enough to deprive free zone enterprises of the advantages of the domestic market. It may even hinder their meeting the obligations required by law, such as meeting domestic consumption needs (Syrian Legislative Decree No. 84/1972).

37.—In the Arab countries that authorize free zones, taxation of goods is usually based on the distinction between domestic and free zones. Thus it can have a sharply different effect on free zone firms, depending on the distribution of their sales between export and domestic markets. While such taxation encourages exports, it certainly discriminates against industries selling products on the domestic market. In free zones, activities related to export industries are exempt from all direct and indirect taxes. Exemption from export taxes and from import duties is quite irrelevant regarding the location of international enterprises, since these benefits are offered by other countries. Industrialized countries always exempt exports from turnover taxes, the burden of which is the principal tax element affecting production costs. Raw materials and semifinished products incorporated in the final exported goods benefit from either full exemption or full redemption of import duties and taxes. Exemption from indirect taxes and import duties accorded to export industries located in free zones is always offered by industrialized countries as part of their general tax policies. The relative advantages of free zones will diminish unless they are based on factors other than exemption from export taxes and/or import duties.

38.—Goods produced in free zones and consumed on the domestic market are treated as imports and are liable to import duties and taxes at their final stage of manufacture in Egypt and Syria. Both countries

allow proportional deduction of import duties on local materials incorporated in the final product. The incidence of this treatment can be quite burdensome, especially in regard to goods that are essential. The proportional deduction of import duties may result in discriminatory tax treatment among different firms, depending on the percentage of local raw materials incorporated in the final product and their taxation. It should be pointed out that such tax treatment, despite its possible high incidence and discriminatory consequences, remains more favorable than that accorded firms operating in free zones authorized under the general provisions of the customs laws of some other countries. In Iraq, free zones are authorized by the customs law and, consequently, the investment law does not extend special incentives to industrial enterprises located in these zones. Products of these zones consumed domestically are liable to the same duties and taxes levied on competing imports but with no deduction for domestic raw materials or semifinished goods incorporated in the final product. Similar treatment has been provided in the projected Unified Customs Law prepared by the Experts Committee of the CAEU (Article 140).

39.—Taxing goods produced in free zones as imports when they are consumed locally reflects the traditional role of these zones as customs privilege facilities. As a departure from this rule, industrial goods produced in these zones may receive tax advantages over comparable wholly foreign-made imports. Sometimes, duties and taxes are determined by deducting the amount of value added through the use of local labor. In other countries duties and taxes are assessed only on the actual foreign components incorporated in the final product (Togo). In a few cases, customs duties may be entirely waived, especially when the activities are not oriented to exports only but to domestic consumption as well. ⁽¹⁾.

40.—The impact of complete exemption from all taxes for an indefinite period (Egypt) can have serious implications within the framework of the Arab Common Market. Goods can be fully taxed as imports when consumed in the country of origin, but when consumed in other member countries, exemption from all duties and taxes in the country of origin and in that of destination is accorded. Such treatment is contrary to the principles governing taxation of goods and services

1) U.S. Department of Commerce, Bureau of International Commerce, *Free Trade Zones and Related Facilities Abroad* (Government Printing Office, Washington, 1970), p. 10.

originating in one member state and consumed in another. Free zones are usually free only with respect to customs duties and import taxes, as laws and other regulations covering labor, business organization, business taxes, etc., are applicable within free zones. Some Arab states exempt free zone enterprises from all taxes and exclude them from business legislation, labor regulations, etc. This is contrary to the standard case of tax incentives, the period of which should be limited rather than indefinite. These exemptions can undermine the country's revenue structure and impair its flexibility if enterprises located in free zones increase in number and their activities expand substantially.

41.—Jordan and Syria follow the standard procedures and charge enterprises located in free zones fees, the rates of which differ according to the services rendered. In Egypt, free zone enterprises are charged an annual fee of 1 per cent of the value of goods entering or leaving the free zone. The financial burden of this fee varies considerably — not according to the enterprise's ability to pay, but more in accordance with the nature of its activities and its profits margin. From the experience of some countries that apply a minimum profits tax of 1 per cent on the turnover, this minimum in some cases can be higher than a business profits tax at a rate of 50 per cent of net profits.

42.—The fee may be levied on goods either leaving or entering the free zones but without any indication of the basis on which it will be collected. During the installation period, it may be a disadvantage to many enterprises to pay 1 per cent on their capital equipment, machinery and raw materials. On the other hand, the 1 per cent can be more burdensome once the enterprise reaches its full capacity to produce and export. The minimum fee is levied in lieu of charges that would have been imposed to finance public services in the free zones. For enterprises with major activities not involving commodities entering or leaving the zone, their contribution is fixed by the General Authority, provided that it does not exceed 3 per cent of the value added. Regardless of an enterprise's profitability, 3 per cent of the value added can bring about the same adverse consequences as a 1 per cent minimum fee.

43.—Agreement is needed with respect to the role of free zones, taking into account their contribution to regional industrial development, and the impact of taxation of enterprises and their industrial products, either in the country of origin or in other member states. Such agreement is needed before reaching conclusions on the harmonization of investment incentives.

ECONOMIC DEVELOPMENT

and

EXTERNAL RESOURCES :

A Theoretical Analysis

by

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I

The present inquiry started in search for an answer to the question : what are the conditions under which economic development of a LDE (Less Developed Economy) may be expected to be successful. The interest in this question was partly stimulated by the work of Fei and Pauuw.¹ But I ended up dealing with the optimal amount of foreign borrowing.

In Section II, the model of Fei and Pauuw will be presented and their approach will be criticized. Sections III and IV will be devoted to backing this criticism with constructive action. Thus, in Section III, the model of Fei and Pauuw is generalised in a sense which will become clear in that section. Section IV deals with some aspects of the optimal amount of foreign borrowing. The last section is devoted to drawing some conclusions and pointing out some potential spots for further research.

II

The model used by Fei and Pauuw, called the PMSR (per capita marginal savings ratio) model, consists of the following equations :

$$I_t = S_t + B_t \quad (1)$$

$$Y_t = K_t / k \quad (2)$$

$$\eta_k = I_t / K_t \quad (3)$$

$$\eta_p = r \quad (4)$$

$$\eta_{y^*} = h \quad (5)$$

$$S_0 = s_0 Y_0 \quad (6)$$

$$\dot{S}^* = u \dot{Y}^* \quad (7)$$

where :

I_t = investment.

S_t = domestic saving.

B_t = foreign borrowing.

Y_t = national income

K_t = capital stock

k = capital-output ratio.

η_k = proportional rate of growth of capital.

η_p = proportional rate of growth of population.

η_{y^*} = proportional rate of growth of per capita income.

s_0 = initial savings ratio.

u = the marginal per capita savings ratio.

Dotted variables denote rates of change with respect to time, and variables with an asterisk are in per capita terms.

In the view of Fei and Pauuw, economic development is "successful" if the ratio of foreign borrowing to national income tends to decrease over time. So, in order to detect the conditions under which development will be successful we must determine the time path of B_t .

By mathematical manipulation, equations (6) and (7) give the savings functions :

$$S_t = uY_t - Y_0 (u-s_0) / e^{-rt} \quad (8)$$

Substituting (2) and (8) into (1) gives :

$$k \dot{Y} = uY_t - Y_0 (u - s_0) / e^{-rt} + B_t \quad (9)$$

Dividing (9) through by

$$Y_t = Y_0 e^{(h+r)t}$$

and rearranging, we get :

$$\beta_t = k(h+r) - (u - (u - s_0) / e^{ht}) \quad (10)$$

where β_t is the ratio of foreign borrowing to national income.

β_t will start at an initial value

$$\beta_0 = k(h+r) - s_0$$

when $t = 0$, and tends to an asymptotic value

$$\beta_\infty = k(h+r) - u$$

as $t \rightarrow \infty$. If we assume that $\beta_0 > 0$ and $u > s_0$, we find that β_t will decline over time approaching a constant value $(k(h+r) - u)$ in the limit. Fei and Pauuw distinguish the following three cases (see figure (1) for graphic illustration) :

$$(i) \text{ If } k(h+r) > u, \quad \beta_\infty = \bar{\beta} > 0$$

$$(ii) \text{ If } k(h+r) \leq u, \quad \beta_\infty = \begin{cases} 0 \\ \bar{\beta} < 0 \end{cases}$$

The first is a failure case, the second is a success one in its first part if the country is getting grants, and in its second part if the country is getting loans. Thus, the conditions of success of development via foreign aid are that :

$k(h+r) = u$ in the case of grants,

$k(h+r) < u$ in the case of loans.

The above is the essence of the Fei and Pauuw argument. Its policy implication is clear. If the country is ambitious in terms of its

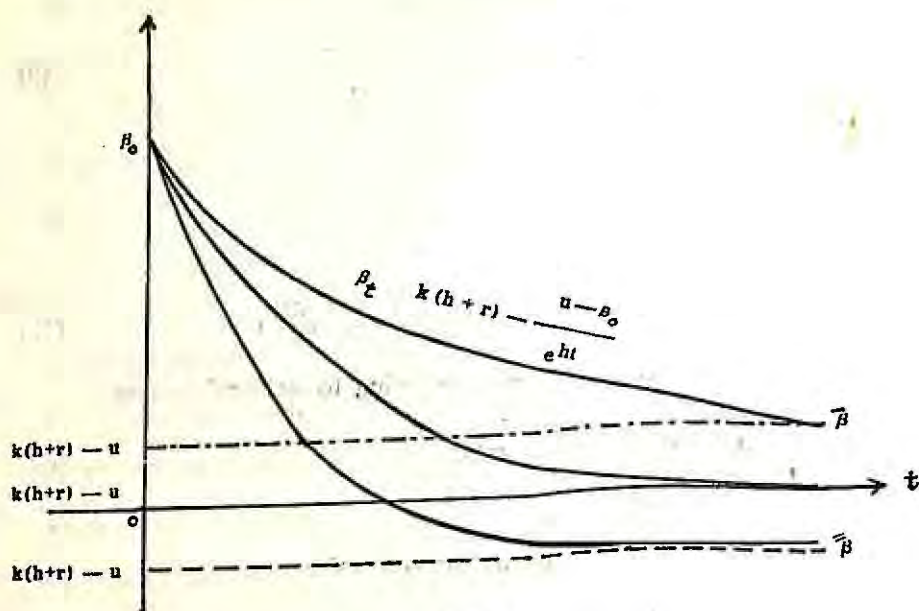


Fig. (1)

rate of growth, other things equal, its effort may not promise a success. On the other hand, if the country is not ambitious in terms of its rate of growth, other things equal, its effort may promise a success. This represents the donor's point of view, according to which the capacity to repay takes precedence over the development effort as a whole. Moreover, the authors concentrate on the difference between domestic saving and investment to measure the need for foreign borrowing. It will be argued in the next section that this gap-filling approach is not the most appropriate one in this context. Lastly, Fei and Pauw abstract from any optimal considerations; they do not spell out the reasoning behind their Per Capita Marginal Savings hypothesis, and the reader is left in the dark as to how the rate of growth of income was decided upon, other than being a "target" rate. It seems desirable, therefore, to discuss some aspects of the optimal choice regarding foreign borrowing, and hence the target rate of growth. This is the subject of Section IV.

III

Fei and Pauuw based their analysis on the assumption that what determines the country's need for foreign aid is the relationship between its saving rate and investment rate, given the target rate of growth and the capital-output ratio. This is true, but it is not, I think, the full truth. There is another, no less important, aspect of determining the need for foreign aid by any country. Let me put this point more clearly.

Economic development, in most cases, requires resources that differ in kind from those available in the LDE. Even if the level of domestic savings is considered sufficient to achieve a target rate of growth of income, its form may not be the one most needed to attain that target. For example, the country's domestic savings, in kind, may consist of raw cotton or rubber whilst it needs machinery and equipment for its growth. Empirical work by Manne asserts this point². Moreover, even if the country has reached a stage in its development, via foreign aid, such that its savings exceed investment requirements, it cannot pay back its debt unless its exports exceed its imports.

We may conclude, then, that the LDE needs foreign aid, not only to bridge the gap between investment requirements and domestic savings, but to make up for the excess of import requirements over export proceeds. Thus, the relevant question regarding foreign aid is not just whether it will enable the country eventually to generate savings in excess of investments (potentiality of paying off its debt), but also whether it will enable the country to create a surplus of export proceeds over import requirements (ability to paying off its debt). Chenery-Strout and Kurihara have argued along similar lines.^{3,4}

Fei and Pauuw do not discuss the problem in this context. Their criterion of success is whether the country will be able, through aid, to create enough savings to meet investment requirement.⁵ I shall try

here to incorporate these aspects into their model, making use of some additional assumptions in order to see whether their conclusions about the "success" or "failure" will still hold. The following model will be used :

$$I_t + X_t = S_t + M_t + B_t \quad (11)$$

$$Y_t = K_t / k \quad (12)$$

$$\eta_k = I_t / K_t \quad (13)$$

$$\eta_p = r \quad (14)$$

$$\eta_y^* = h \quad (15)$$

$$S_0 = s_0 Y_0 \quad (16)$$

$$\dot{S}^* = u \dot{Y}^* \quad (17)$$

$$X_0 = \varepsilon_0 Y_0 \quad (18)$$

$$\dot{X}^* = v \dot{Y}^* \quad (19)$$

$$M_t = m Y_t \quad (20)$$

where equations (12) - (17) are the same as equations (2) - (7) above. Three more equations are added and equation (1) amended. The equations added are (18) - (20) including the variables : X = exports, M = imports, with dots and asterisk having the same connotation as before; ε_0 = initial export ratio, v = marginal per capita export ratio and m = import propensity (both average and marginal).

Equation (11) needs some clarification, perhaps. The left-hand side is the expenditure side and the right-hand side is the revenue side, in a general sense. Put another way, it says that "investment" must, in equilibrium, equal "saving"; both "investment" and "saving" are viewed in the more general context of a debtor economy. Savings may equal investment but domestically produced goods may not be of the type needed for investment, thus necessitating foreign borrowing. It is very important for the understanding of the difference in treatment between the model presented in this section and that of Section II, to realize the

implication of equation (11) : It is only when $X_t = M_t$ that B_t will equal $(1_t - S_t)$. The condition in (1) is but a special case of the condition in (11).

The solution of the system (11) - (20) defines the time path of aid-income ratio as follows :

$$\beta_t = k(h+r) + (v - (v - \epsilon_0)/e^{ht}) - (u - (u - s_0)/e^{ht}) - m \quad (21)$$

The behaviour of β_t over time depends upon the signs of $(v - \epsilon_0)$ and $(u - s_0)$. Assuming $v > \epsilon_0$ and $u > s_0$ we get two opposite forces affecting the behaviour of β_t : $(v - \epsilon_0)$ pushes it up and $(u - s_0)$ pulls it down, the final outcome depends on which force will dominate. As $t \rightarrow \infty$, β_t will tend towards the constant :

$$\lim_{t \rightarrow \infty} \beta_t = \bar{\beta} = k(h+r) + v - (u + m)$$

$\bar{\beta}$ may be negative, zero, or positive depending on whether :

$$\begin{aligned} &< u + m \\ k(h+r) + v &= u + m \\ &> u + m \end{aligned}$$

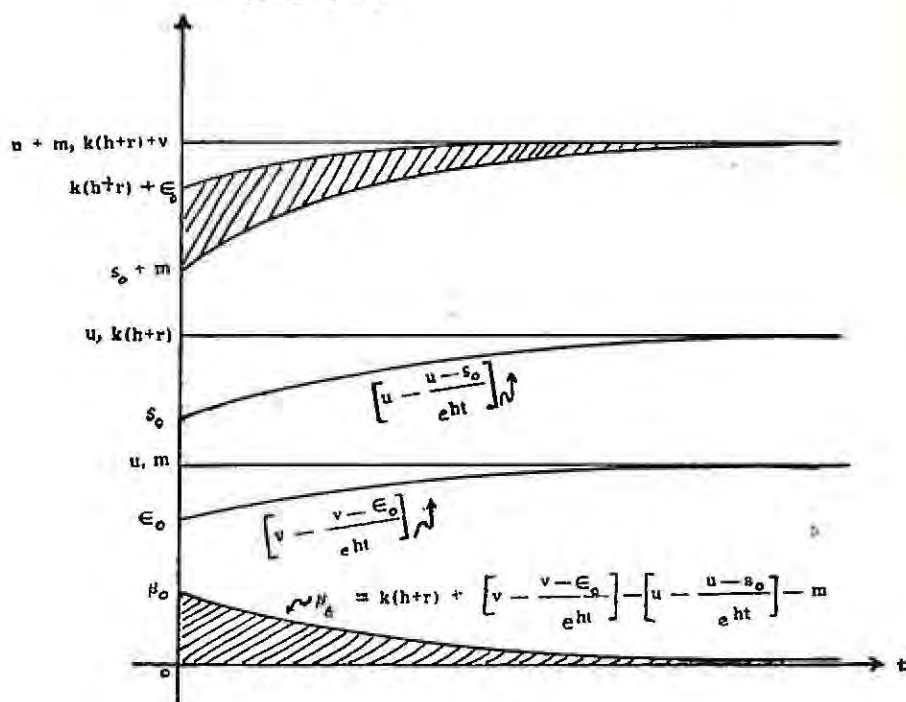


Fig. (2)

In the first two cases, development through foreign aid will be successful; the second will be only so in the case of grants. In the third case development through foreign aid will be doomed to failure.

Now the question arises : how does this analysis compare with that of Fei and Pauuw ? In order to answer this question, let us recall the equations :

$$\beta_t = k(h+r) - (u - (u - s_0) / e^{ht}) \quad (20)$$

$$\beta_t = k(h+r) + (v - (v - \varepsilon_0) / e^{ht}) - (u - (u - s_0) / e^{ht}) - m \quad (21)$$

Let us also write (10) and (21) at $t = 0$ and as $t \rightarrow \infty$.

At $t = 0$, (10) and (21) give :

$$\beta_0 = k(h+r) - s_0 \quad (22)$$

$$\beta_0 = k(h+r) + \varepsilon_0 - s_0 - m \quad (23)$$

As $t \rightarrow \infty$, (10) and (21) give :

$$\beta_\infty = k(h+r) - u \quad (24)$$

$$\beta_\infty = k(h+r) + v - u - m \quad (25)$$

The relation between the two solutions is now clear : putting $\varepsilon_0 = m$ in (23) we get (22), and putting $v = m$ in (25) we get (24). Thus, (10) is a special case of (21). But we must keep in mind that these two solutions do not give consistently identical, or even similar, predictions as to the success or failure of development through foreign borrowing.

In order to see more clearly whether the conditions for the success of development through aid according to Fei and Pauuw will be maintained also in the present context, we distinguish the following possible cases :

Case I :

$$k(h+r) + \varepsilon_0 > s_0 + m, \text{ and}$$

$$k(h+r) + v = u + m \quad (26)$$

This is the case illustrated in figure (2). As is shown, β_t tends asymptotically towards zero indicating the economy's ability, eventually, to grow without foreign economic help. This is a success case only if the country is getting grants rather than loans. In figure (2) also we note that v has been arbitrarily set equal to m . The implication of such a situation will be explained shortly. In this case, both our model and the Fei-Pauuw model give identical results. This can easily be checked by putting $\varepsilon_0 = v = m = 0$ in (26) above. Note that in figure (2) we have set $v = m$ by construction. Thus, it is only when $v = m$, that the two models give identical results as for the trend value of β_t , viz. β_∞ . Whether they differ as for the initial value of β_t , viz. β_0 , depends on the relative magnitude of ε_0 and s_0 .

Case II :

$$\begin{aligned} k(h + r) + \varepsilon_0 &= s_0 + m \\ k(h + r) + v &> u + m \end{aligned} \quad (27)$$

This is the case illustrated diagrammatically in figure (3). As is shown, β_t tends asymptotically towards some positive constant, indicating the ever increasing dependence of the country's development on foreign aid. This is a failure case. It is interesting to compare the results of our model with that of Fei-Pauuw's. As figure (3) indicates, $u = k(h + R) > s_0$ by construction. Thus putting $\varepsilon_0 = v = m = 0$ in (27) above, we get $\beta_0 > 0$ and $\beta_\infty = 0$. Thus, though the Fei-Pauuw model predicts an eventual end for the need for help, ours does not foresee any such possibility. Quite the contrary, it predicts a situation of perpetual reliance on aid.

Case III :

$$\begin{aligned} k(h + r) + \varepsilon_0 &> s_0 + m \\ k(h + r) + v &< u + m \end{aligned} \quad (28)$$

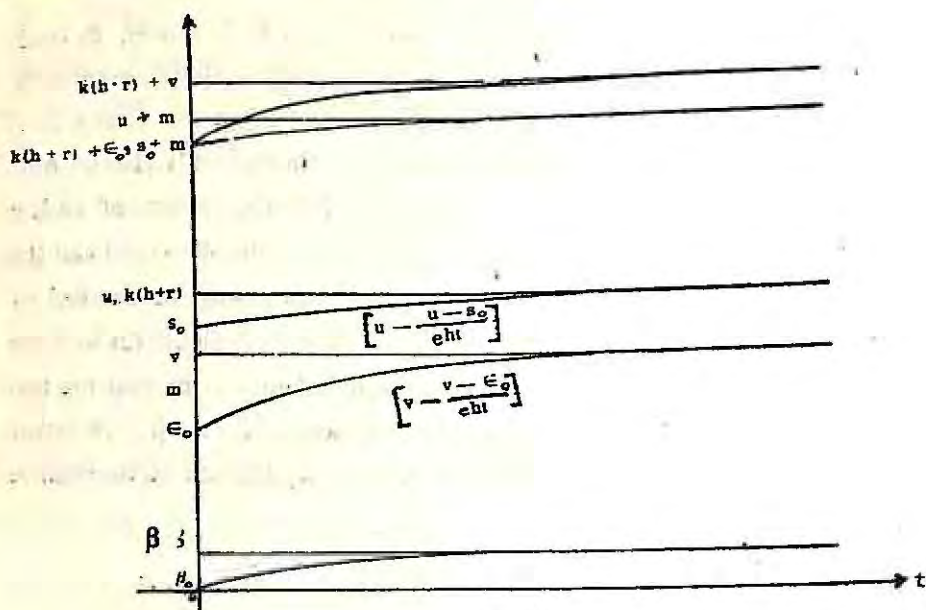


Fig. (3)

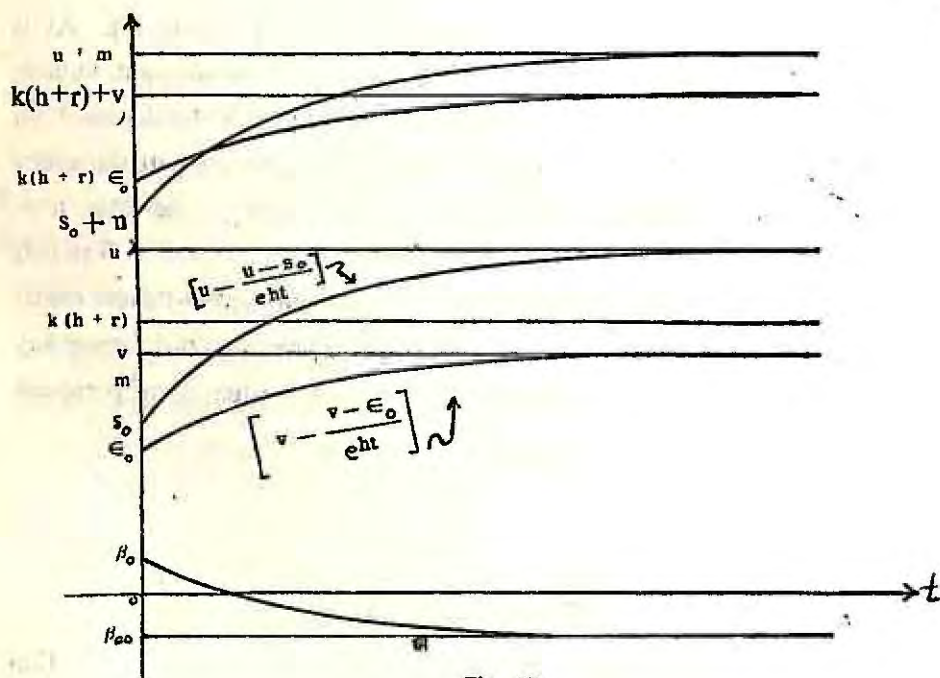


Fig. (4)

This is the case depicted graphically in figure (4). As the diagram shows, β_t tends asymptotically towards some negative constant. The country needs foreign aid for a while for its development, but it will be able, after some finite period, to repay its foreign debt. Putting $\varepsilon_0 = v = m = 0$ in (28) we see that the Fei-Pauuw prediction is similar, but not identical, to ours.

IV

As pointed out in Section II above, the Fei and Pauuw approach does not spell out the criteria of "success" or "failure" of development through foreign aid. However, the reader or their article will construe that they think of a perpetual dependence on foreign aid as "undesirable". This may be the case from the point of view of the donor country. But, as for the receiving country, the "desirability" or "undesirability" of perpetual dependence on foreign aid must be deduced from the country's welfare function. Of course, it may be that the country derives some "disutility" from incurring foreign debt; a not uncommon symptom of economic (sometimes even political) nationalism. But, on the other hand, the country may derive some "utility" from the increase in consumption made possible by foreign borrowing. So long as the "utility" from increased consumption outweighs the "disutility" from incurring foreign debt, there is net benefit. One cannot see any point against continued borrowing in this case.

What needs to be done, therefore, and which is lacking in the Fei-Pauuw approach, is to consider some aspects of the optimal amount of foreign borrowing. This is our task in this section. For this purpose, we develop the following analytical framework. In this Section B stands for total foreign debt outstanding.

Let us assume that planners in the LDC are trying to maximize the welfare function.

$$W = W(B, C), \quad W_B < 0, \quad W_C > 0. \quad (29)$$

This welfare function (29) says that total welfare, W , depends on both total foreign debt outstanding, B , and total consumption, C . The country is assumed to derive disutility from borrowing and utility from consumption, and hence the signs of the corresponding partials W_B and W_C in (29).

Let us also assume that the economy at hand produces two goods : a consumption good, C , in sector 1, and an investment good, I , in sector 2. Production of the two goods is governed by production functions of the neo-classical type using two homogeneous factors, capital, K , and labor, L .

$$C = L_1 f^1 (K_1 / L_1) \quad (30)$$

$$I = L_2 f^2 (K_2 / L_2) \quad (31)$$

Equations (30) and (31) imply linear homogeneity, and we assume they are twice differentiable.

On the demand side for investment goods, capital may be required for capital formation either in the consumption-good sector, K_1 , or in the investment-good sector, K_2 . On the supply side, capital may be made available either from domestic production, K_d , or from foreign borrowing, B . Thus we have the following constraint governing the stock of capital at any moment of time :

$$K_1 + K_2 = K_d + B \quad (32)$$

Likewise, the stock of labor at any moment is given by the (constant) rate of population growth (assuming constant proportionality between the labor force and population). Labor may be required for use either in sector 1, L_1 , or in sector 2, L_2 . Moreover, we assume labor to be in excess supply in conformity with the conditions in many LDC's. Thus, we have the following, nonbinding, constraint on the labor side.

$$L_1 + L_2 \leq \alpha P_0 e^{rt} \quad (33)$$

where α is the (constant) ratio of labour force to total population, P_0 the initial size of population.

The optimality problem, then, is to maximize the welfare function W , subject to the side constraints given in (30) - (32). We form the Lagrange expression :

$$M = W(B, C) - \lambda_1 (C - L_1 f^1(K_1/L_1)) - \lambda_2 (I - L_2 f^2(K_2/L_2)) - \lambda_3 (K_1 + K_2 - K_d - B) \quad (34)$$

where λ_i ($i = 1, 2, 3$) are Lagrange multipliers.

Taking the partial derivatives of (34) with respect to the choice variables, B, C, K_1, K_2, L_1 and L_2 and equating to zero, we get :

$$\begin{aligned} \partial M / \partial B &= W_B + \lambda_3 = 0 \\ \partial M / \partial C &= W_C - \lambda_1 = 0 \\ \partial M / \partial K_1 &= \lambda_1 f'_1 - \lambda_3 = 0 \\ \partial M / \partial K_2 &= \lambda_2 f'_2 - \lambda_3 = 0 \\ \partial M / \partial L_1 &= \lambda_1 f_1 - \lambda_1 (K_1/L_1) f'_1 = 0 \\ \partial M / \partial L_2 &= \lambda_2 f_2 - \lambda_2 (K_2/L_2) f'_2 = 0 \end{aligned} \quad (35)$$

Equations (35) give us the necessary conditions for a maximum of W . The Lagrange multipliers can be viewed as shadow prices. This becomes clear by rewriting the first four conditions in (35) in the following form :

$$\begin{aligned} -W_B &= \lambda_3 \\ W_C &= \lambda_1 \\ \lambda_1 f'_1 &= \lambda_2 f'_2 \end{aligned} \quad (37)$$

The first condition says that, for a maximum of W , it is necessary that the marginal utility to society from foreign borrowing, be equal to the shadow price for capital, λ_3 .

The second condition says that, for a maximum of W , it is necessary that the marginal utility to society from consumption, be equal to the shadow price of consumption good, λ_1 .

The third condition states that, for a maximum of W , it is necessary that the (shadow) value of marginal physical product of capital used in sector 1 and sector 2 be equal.

V

The conclusions that can be derived are :

1—The ratio of foreign borrowing to national income. β_t , depends not only on k, h, r, u and s_0 but on s_0, v and m as well.

2—The time path of β_t given by Fei and Pauuw is but a special case of that given by the model elaborated in Section III.

3—Putting the problem in an optimality context helps reveal the trade-off involved in foreign borrowing : trading the disutility of borrowing for the utility of consumption it makes possible.

4—The question of the success or failure of development through aid makes more sense if it is posed within an optimizing framework.

5—One of the points that need more investigation is the optimal path of foreign borrowing. This demands explicit examination of the welfare function, e.i., the explicit form of the welfare function.

6—It may be also worthwhile as a useful extension of this type of analysis, to include other arguments in the welfare function as regards, say, the distribution of income, employment, etc.

Footnotes :

1. John C. H. Fei and Douglas S. Pauuw, "Foreign Assistance and Self-Help. A Reappraisal of Development Finance," *Review of Economics and Statistics*, 47 (1965) : 251-67.
2. A.S. Manne, "Key Sectors of the Mexican Economy, 1960-70," in *Studies in Process Analysis*, ed. A.S. Manne, Cowles Foundation for Research in Economics at Yale University, Monograph no. 18, (New York : John Wiley and Sons, 1963), p. 388.
3. H. B. Chenery and A. Strout, "Foreign Assistance and Economic Development", *American Economic Review*, 56 (1966) : 679-733.
4. Kenneth K. Kurihara, "International Capital Movements and National Economic Growth, " *Economia Internazionale*, 19, no 4 (1966) : 597-611.
5. Fei and Pauuw, "Foreign Assistance," p. 256.
6. Since it is assumed that labor is abundant and does not constitute a constraint, we ignore the last two conditions of (35).

Bibliography :

- 1—Chenery, H.B. and A. Strout, "Foreign Assistance and Economic Development," *American Economic Review*, 56 (1966).
- 2—Fei, J.C.H. and S. Douglas, "Foreign Assistance and Self-Help. A Reappraisal of Development Finance", *Review of Economics and Statistics*, 67 (1965).
- 3—Kurihara, K.K., "International Capital Movements and National Economic Growth," *Economia Internazionale*, 19, no. 4 (1966).
- 4—Manne, A.S., "Key-Sectors of the Mexican Economy, 1960-70," in *Studies in Process Analysis*, ed. A.S. Manne, Monograph 18 of Cowles Foundation for Research in Economics at Yale University (New York : John Wiley and Sons, 1963).

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THE STRATEGIC IMPORTANCE OF ARAB OIL

by

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Recent events that occurred in the Middle East during the last 5 years revealed clearly the strategic importance of the Arab oil. The Arab oil embargo during and after October war was so effective that it did not only threaten by paralysis the economic activity in Western countries, but it also touched the daily life of every individual there. Thus, using the oil-weapon to realize political objectives is one of the obvious aspects which indicates the strategic importance of Arab oil.

After the October war the Arab countries managed to raise the oil prices repeatedly. The Arabs' accounts increased in the banks due to the increase in their oil income. In fact the Arab countries — floating over a lake of oil — decided to make best use of their oil to compensate unjust terms which were imposed on them by Western monopolies.

In 1974 the Arab oil revenues were estimated by more than 70 billion dollars. However, this figure is estimated to mount to more than 130 billion dollars in 1980. According to the statistics of the International Bank, the oil producing Arab countries realized a surplus of 50 billion dollars in their balance of payments in 1973 while great industrial countries faced, within the same period, a deficit of 40 billion dollars in their balance of payments, although these countries had affected 12 billion dollars in their balance of payments a year before.

Arab oil producing countries possessed at the end of 1973 24 billion dollars of foreign currency reserves, plus 11,6 billion dollars of golden reserves. These figures increased by four billion dollars than the possessions of the countries of the Common Market except West Germany. Saudi Arabia is the fourth between the ten top countries possessing foreign currency reserves, after U.S.A., West Germany and Japan. Oil reserves in Saudi Arabia are estimated by 150 billion barrels which represent 25% of world reserves, meaning 1500 billion dollars according to actual oil prices in 1974. This figure doubles U.S. national income in 1974 and as six fold of its national budget in the same year.

A quick glance on these figures would indicate the importance of Arab oil. In this brief study I would confine myself on Arab and some African oil countries. The main topics of study will include :

Chap. 1 : Changes in Oil Supply and Demand :

Section I : World and Middle East Production.

Section II : World and Middle East Oil Reserves.

Chap. 2 : Arab Oil Economics :

A) Petroleum Production Costs.

B) Arab Crude Oil Pricing.

C) Oil Price Fluctuations and Arab Losses.

Chap. 3 : Events Leading to OPEC :

A) Prices after OPEC.

B) Tehran and Geneva Agreements.

C) Saudi Arabia Oil Prices and Revenues.

Chap. 4 : Oil Revenues Importance for Arab Countries

CHAPTER 1

Changes in Oil Supply and Demand

Preface :

The history of petroleum⁽¹⁾ goes back many centuries before Christ. "Herodotus" and other ancient historians wrote about petroleum. Ancient peoples used petroleum as mortar, for water proofing, medicine and fuel lamps. In 1859⁽²⁾ a well was drilled for specific purpose of finding oil near seapages along oil Greek Venago Country; Pennsylvania. The well was financed by a small adventurous group in New Haven, Connecticut, who believed that petroleum had a future.

The discovery was followed by a mad scramble to drill wells and build primitive refineries. In its early days the industry was disorderly and haphazard. Wells were drilled largely on hunches and by chance. The quality of the refined products was uncontrolled and unpredictable. Prices fluctuated widely as gaugers of oil ran dry. Hard competition among thousands of oil products and between producers and marketers led to bitter conflicts and too much waste of gas and oil which would not be tolerated today.

1 — Word "Petroleum" a Greek, Petro-Rack, Oleum = Oil which means oil derived from rocks.

Crude oil almost black liquid consisting two elements. H) 1 — Hydrogen or 2) carbon with certain percent, unified with other elements under ground millions of years forming oil.

For more explanations: Aramco Handbook: Oil and the Middle East. (The oil industry and its growth in Middle East). Part II p. 73.

2 — Then other references mentioned that the first oil production was in Rumania in 1857 with 2000 barrels, then 4000 barrels, the following years.

Then in 1958 "Edwin Drake" drilled his first well beginning the oil industry in the world. Charles Issawi and Mohamed Yeganeh, The Economics of Middle Eastern Oil. Frederick A. Praeger, New York 1962, p. XV.

Gradually, however, the foundation for more orderly and scientific industry was laid and grown steadily⁽¹⁾.

The humble beginning led to an exciting present. The picture has changed seriously to be the most important topic for specialists, politicians and ordinary groups.

It is out of discussion that the tremendous expansion and rebuilding of industry after World War II⁽²⁾ created an unprecedented demand for petroleum.

Many areas of the world which had lagged behind U.S. in using petroleum as an energy source returned to it as a fuel for generating power, producing more food, more goods, and more services.

Huge amounts of energy needed for the Allied troops in World War II were a tremendory challenge to the petroleum industry. Most of oil fields and refineries in Europe and the Far East were controlled by the Axis powers, great destruction was inflicted on the world's shipping fleets, and the use of the Middle East oil was hampered by transportation problems and a partial Axis blockage of Eastern Hemisphere, United States and Venezuela supplied mainly most of the needs of the Allies⁽³⁾.

1 — Within a decade after oil was being produced in Russia in 1863, Rumania, Canada and Italy. In 1900 it had been discovered in Poland, Germany, India, Peru, and Indonesia. In 1908 it had been found in Mexico, Argentina, Trinidad; in 1910 in Egypt.

Oil production was developed on a large scale, in Iran during World War I, and Iran became a major European supplier during the interwar period.

At late nineteen thirties oil discoveries were made in Middle Eastern Countries.

American Petroleum Institute, *Petroleum Facts and Figures*, 1959, Continental Edition; New York, pp. 4 - 20 and p. 434.

2 — George Lenezowski; *Oil and State Oil Middle East*, Cornell University Press, 1960 p. 11.

Petroleum facts and figures, op. cit., p. 437.

3 — Christopher Tugendhat: *Oil, the biggest business*, Eyre & Spottiswood, London, 1968, p. 116.

Allo Stephan Hemsley Longrigg, *Oil in the Middle East, Its Discovery and Developments*.

International oil companies by the end of the war, turned their attention to the Middle East as earlier explorations had discovered vast crude oil reserves. By the end of the war in 1945 considerable work was carried on to expand petroleum production in this area.⁽¹⁾

World and Middle East Oil Production :

At the end of 1954 world oil production was 2594,6 million barrels, six fold of 1914 world's production (407,5 million barrels)⁽²⁾ Middle East production was at the same period : 203,6 million barrels in 1945, only 3,6 million barrels in 1914)⁽³⁾.

Within thirty years only, and in 1972 world oil production reached about 55244 million barrels daily (Table 1)⁽⁴⁾. Total production of 2832,7 million tons⁽⁵⁾ with OPEC's share 55,2% (Table 2).

Recent statistics reveal that United States still retains its place as the world's largest producer (Table 4, p. 57) and user of oil in the rest of the world has been increasing in a great rate more than that in the U.S. Between 1946-1968 oil demand in U.S.A. increased two and half times, but in the remainder of the world oil usage in the same period jumped more than eight fold⁽⁶⁾ and the increase of the world's oil production as a whole was five folds.⁽⁷⁾

It is worthy to notify that US's consumption in 1974 exceeds its production of about 6,065 thousand barrels daily, on contrast, USSR maintains surplus production more than 2,000 thousand barrels daily. That means that the former is one of importing countries, the latter was an exporting one.

1 — Aramco Handbook op. cit., p. 75.

2 — Petroleum facts and figures... op. cit. p. 432.

3 — Ibid.

4 — Sources of table (1).

OPEC Statistical Year Book, 1972.

The Oil and Gas Journal, 25 Feb. 1974.

Petroleum Intelligence Weekly, 4 Feb. 1974.

5 — The Oil and Gas Journal, October 1973.

6 — For the first time USA become (net importer country). its imports exceed exports, Petroleum facts op. cit., p. 209 - 210.

7 — Aramco Year Book, op. cit.

Table 1.—World Crude Oil Production (1961 - 1973)

	Billion barrels daily					
	1969	%	1970	%	1971	%
	1972	%	1973	%		
America (US + Canada)	10333	24,9	10860	23,9	10821	22,5
Latin America	5110	12,3	5247	11,5	5049	10,5
Middle East	15372	29,8	13894	30,6	16282	33,9
Africa	5060	12,2	6053	13,7	5688	11,8
Europe	406	1,1	447	1	425	9
Far East & Asia	1267	3,9	1405	3,1	1721	3,6
East Europe	6906	16,6	7389	16,2	7772	16,2
Total	41553	100	45475	100	48069	100
					50625	100
					55244	100

Table 2.—World Production OPEC Share (1969 - 1977)

World product.	Rate of growth	OPEC	Rate of growth	(1)% 20)
1969	41,553	—	—	% 50
1970	45,475	20,774	% 11,7	% 51
1971	48,069	23,210	% 8,1	% 52,2
1972	50,828	25 083	% 6,6	% 52,8
1973	55,244	26,750	% 13,9	% 55,2
1977	60,480	30,470	% 12,8	% 60,1

Source : OPEC Statistical Year Book, 1972

Oil and Gas Journal, 25 Feb. 1974

Petroleum Intelligence Weekly, 4 Feb. 1974

1972 - 1973 estimate figures
(1977) PIW, 31 January 1977

Table 3 indicates ten top oil exporting countries in the world in 1975, Saudi Arabia as the biggest oil exporter as well as the largest producer (99% of production exported).

Table 3.—Top ten oil-exporting countries (1975)

	Thousand of barrels
1.—Saudi Arabia	7,430
2.—Iran	5,570
3.—Venezuela	3,400
4.—Kuwait	3,000
5.—USSR	2,360
6.—Libya	2,176
7.—Nigeria	2,000
8.—Iraq	1,830
9.—Abu Dhabi	1,291
10.—Canada	,995

It is true that the outstanding feature of post-war growth world industry was the pronounced regional shift in the pattern of oil consumption and supply.

The shift in supply and demand reflected the changed political and economic climate⁽¹⁾. Pressures for better life in Europe, expansion in Japan, evaluation in consumption patterns in the rest of the world, made serious changes in total demand. Russia has emerged once again as an export country of oil, and the second as largest producer and consumer⁽²⁾.

1 — More details : Charles Henry Alexandrowicz : International Economic Organizations, Stevens and Sons Ltd. London 1952 p. 150 - 170, Petroleum Press Services : Jan. 1956, pp. 4 - 5. Also : Statistical Review of the World Oil Industry, p. 19 (for following rate of growth both in production and consumption between 1949 - 1966).

2 — Ibid, p. 437.

In volume, the Soviet Union produces about half as much oil as the United States, and consumes about one third as much.

The U.S.A. in addition of being the largest producer and consumer of oil (table 4) has also become the largest importer of crude oil and products mainly supplied by Venezuela, Caribbean area and Canada.

Table 4.

Top ten oil producing countries (1975)		Top ten oil consuming countries (1975)	
thousand of barrels daily		thousand of barrels daily	
1.—U.S.A.	9,189	1.—U.S.A.	17,254
2.—USSR	8,420	2.—USSR	6,500
3.—Saudi Arabia	7,607	3.—Japan	5,300
4.—Iran	5,861	4.—West Germany	3,200
5.—Venezuela	4,364	5.—France	2,600
6.—Kuwait	3,024	6.—United Kingdom	2,300
7.—Libya	2,187	7.—Italy	2,200
8.—Nigeria	2,053	8.—Canada	1,700
9.—Iraq	1,964	9.—Netherlands	,900
10.—Canada	1,798	10.—Spain	,850

Source : The Oil and Gaz Statistics 1976

World demand for Arab oil before war represented a limited percent, merely 15% of total world oil needs but great changes took place after World War II, which promoted the total demand for Arab oil. The main features for this change are :

1.—First, the great expansion of world oil consumption⁽¹⁾ with 8% annual rate of growth, specially in Japan and West Germany.

1 — Detailed figures : B.P. Statistical Review of the World Oil Industry 1959, p. 21 and 1967 edition p. 21.

Arab oil fields attracted attention for their low costs, huge reserves and geographical position to importing countries⁽¹⁾.

2.—Second, shortage of dollar⁽²⁾ transferred world oil demand to Arab oil. European countries tried to reconstruct their economies after World War II. Suffering great deficit in their balances of payments, West Germany had to turn to Middle East and mainly to Arab oil.

3.—The third factor, was momentary one : When Iran's oil was nationalised in 1951, great oil companies stopped transportation and marketing Iranian oil. This was a golden chance for oil companies in the Arab zone to double their production, when these companies were helped by the huge reserves production and exportation facilities and the high degree of crude oil, thus a great expansion in oil production really began in the Arab World⁽³⁾

In 1952, Arab oil confirmed 21% rate of growth and in 1953 - 1954 (11% - 16%).⁽⁴⁾

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- 1—Results can be discussed at : Arabian American Oil Company (Aramco) Aramco HandBook 1960, R. 107.
 - 2—Charles H. Alexandrowicz : International Economic Organization — London 1952, pp. 150 - 151.
Also : Sahib Dahab : Arabic crude oil in world markets : P.H.D. Thesis (in Arabic) Cairo University 1969, pp. 433 - 435.
 - 3—Swadram : Op. cit., pp. 253, 332, 337, Longrigg op. cit., pp. 179 - 180 - 208.
 - 4—These high rates retreated after reexporting Iranian oil once again.

Table 5.—Arab Oil Exports (1974)

Million Metric	Tons	World Export %
Kuwait	03,18	17,1%
Saudi Arabia	79,92	13,3%
Iraq	59,18	8,8%
Qatar	10,11	1,6%
Abu Dhabi	9,11	1,5%
Libya	31,48	6,8%
Algera	24,82	4,1%
Arab Exports	327,52	54,4%
World Exports	602,52	100,0%

Table 6.—Arab Crude Oil Production (1946-1967)

	Arab product.	% World product.		Arab product.	% World product.
1946	120,1	4 %	1958	1281,5	19,3%
1947	161,4	5,3%	1959	1361,1	19,1%
1948	241,6	7 %	1960	1628,0	21,3%
1949	324,5	9,5%	1961	1776,6	21,7%
1950	415,7	10,9%	1962	2000,9	22,9%
1951	594,2	13,8%	1963	2330,1	25,5%
1952	772,4	17 %	1964	2724,5	25,2%
1953	893,6	18,6%	1965	3048,1	27,2%
1954	994,7	19,8%	1966	3477,1	27,7%
1955	1079,2	19,2%	1967	3632,6	28,4%
1956	1075,5	17,2%			
1957	1046,3	17,5%			

OPEC : Annual Statistical bulletin, 1966 pp. 28-31 Petroleum facts and figures, 1959 Contential Edition op. cit. pp. 433-434 and edition 1965 op. cit. p. 290 Statistical Review of the World Oil Industry 1966, p. 7, 17 The Oil and Gas Journal, December 25, 1967, p. 118-119.

In 1964, Arab oil exports represented more than half total world petroleum exports.

During this period Arab oil faced increasing competition from both substitute resources, and other energy resources (as Iranian, Russian and Caribbean crude and oil products),.

The world oil demand increased in 1967 to 13088 million barrels⁽¹⁾ U.S. consumed 34%⁽²⁾ of whole world consumption and the Middle East exported to America in the same year 310,3 thousand barrels daily from whole 1260,6 thousand barrels⁽³⁾ of U.S. oil imports.

Europe consumed in 1967 more than 9116 thousand barrels daily, Middle East and Africa exported 6915 thousand barrels daily, representing 74% of whole Europe's imports.

At present Europe imports 80% of its oil needs from Arab Zone, Japan 50%, U.S. 30%.

The most starting rate of growth in petroleum use has been in Japan, where the annual average increase for 1961-1966 was twenty-one percent: for the same period Western Europe's annual consumption thirteen percent only.

(1) World Consumption :

	Million Barrels
1900	150
1938	2700
1947	2700
1955	4900
1960	7884
1965	11333
1967	13088

2 — The percent of U.S. consumption retreated from 60 from world consumption in 1950, to 44% in 1960, then to 34% in 1967.

3 — The Oil and Gas Journal 1967 July 31, p. 123.

In 1972, world demand for petroleum products was 34,135 million barrels daily, shared between industrial countries (34,896 M.B.) and other countries (5,753 M.B.).

In 1973 total demand was 46,436 million barrels daily, 37,627 M.B. for industrial countries, 6,230 for the rest of the world.

It has been estimated that by 1977 world total demand for petroleum will reach fifty - eight million barrels daily of which the Middle East expected to supply more than twenty million. In 1977 Middle East actually exports 30 million barrels daily.⁽¹⁾

Through OPEC⁽²⁾ furthermore, it is expected by 1985 that world total consumption capacity will be 155 billion barrels daily, and so petroleum will represent 52% of whole world consumption capacity of power. (Table 7)

According to last estimations for petroleum demand by 1985 (except planned countries), it will be round 82 million barrels daily.

Table 7.—World Power Consumption (1951-70)

	1951%	1970%	1985%
Petroleum	40%	49%	52%
Coal	58%	25%	15%
Natural gas	18%	23%	19%
Water & atomic energy	2%	3%	14%

1 — Aramco Year Hand Book op. cit., p. 78.

2 — Aramco Year Hand Book, op. cit., estimated.

Source : (1) The Oil and Gas Journal No. 39, Vol. 6, 1973.

(2) OPEC : Atomic Energy and the future competition with Oil, 1973.

The greatest competitor of crude oil, however, is a related product often in association with it, that is natural gas⁽¹⁾. It is a form of energy that competes with both industrial fuels and home heating oils.

It is not used only for domestic purposes but also in industrial heating and petrochemical manufactures⁽²⁾.

In U.S. gas competed oil and coal for years, and is a growing competitor for both in Europe.

Large fields of natural gas have been discovered in Holland. These gas fields now serve a large network of gas transmission lines throughout North Western Europe.

Natural gas for commercial applications had encouraged companies to seek for its fields just as crude oil.

It was discovered with great amount in Algeria, Libya and Saudi Arabia in the Middle East, beside other countries in Europe and America, like North Sea and Alaska.

Top ten countries in gas reserves are USSR, Iran, U.S., Algeria, Netherlands, Saudi Arabia, Canada, United Kingdom, Venezuela and Nigeria. (Table 8)

1— Natural gas in a hydro-carbon gaseous form. It consists of propane, butane, or mixture of the two because liquid petroleum gas (LPG) is highly volatile. It must be kept in liquid form by either pressure or refrigeration. The liquid product is called "Natural Gas Liquids (NGL)". Usually gas is sent out by oil, it has no form and can't be seen or felt, but it has a strange smell, it burns if it is lit, and normally used for heating and light.

2— Aramco Year Hand Book, op. cit., p. 80.

Table 8.—Top Ten Countries in Gas Reserves End (1975)

Billions of cubic feet	
U.S.S.R.	706,000
Iran	270,000
U.S.A.	247,310
Algeria	105,945
Netherlands	92,000
Saudi Arabia	56,126
Canada	50,299
United Kingdom	50,000
Venezuela	42,000
Nigeria	40,000

Not including Saudi Arabia's share of
neutral zone gas reserves — Not including
Arctic gas.

Although natural gas has not the same importance as crude oil, it remains one source of energy sought by many industrial countries.

As to its economics,⁽¹⁾ it must be admitted that liquefied natural gas (LNG) operation requires higher capital investments but LNG could become a major competitor.

Petroleum industry has invested in 1972 more than 150 million dollars to produce, transport, refine and market the petroleum resources of the world.⁽²⁾

1 — Shell International Petroleum Co. The potential contribution of Gas with special reference to Natural Gas. A paper by Professor Dr. HS Kruisinga to the British Association for the advancement of Science's symposium. "World fuel and power resources and needs". Cambridge, England, September 1965, p. 8 - 9.

2 — The Oil and Gas Journal, 1976, p. 45.

To maintain these operations, and to supply the increasing needs of consumers, the oil industry must invest approximately twelve and a half billion dollars every year. Most of these funds must be generated from profits and from the reinvestment of depreciation reserves.⁽¹⁾

Petroleum and natural gas will represent 71% of world power consumption in 1985.

As it is clearly known petroleum's demand is distinguished an inelastic demand.⁽²⁾ (Considering petroleum product as the most cheaper source of energy in the world, more cheaper than any substitute, the fact that explains the promoting endless demand).

Western Europe and Japan are heavily dependent, and will be increasingly more dependent on Middle East oil in general, and on Saudi Arabia production in particular for a long time. Japan imports about 89% of its petroleum needs from Saudi Arabia.

The United States, nor particularly dependent on Middle East oil in early 1970's, is expected to look for satisfying about 40% of its oil needs in 1980 from the Middle East oil. Its dependence on Saudi Arabia — for example — will increase tremendously in the coming years. About 20% or one out of every five barrels of oil demand, and consumed in U.S. by 1980 will probably come from Saudi Arabia.⁽³⁾

Middle East Oil Production :

Oil producing countries in Middle East during World War II were Egypt, Iraq, Bahrein, Saudi Arabia and Iran. In 1938, total production was 121 million barrels, exceeded to 203,6 million barrels (rate of growth 69%) in 1945. Most of it derived from Iran (66%) and Egypt,

1 — The advanced researches (Oil and Gas Shortage by 1970). The Oil and Gas Journal, May 1963.

2 — Petroleum Elasticity of Demand, Isam K. Kabbani : Elasticity of demand of Crude Oil, its implications for exporting countries OPEC, Geneva 1964, pp. 10 - 25. Daniel C. Hamilton : competition in oil. The Gulf Cost Refinery Market 1925 - 1950 Harvard University Press, Cambridge 1958, p. 31.

Nielson : Robert S. : Oil Lanker Economics, Bremen, 1959, p. 39.

1 — Aramco year book, 1972 p. 80.

Table 9.—The leading areas : World Crude Oil Production (1914 - 1967)

	Middle East	Europe & Russia	Venezuela	U.S.	Total
1914	3,6	87,1	—	265,7	407,5
1918	10,5	42,5	93,0	355,9	501,4
1928	46,0	122,2	105,7	901,4	1324,7
1938	121,2	263,2	188,1	1214,3	1988,
1940	109,1	280,0	185,5	1353,2	2149,5
1941	83	296	228,4	1402,2	2220,2
1942	111,0	291,5	147,6	1386,6	2093,1
1943	119	264,7	177,6	1505,6	2265,6
1944	156,9	325,6	257,0	1677,9	2592,2
1945	203,6	197,8	323,1	1713,6	2594,6
	Middle East	Soviet Union	Venezuela	U.S.	Total
1946	265,4	157,6	388,4	1733,9	2745,4
1949	527,5	237,7	482,3	1841,9	3404,1
1950	657,2	266,2	584,7	1973,5	3863
1960	1952,2	1079,3	1041,6	2574,9	7674,4
1964	2778,	1637	1241,7	2779,4	10799,0
1965	3044,1	1784	1267,6	2848,8	10946,0
1966	3396,3	1945,4	1230,4	3038,6	12550,5
1967	3630,6	2277 (**)	1291,0	2323,3	12811,7

Source : Petroleum Facts and Figures; op.cit, pp. 432 - 437.

(**) plus Eastern Europe and China

which promote total production with a net rate of growth (49,5%)(¹) Saudi Arabia was at its earlier oil producing, that in 1938 total production was less than half million barrels, but in 1945 amounted to 21 million barrels.

Total world production increased six folds between 1918-1945. Middle East's production was representing 8% only(²). (Table 7.)

The most rapid increase in the world crude production was during the post war years, though, new Middle East fields discovered shortly before the war were brought into production to meet increasing demand for oil.

Between 1946-1950, Middle East production mounted from about 700,000 to 1,750,000 barrels daily, about twenty-six percent yearly, while the increase, for the rest of the world, was less than seven percent.(³)

Middle East steadily increased on importance and emerged as the world's largest crude oil producing area in 1965, when combined production reached 8,340,000 barrels daily exceeding that of the United States.(⁴)

1 — Egypt's production in 1938 was less than 1,6 million barrels, exceeded to 9,4 million barrels at the end of the World War II 1948. Petroleum facts and figures, 1958 Contential Edition op. cit., p. 433.

2 — Middle East Production per million tons :

1938	15,	M. Tons	1971	825
1962	300		1972	1061
1970	712			

The Oil and Gas Journal, October, 1973.

3 — Aramco year Book, op. cit., p. 78.

4 — Ibid, p. 78.

Table 10.—In 1967 leading crude oil producing areas were as follows :

	World production
Middle East	28,4%
U.S.	25%
USSR, East Europe, China	17,7%
Venezuela	10%
North Africa (Algeria, Libya)	7,1%(1)

Middle East in 1967 supplied almost all of the crude oil needed by Japan, and about half that used in Western Europe. As oil fields at Algeria, Libya and Nigeria were developed, Africa became one of the major producing areas, (Table 10) these countries are still in an area of rapid expansion with Libya leading African producers.(2)

Middle East petroleum products represented in 1970 (29,5%) world production, in 1971 the percent was 32,1% and in 1973 reached 37,9%. In 1977 Middle East production represented 60% of world production.

The greatest producer at Middle East actually is Saudi Arabia. Its production in 1973 was 7, 607 thousand barrels daily. (Table 10), In 1974. it mounted to 8,5 million barrels daily.(3)

Clear idea of leading countries in the Middle East is shown as follows: Saudi Arabia, Iran, Kuwait, Iraq, Abu Dhabi and Qatar.

Both Middle East countries and African ones produce more than 69% of world production.

1 — This figure was derived from :

Ep. Statistical Review of the World Oil Industry, 1966, p. 8. The Oil and Gas Journal, December 1967, pp. 118 - 119.

2 — Compare table No. (9 A) with table No. (9 B) Actually African countries produce 11,7% to 12,9% of world oil. The leading producing countries till 1967 ranked in order were : U.S., USSR, Venezuela, Saudi Arabia, Iran and Kuwait.

3 — In 1974, Saudi Arabian crude oil represented 15.3 percent of world output, 27.8 percent of OPEC — member production and 46.4 per cent of Arab countries output. Second Development Plan, 1975 - 1980. Saudi Arabia Ministry of Planning, p. 140.

Table 11. — World Crude Production (1967 - 1971)

	1967	1968	1969	1970	1971 +	Million Barrels
America + Others	14,643	16,641	16,984	17,616	37,6	17,431 34,5
Middle East	10,000	11,267	12,461	13,831	29,5	16,215 32,1
Africa	3,115	3,986	5,060	6,033	12,9	5,178 10,2
Europe, Far East	1,006	1,142	1,299	1,598	3,4	2,959 5,9
Free World	29,191	33,430	36,188	39,453	84,1	42,098 83,3
Communist bloc	6,074	6,528	6,965	7,459	15,9	8,443 16,7
Total	35,265	39,958	43,153	46,912	100	50,532 100

(+) Rate of growth to total production.

Table 12.—World Oil Production

	1950	1960	1970	1973
U.S.A.	51,7	33	23	
Middle East	16,7	25,2	30,5	
Latin America	19,5	18,5	11,4	
Eastern Bloc	8,7	15,9	16,8	
Africa	—	1	11,7	
West Europe	,4	1,4	,7	
Far East	2,3	2,6	3,	
Canada	,7	2,4	2,9	

Table 13.—Middle East and North Africa Oil Statistics Crude Oil Production (1973)

Thousands of barrels daily

	1973	1972	1971	1970	1969
Saudi Arabia	7,607	6,016	4,771	3,798	3,244
Iran	5,861	5,009	4,534	3,516	3,101
Kuwait	3,024	3,022	3,446	2,989	2,826
Libya	2,187	2,255	2,765	3,320	2,110
Iraq	1,964	1,500	1,693	1,518	1,521
Abu Dhabi	1,298	1,000	,933	,691	,599
Algeria	1,070	1,061	,679	1,040	,955
Qatar	,570	,450	,429	,361	,356
Oman	,293	,280	,287	,333	,328
Dubai	,220	,131	,125	,086	,020
Egypt	,165	,227	,295	,326	,245
Syria	,099	,120	,130	,081	,048
Tunisia	,083	,089	,087	,094	,077
Bahrain	,072	,072	,075	,077	,076

Aramco Year Book, The Oil and Gas Journal, December 1973

Includes one-half of neutral zone production.

Table 13 A. — World Oil Production (1976-1977)

Thousand barrels - daily

	1977	1976	%
America (North)	10,568	10,297	+ 2,6
Canada	1,322	1,377	— 3,8
Mexico	1,006	800,—	+25,7
United States	8,239	8,119	+ 1,6
America (South)	3,338	3,331	+ ,2
Europe (West)	1,297	775,—	+66,8
Europe (East)	11,497	10,834	+ 6,1
Africa	6,777	5,926	+14,4
Middle East	22,077	21,949	+ ,6
Far East	2,157	1,921	+12,2
Pacific area	2,546	2,293	+11
New Zealand	14,—	10,—	41,3
Total	60,480	57,542	0,1

Table 14. —World Oil Production (1973) Rate of daily production

(1976 - 1977)

(thousand barrels daily)

(thousand barrels daily)

	1973	1976	1977
America (US., Latin A.)			
U.S.	9173	8119	8,239
Canada	1794	1377	1006
Others	5146		
	16,133		
Middle East :			
Iran	5702		
Iraq	2093		
Turkey	65		
Saudi Arabia	8425		
Kuwait	3010		
Abu-Dhabi	1350		
Qatar	568		
Bahrein	68		
Muscat (Oman)	398		
Syria	120		
Dubai	293		
Israel	1000		
Neutral Zone	900		
	23,092		

Table 14— (cont'd)

1973

Africa (North)

Libya 2108

Egypt 235

Algeria 1100

Tunisia 89

Morocco 3

Africa (Black)

Nigeria 1990,5

Congo 45

Angola 15

Gabon 154

5732,8

Europe

Norway 35

West Germany 130

Austria 50

France 27

Holland 36

Italy 20

Spain 23

Denmark 4

United Kingdom 2

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Table 14— (cont'd)

	1973	
South East Asia		
Sarawak	330	
India	150	
Brunei	20	
Pakistan	9	
Japan	15	
Taiwan	2	
Thailand	2	
Indonesia	1347	
	<u>1923,2</u>	
Communist Countries		
Soviet Union	8454	
Rumania	275	
Yugoslavia	70	
China	630	
Others	105	
	<u>9534</u>	
Australia	445	
	<u>56440,4</u>	

The Oil and Gas Journal - October 1973.

CHAPTER II

World and Arab Oil Reserves

Oil reserves are crude oil discovered and still reserved underground. Oil reserves — from scientific point of view — are inclined to production, but only a certain amount can be produced according to actual costs and prices.

The link between oil reserves and oil supply in markets has to be estimated by distinguishing reserves as an economic and technical quantities, the latter means essential supply limits actually existed underground with extraction costs.

Economic considerations depend on relations between costs and prices at a certain moment. If this connection differs, the economic description will change too.

There are sorts of oil reserves: (1) "proved reserves" or recoverable reserves (estimated on scientific grounds). "probable reserves" (estimated existing quantities in unfully valued and amounted); "possible reserves" (reserves undiscovered and uncertain).

A quick glance to chief oil reserve areas all over the world, gives the following figures :

Table 15, — World Oil Reserves (1961 — 1967)

Year	Million	Barrels	Year	Million	Barrels
1961	309,975		1965	353,058	
1962	313,544		1966	389,050	
1963	331,042		1967	414,340	
1964	341,273				

1 — Bruse C. Netschert, *The Future Supply of Oil and Gas, A study of the Availability of Crude Oil, Natural Gas and Natural Liquids, in the United States in the period through 1975.* The Johns Hopkins Press, Baltimore, 1958, pp. 7 - 13.

Through 1961 - 1967 the biggest petroleum reserves were shared between five leading areas :

Middle East, North Africa, U.S., Caribbean and Soviet Union, representing 90% of total world reserves. In 1971 world oil reserves were 624,816 million barrels, Middle East leading as usual with 360,346 million barrels (Table 16).

Table 16.—World Oil Reserves

	1971 millions barrels
Ocean Zone and Asia	15,604
Europe	14,222
Middle East	360,346
Africa	58,886
Half Western Globe	77,257
Others (Communist Countries)	98,500

Oil and Gas Journal, Dec., 1971

As it is settled recently, the world's largest petroleum reserves lie in a sedimentary basin bounded by the Taurus Mountains of Turkey in North, the mountains of Lebanon and Syria and Highlands of Saudi Arabia on the west, and the mountain ranges of Iran and Muscat and Oman on the East. The valleys around the Arabian Gulf are all in this basin.

That means that the Arabian Gulf obtains and contains about 60% of the world reserves.

Although oil was discovered before World War II in this area, specially in Iran, yet its petroleum resources were not estimated and developed before 1944. In this year, the world's proved crude oil reserves were

more than fifty billion barrels, with fifteen and a half billion barrels or some thirty percent in the Middle East.

At the beginning of 1967⁽¹⁾ the proved world reserves were 898 billion barrels with 244 billion barrels or sixty-one percent from the Middle East. Most of these reserves are in countries around the Arabian Gulf and the Gulf itself. Proved reserves are the volumes of known deposits of crude oil which can be recovered by existing production methods

The highest percent of Middle East reserves to world's oil reserves was in 1955 (67%), but this percent retreated in the following years according to new oil discoveries in North Africa and Soviet Union⁽²⁾. Again, in 1977, it mounted to more than 60%

But — once again — Middle East reserves redeveloped. According to recent researches, this area restrains huge quantities of crude oil and natural gas. It was estimated in 1968 that Arab reserves⁽³⁾ represent about 400 billion barrels from 667 billion world's reserves (more than 60% of the entire world reserves, 70% of free world oil reserves).

Arab countries around the Arabic Gulf have now 60% of the total reserves, and Saudi Arabia alone stored as already as underground reserves more than 170 billion barrels, 30% of total world's reserves. Thus it comes as the first country retaining crude oil. (Table 17)

1 — Figures differ from Table No. 12 according to the beginning and the end of 1967, Aramco Hand Book, p. 87.

2 — B.P. Statistical Review of the World Oil Industry, years ; 1955, p. 17 ; 1963, p. 5 ; 1967, p. 57.

3 — Arabic Reserves in 1967 were 58,5% of world's reserves most of it from Saudi Arabia (19,6%) and Kuwait (18,4%) from world's reserves.

The Oil and Gas Journal, op. cit., 1968, p. 19.

Table 17.—Top Ten Countries in Oil Reserves End (1973)

	Million of barrels
1.—Saudi Arabia	173,270
2.—U.S.S.R.	80,000
3.—Kuwait	72,750
4.—Iran	60,000
5.—U.S.A.	34,700
6.—Iraq	31,500
7.—Libya	25,500
8.—Abu Dhabi	21,500
9.—Mainland, China	20,000
10.—Nigeria	20,000

Table 18.—Saudi Arabia's Crude Oil : Production & Reserves
(1960 - 1973)

				Million of barrels		
Year	Production	%	Reserves	Year	Production	% Reserves
1960	482,615	14,7	45,600	1967	1,023,840	7,9 80,000
1961	540,523	12,0	50,200	1968	1,113,717	8,8 135,000
1962	599,760	11,0	54,500	1969	1,173,895	10,4 136,700
1963	561,697	8,7	61,100	1970	1,740,632	18,1 138,700
1964	694,128	6,3	62,400	1971	1,740,632	25,5 138,260
1965	804,936	16,0	67,000	1972	2,201,961	26,5
1966	948,565	17,8	78,000	1973	2,772,605	25,4 17,270

Source : Central Planning Organization, Development Plan, 1392 (AH) (1972) p. 171

M'accord's Organization Researches, Aramco Handbook, Ministry of Petroleum and Mineral Resources, Saudi Arabia, 1972.

According to its huge quantities, Saudi Arabia can face deficiency in petroleum future consumption, its actual reserve figures indicate five times U.S. reserves including Alaska, 100 million of barrels⁽¹⁾ more than USSR's reserves. It is expected that the Arab area — with its hiding huge and developing quantities of combined petroleum resources — will last survive about 64 years, Saudi Arabia, conserving these minerals as an exceptional case, could conserve her priority for nearly 150 years.

In conclusion, Middle East, including Arab countries in North Africa, has and will continue to have a highly significant role in satisfying the energy needs in the world. The countries of these vast area deserts floating on a sea of oil are the possessors of the cheapest future energy in the world.

Table 19.—Estimation Crude Oil Reserves (end 1973) Middle East and North Africa

	Millions of barrels		Millions of barrels
Saudi Arabia	173,270	Syria	7,100
Kuwait	72,750		6,500
Iran	60,000	Oman	5,520
Iraq	31,500	Egypt	5,125
Libya	25,500	Dubai	2,500
Abu Dhabi	21,500	Tunisia	0,950
Algeria	47,640	Bahrain	5,360

1 — Two different figures to USSR reserves (95 billion barrels) according to Aramco Handbook, op. cit., p. 88 and (80 billion barrels) according to the Oil and Gas Journal, December, 1973, it may be explained by measuring in one of both with U.S. barrels.

Table 20.—Saudi Arabia's Crude Oil Production and Oil Reserves
(1962 - 1973)

Year	Million U.S. Dollars	Million Barrels	Year	Million U.S. Dollars	Million Barrels
1962	409,7	599,5	1968	926,8	1,113,7
1963	607,7	651,9	1969	949,0	1,173,9
1964	523,2	694,3	1970	1,540,0	1,386,3
1965	662,6	805,2	1971	1,944,9	1,740,8
1966	789,7	950,0	1972	2,779,3	2,201,8
1967	909,1	1,023,8	1973		

Sources: Revenues, 1962-1971 Saudi Arabia Monetary Agency Annual Report (1390-91 AH), p. 88, 1972, Saudi Arabian Monetary Agency, Statistical Summary, Shawal 1392, p. 54; Crude Production, 1962-1969, Central Dept. of Statistics, Statistical Year-book 1390 AH, pp. 232, 1970, 1972, SAMA Statistical Summary, Shawal 1392, p. 55, Aramco Handbook, 1973, According to Aramco handbook figures for other countries are as follows ; U.S. (38,8 billion barrels, Latin America 30,6; Canada 10,2; whole Europe 12.1 billion barrels), Aramco, Handbook 1972, pp. 86-87 Oil and Middle East.

CHAPTER III

Economics of Arab Oil

It is difficult to cover in this brief study all the main problems and questions arising in the field of oil economics. Being confined to our topic, the importance of Arab oil strategy, we will follow oil revenues in developing Arab countries, their effects on Arab economy. Thus, a glance to oil total costs, Arab oil costs and oil prices and revenues is a necessary introduction for such a study.

(1) Petroleum Production Costs:

Production costs arise many discussions: first: their difficulties caused by insufficient available data and obscure statistics⁽¹⁾, second: different valuation bases for both fixed and variable costs; third : distributing fixed costs between what so-called "Exploration or Finding Costs and Development Costs"⁽²⁾ which rises up what so-called "Total Costs" including both fixed and variable costs"⁽³⁾.

Oil industry is distinguished by high fixed costs. In U.S., Venezuela, and Algeria, total costs consist of 90% fixed costs and 10% variable ones. In Saudi Arabia, Libya and Iran 85% for fixed costs against 15%; Iraq 70%, 30% for fixed and variable costs⁽⁴⁾.

1 — Many references mention these difficulties as : U.N. Economic and Social Council, Economic Commission for Europe ; The price of oil in Western Europe 1970, pp. 11 - 16 ; Issawi and Yeganeh, op. cit., p. 84 ; also, R. Cassady, Price Making & Price Behavior in Petroleum Industry, p. 79.

2 — H. Frank ; Crude Oil Prices in the M.E., A Study in Oligopolistic Price Behaviour NW Preager, 1966, p. 143, Sahib Dahab : op. cit., Ch. 2. pp. 126, 128.

3 — Some researches mentioned that "exploration or finding costs" represent 40% of total costs, the same as development costs. As for variable costs it is about 20% of total costs which indicates high rates of fixed costs in oil industry.

Sahib Dahab : Arabic Crude oil, op. cit., pp. 152 - 155.

4 — Figures of 1959.

High fixed percentages are due to certain particular factors :

1.—Exploration periods require great expenses for exploring and discovering, linked with need for huge equipment and machines as well as direct and indirect facilities.

Table 21. World crude oil costs in leading areas (1966)

	Average cost cent/Barrel		Average cost cent/Barrel
U.S. (1961-1962)	151	Arab countries	
Venezuela (1962-1964)	62	Iraq (1962—	4
Nigeria (1964)	31	Kuwait 1964)	10
Iran (1962-1964)	7	Saudi Arabia	10
		Libya (1963-64)	15
		Algeria (1962-64)	46

2.—Difficulties of Oil Existence Certainty : In spite of scientific progress in geological researches, tripping up potential crude oil is still limited with luck more than any other factor. In 1962, it was estimated that probabilities of oil discovery were more than 1:9. For Arab countries, it was not that difficult; in 1960 Saudi Arabia had 196 productive wells⁽¹⁾ with 3000 million barrels as reserves, hadn't required for discovery and exploration more than digging 17 wells only, while U.S., in the same year, had to dig 46810 wells to obtain 1183 million barrels only⁽²⁾. Briefly

1—Melvin G. de Chazeau and Alfred E. Kalin : *Integration and Competition in the Petroleum Industry* Petroleum Monograph Series, Vol. 3, New Haven, Yale University 1959, p. 67, Frankle, op. cit., pp. 18 - 43. For more readings : M.A. Adelman: *Oil Production Costs in Four Areas*, reprinted from the *Proceedings of the Council of Economics*, presented at the Annual Meeting of the American Institute of Mining, Metallurgical and Petroleum Engineers, Feb., 28th, March 2nd., 1966.
(A quiet perfect study with statistics and estimation).

2—Only 28 dry and deserted wells.

3—Petroleum Facts and Figures, 1963, op. cit., p. 272.

dry and deserted wells raise (average of fixed costs) and (average of total costs).⁽¹⁾

3.—Difficulties belong to underdeveloped areas circumstances which cause additional costs for developing its internal infrastructure, and require larger sums of fixed costs. In spite of all these difficulties, all studies indicate that Arab and Middle East oil production costs are known as to be the lowest in the world.⁽²⁾

Average of daily production of Middle East oil well is about 4,500 barrels, this average is 300 barrels daily less than Venezuela wells, and only fifteen daily for wells of U.S.A.⁽³⁾

Middle East wells are also free flowing⁽⁴⁾, while oil is pumped out of American wells and in other major producing areas, such as Venezuela.⁽⁵⁾

Additionally, much of the Middle East oil is produced from fields close to the Arabian Gulf near marine shipping points, as well as North African fields (Libya - Algeria) close to the Mediterranean costs.

These savings are considerable, if compared with the high costs of plant and equipment and other operating expenses in other oil regions.

Factors of Lowering Costs :

1. Production Abundance :

The more wells flow out with ordinary costs; the more the average of total costs decreases.

1 — For other details :

Sahib Dahab : op. cit., pp. 156 - 157 (dry wells are empty from petroleum traces, it is called Dry Holes).

2 — United Nations Economic Commission for Europe, op. cit., p. 15.

3 — ARAMCO Handbook, op. cit., p. 90.

4 — Arabic oil wells (Saudi Arabia, Iraq, Kuwait, Qatar and Bahrein) are all free flowing ones, which save much costs.

5 — Oil production costs are lower than any other part of the world for particular facts :

A — The great difference between production costs levels in Arab countries and Iran, and rest of the world,...

Middle East, especially Arab Gulf Zone, is considered to be one of the most productive areas in the world according to high oil rates of daily-produced-oil. This zone and the West Africa zone succeeded to lower the total costs of production to least ratio.

2. Oil Companies, Economic and Financial Privileges :

Petroleum agreements between oil companies and Arab countries took place through certain circumstances which enabled the former to obtain large facilities in return of feeble revenues⁽¹⁾.

3. Wages :

Arab petroleum industry is distinguished by its low wage rates in comparison with other world regions. Diminishing (wage rates) are due to crude oil production and exportation as raw material. Refinement stages represent only 20% of whole refinement world capacity. As it is well known refinement industry is one of the most "labour-intensive" industries, distinguished by its labour wage rates.

Additionally, petroleum industry in the Arab zone does not include marketing, transportation, petrochemical industries, etc., except through few limited stages.

4. High Profits :

It is considerable to presume that low cost standards for Arab crude oil industry created a wide gap between production and price levels,

=...B— Average total costs at Arabic Gulf in 1963 were lower than European ones. Iraq proved lowest levels, according not only to huge reserves, and high productivity of fields and wells but also owing to oil companies slacken in expanding exploring and discovering operations. Foreign investments at oil industry are not sufficient to double productive capacities in Arab countries. For example in U.S. to promote productive capacity with one barrel daily require investing 3155 dollars while in Iraq it requires only 69 dollars, it was expected to induce foreign capital to low costs areas, but in the contrary. leading oil companies authority hindered any capital expenses to develop oil fields.

Sahib Dahab, op. cit., p. 168.

1— For further details to "Agreements terms =/ Nicolas Sarkis : Le pétrole et les Economies Arabes. Librairie Générale de Droit et de Jurisprudence, Paris 1963, pp. 14-17-20.

Issawi and Yeganeh, op. cit., p. 48.

which, in turn, maximised ordinary and extraordinary profits to highest degrees. These privileges attracted oil companies to begin new explorations in undiscovered areas.

The third effect of reducing oil total production costs, is that world's oil consumption began to rely upon Arab oil. The Arab crude oil supply was directed to world markets with decreasing prices⁽¹⁾. Competing American and Caribbean oil at European markets, and in the American market itself. Cost reduction has also a political effect : great oil companies, hurrying to enforce its authority over cheap oil resources, succeeded in the long run to impose their countries political power over some oil producing and exporting governments.

So to the Middle East, huge reserves and low production costs inevitably have attracted more and more oil companies to seek concessions in the Gulf Area.

On the other hand, Middle East governments, too have a keen eye to use their oil resources in financing their development plans and in developing these resources .

For most of these nations, the high rate of their incomes is due to:

Figures indicate how costs differ largely as well as profits in the Arab oil area, assuring the strategy position of oil resources on their economies (Table 22).

1 — Many changes occurred within recent years in oil terms and prices as it will be explained after.

Table 22.—Costs of Barrel Production (1962-1965)

	Period of experiment	Total costs of barrel production (cents)
U.S.A.	1961-1962	151
Venezuela	1962-1963	62
Nigeria	1963-1964	31
Libya	1964-1965	15-
Iraq	1964-1965	4
Kuwait	1964-1965	10
Saudi Arabia	1964-1965	10

A quiet big difference between total Arab costs per barrel and others. It is not only a question of easy shipping or natural underground existence but also human and economic circumstances which share actually in decreasing total costs.

Besides, we must also admit that foreign investment directed to the Middle East, Africa and Arab area is more less than the capitals directed for investment and in Canada and Latin America.

Table 20 indicates the capital invested, net profits in Africa and Arab countries compared with the rest of the world.

Table 23.—Petroleum Investment and Net Profits (1972)

	Capital invested	Net profits	Million dollars
Canada	4088	160	3,9%
Latin America	2976	402	15,2%
West Europe	2149	34	1,6%
Africa	1567	483	(30,8)%
Middle East	1657	1609	(64,5)%
Far East	1146	75	6,5%

Simple conclusions proof that Middle East and Arab areas are considered to be of the most profitable zones for foreign investment in oil field. Profits confirmed 64,5% compared with only 1,6% derived from capital invested in oil industry abroad.

It is beyond this research to go far seeking for factors and results in details all over the world. But it is worthy to study some important aspects of Arab oil industry as oil prices, Arab oil revenues and its role in framing national income and financial and economic policy, and oil revenues shape the destiny of these developing countries.

CHAPTER IV

Arab Crude Oil Pricing

According to previous conclusions about oil supply and demand, crude oil demand as a derived demand from refined products is considered to be an elastic demand at least in the short run.

As a result, it provides petroleum projects with agreeable chances to impose the most profitable prices, and not to decrease both demand and actual prices.

Circumstances supported monopolistic organizations in oil markets, resulting "unified price".

Numerous kinds of prices and discriminations due to disparity of geographical position between production and consumption centres, created what so-called "geographical price difference" and "price discrimination", through perfect and imperfect competition markets.⁽¹⁾

Mexico Gulf as "Single-Basing Point System" gave Arab oil two kinds of prices. Through World War II "Posted Prices" were imposed to Arab Gulf, and Eastern Mediterranean costs⁽²⁾, so "actual price"⁽³⁾ or "realized prices", in addition of numerous types of prices through different agreements managed as a whole oil market.

"Posted Prices" are prices at which supplier will sell oil to purchasers in cargo lots F.O.B. The supplier's terminal created a monopsony type⁽⁴⁾ and a denominative system. It was steady prices, even during postwar. As to monopolistic prices it had no actual fluctuations, remained as a continuous fixed ones.

1 — Mode details, Issawi, and Yeganeh, op. cit., pp. 62 - 70.

2 — Published Prices : Arabic Gulf's Independent Prices F.O.B. represents "Second Basing-Point".

3 — Prices fixed according to normal supply and demand.

4 — H. O'Connor : The Empire of Oil, p. 9.

Actual prices (realized) in posted price after "cash discount"⁽¹⁾

It was not so difficult to impose these types at Middle East oil, as it shared only 10% of world trade at 1939, 17% at 1938.

Oil Price Fluctuations and Arab Losses :

In 1948 Middle East crude oil reached 2,22 dollars per barrel (Table 24). (Exploration costs 17 cents per barrel, government share 4 shillings per ton), (21 cents).

Table 24.—Crude oil Prices : 1974-1971

	1974	1961	1971
Arab Light Crude Oil (Ras Tanura)	2,22	1,80	2,18
Crude oil (Kirkouk).	2,41	2,21	3,21
Libya Crude Oil	—	2,53	3,44

Net profit for oil companies: 1,84 dollar per barrel.

Even more on July 1948 crude oil prices decreased to 2,3 dollars per barrel at Ras Tanura, 1,97 dollars for Kuwaitian oil.

In 1949 another reduction was imposed : (1,88 dollars) for Kuwaitian oil and 1,75 dollars for Arab Gulf oil as whole.

1 — Other types : "Preference Price" : between "posted price" and "realized price" less than the former, more than the latter, fixed according to average both posted and actual prices during certain time.

Also : "The Dual Basing-point System", equalizing both Mexican (FOB) prices, and Arabian Gulf's (FOB) prices, led to a gap between price levels.

Table 25.—Crude oil Prices (1950-1953)

	Saudi Arabia	Venezuela	Petroleum price
	Ras Tanura	Ofsina	West Texas
Price F.O.B. transportation	1,75	2,65	2,76
Costs (U.S.M.C.) 35%	1,12	0,24	0,24
Crude oil import taxes	0,11	0,11	
	2,98	3,00	3,00

Source : United Nations Economic Commission of Europe, op. cit., pp. 10-11

Report : to OPEC, by Arthur D. Little

After the Korean war, oil companies raised prices (25-30 cents) inspite of increasing oil world supply, as to support American oil towards cheap Arab oil.⁽¹⁾

In 1956, after closing Suez Canal, oil prices jumped once again (13 - 45 cents per barrel more)⁽²⁾. When the Canal reopened in 1959, American import restrictions, new producing oil centers at North Africa, evolution of Latin American's production, transportation costs reduction⁽³⁾, all reduced oil prices more than 80 cents for crude oil per barrel and reduced also "posted prices" in Middle East to 10-18 cents per barrel.

Although these serious fluctuations affected deeply Eastern Governments' incomes, yet oil companies declared their absolute rights to fix

1—Petroleum Facts and Figures, 1959, p. 52.

2—Petroleum Press Service, Feb. 1957, p. 41.

3—Leonard, M. Fanning : The Shift of World Petroleum Power away from the United States Gulf Oil Corporation, Pittsburg, April, 1958. Petroleum Facts and Figures, 1959, p. 62.

prices according to an administrative right without any governmental interference.⁽¹⁾

The last reduction of oil prices in 1960 caused great losses for Arab economics.

In January 1959⁽²⁾ Arab oil's price before reduction was 2,08 dollars per barrel, but in February 1959, it became 1,90 dollars, and in August 1960 it was 1,80 dollars. (Table 26)

Table 26.—Middle East Crude Oil Prices (1954-1960)⁽³⁾

	Price before Feb. 1959	Price after Feb. 1959	Price in 1960
Saudi Arabia (Ras Tanura)	2,08	1,90	1,90
Iraq	2,49	2,31	2,18
Kuwait	1,85	1,67	1,59

As a result of these price reductions, Arab countries lost great amounts of profits. It was estimated that the Middle East countries members of OPEC⁽⁴⁾ lost, within 1960-1963, 2900 million dollars, while total losses for all Arab countries during the period 1953-1963 were 5486 million dollars.

1 — Walter, J. Levy : The Past, Present, and likely Future Price Structure for International Oil Trade. Third World Petroleum Congress, proceedings Sec. X, Leiden E.J., Brill, 1958, pp. 116, 127.

2 — In 1957 Saudi Arabian's Oil Price was 2,10 dollars per barrel, in 1960 with 17% reduction was only 1,84 per barrel.

3 — Petroleum Press Service, January 1953, p. 40 ; September 1960, p. 322 ; September 1967, p. 358.

4 — Saudi Arabia, Kuwait, Iraq, Qatar.

Table 27.—Arab Oil Countries' Losses (1953-1963)

Million dollars

Year	Kuwait	Saudi Arabia	Iraq	Qatar	Algeria	Libya	Total
1952	105	89	62	—	—	—	256
1954	132	115	68	—	—	—	305
1955	128	96	59	—	—	—	273
1956	—	—	—	—	—	—	—
1957	174	124	54	12	—	—	364
1958	255	155	105	20	—	—	435
1959	235	157	114	25	—	—	531
1960	283	182	134	23	19	—	641
1961	302	220	148	25	42	—	737
1962	340	249	148	26	55	39	857
1963	364	271	172	27	63	90	987
Total	2319	1638	1063	158	179	129	5486

Arabs' losses were out of discussion, but it was one of the fundamental reasons that induced oil producing governments to face the rigid situation for sensible compensations.

CHAPTER V

Events Leading to OPEC

Oil producing and exporting countries base their economies and economic growth entirely on exploitation oil resources.

They learned the lesson that it is fairly enough for them to obtain considerable returns through fixed and stable prices avoiding all sorts of fluctuations and evaluations, which affect seriously their economic programmes. Oil revenues represent about 90% of their budget revenues and 60% of their national production.

On the other hand, it was important to establish certain rate of production growth so as to equalize both producing and consuming countries rights.

So, it was necessary for oil countries to take a certain attitude in order to preserve their interests. As most of OPEC members are actually developing countries, they rely on their petroleum returns heavily and fundamentally for their economic and social development.

Before OPEC, most of petroleum countries built relations with oil companies and trimmed them by agreements, that defining the privileges granted to them, with respect to exploration and production of oil and oil products; establishing particular compensations towards privileges granted. Considerations of space prevent a detailed analysis and discussions for all contractual points, but it would help to mention briefly some considerations.

During 1933-1949, the basic compensation (royalties) was laid down and the largest extent of concession area and eventual relinquishment of parts of this area were agreed upon between Saudi Arabia and ARAMCO (one of the largest and most powerful oil companies). In addition, a number of minor agreements changes occurred during war time and according to war circumstances.

During the period from 1952-1972, oil agreements in Arab region were amended. According to the new clauses, sharing of exploitation profits became as it was so-called "fifty-fifty". This paved the way to recent agreements after OPEC.

Arab governments aimed to establish a precise definition of the country's taxable net income and a stable starting point for tax liability calculations.

Among the major changes, especially in Saudi Arabia, were the use of "posted prices" in billing to all offtakers, capitalization of exploration and intangible development costs, expanding of royalties, the elimination of third party sales and the Organization of Petroleum Exporting Countries (OPEC) allowances.

From 1950-1960, more changes took place after some bilateral negotiations between Arab governments and oil companies, specially Saudi Arabia and ARAMCO.

Since 1960, almost all changes were agreed upon within the frame work of OPEC.⁽¹⁾

OPEC's earlier influence did not extend more than stiffening oil prices during 1960-1970.

1 — OPEC. "Organization of the Petroleum Exporting Countries" formed at 1960 after Baghdad's Conference (September, 1960) (Iran, Iraq, Kuwait, Saudi Arabia, Venezuela and Qatar, 1961; Libya, Indonesia, 1962; Abou Dhabi, 1967; Nigeria, 1969; Ecuador, Bahrain, 1972).

Table 28.—Prices for Saudi Arabia Crude oil : 1963-1974

Dollar-barrel

Crude Oil	Crude oil		
	Heavy oil	Medium	Light
1963	1,47	1,59	1,80
1964	1,47	1,59	1,80
1965	1,47	1,59	1,80
1966	1,47	1,59	1,80
1967	1,47	1,59	1,80
1968	1,47	1,59	1,80
1969	1,47	1,59	1,80
1970	1,56	1,68	1,80
1971	2,06	2,19	2,29(i)
1972	2,24	2,37	2,48(ii)
1973	2,35	2,50	2,60(iii)
1973*	4,63	4,90	5,12
1974	11,41	11,56	11,65**

(i) Prices after Tehran First Agreement on 14-2-1971(Prices 1-6-1971).
1963-1972 : Statistical Year Book, Saudi Arabia 1393 AH, nine
issue, p. 244, 1973

(ii) Prices fixed according to Geneva Agreement, 20 Jan. 1972

(iii) Prices fixed after Second Tehran Agreement, 1-1-1973

(*) Prices fixed by Gulf's Countries, 16-10-1973

(**) Prices fixed by Gulf's Countries, 1-1-1974

Posted price levels in 1970 were less than 1957's of about 17% (table 28), Saudi Arabia's light oil's price was not more than 1,8 dollar per barrel, government's share was only 80 cents per barrel, but the world inflation continued to raise prices of imported goods and services, and

this factor led to acute changes. So Saudi Arabia played an important role in OPEC. OPEC demonstrated its growing strength by achieving a major correction in posted prices in February 1971 (The Teheran Agreement). The complete record of price corrections, as shown below in terms of posted prices of Arabian light (Ras Tanura), is an ample testimony to OPEC's increasing effectiveness

Table 29

Date		U.S. dollars	
pre	15-2-1971	1.800	pre Tehran
	15-2-1971	2.180	Tehran agreement
	1-6-1971	2.285	
	20-1-1972	2.479	Geneva agreement
	1-1-1973	2.591	
	1-4-1973	2.742	
	1-6-1973	2.898	Revised Geneva agreement
	1-7-1973	2.955	
	1-8-1973	3.066	
	1-10-1973	3.011	
	16-10-1973	5.119	
	1-11-1973	5.176	
	1-12-1973	5.036	
	1-1-1974	11.651	
	1-11-1974	10.460	

Saudi Arabia - Second Development Plan 1975-1980, p. 142

In 1970 Libya succeeded in raising its oil price and taxes (more than 50% : 55% within political pressures), 1970 was a decision year, arranged for Tehran First Agreement (14.2.1971) after hard and long negotiations. Although it was considered a good step to obtain more privileges, yet industrial consumption countries maximised their national income derived from taxes, to six fold exporting countries' incomes.

Oil companies profits from Middle East increases were more than hundred fold which represent imaginary figures in comparison with other profits at any industrial sector.

In 1970, Saudi Arabia's income tax was calculated according to a certain system⁽¹⁾. Yet the bargaining between the government and ARAMCO continued.

Owing to dollar devaluation, world-wide inflation and the Arab-Israeli dispute (October, 1973) OPEC demanded additional benefits for the host country. According to Tehran Agreement, February 1971, the company agreed to increase "the posted prices" of barrel (of 40° API gravity crude) by 33 cents plus two cents in settlement of freight disparities. For other crude (below 40° API gravity) a reduction of 1,5 cents per degree differential per barrel was agreed upon down from the previous two cents. The agreement provided for the elimination of all special allowances and raised the tax rate from 50 percent to 55 percent, then to 65% and at 1974 reached 85% which means more tax revenues as shown in Table 29.

1 — The posted price per US barrel was reduced by OPEC and Gravity Allowance and a Marketing Allowance (API Gravity is a numerical scale developed by the American Petroleum Institute for stating the weight or density of liquid petroleum).

The amount of "Gravity Allowance" was based on the number of degrees API Gravity above 27 degrees, from this a justed posted price production expenses to the shipping point and royalty expense (12,5% of the posted price) were substracted. The resulting remainder was considered net taxable income per barrel fifty percent of which was the income tax due per barrel.

Table 30.—Saudi Arabia's Income Tax Revenues Oil Companies
(1966-1974)

Million Saudi Riyals

Income tax oil company

1965	2186,5	
1966	2783,4	
1967	2388,8	
1968	3018,8	
1969	3459,3	
1970	3863,5	
1971	7628,2	
1972	9568,8	
1973	15930,0	
1974-1975	56871,0	estimated

Statistical Year Book, 1973, p. 336

* Last two years include income tax for companies and individuals.

Furthermore, the company agreed to 2,5% annual increase in posted prices plus an annual increase of fixed cents per barrel in these prices as of June 1971. It was expected that this agreement would increase the government's receipts by about thirty cents in 1971 raising to about fifty cents per barrel in 1965.

Despite of favourable outcome of "the Tehran discussion", the oil producing states continued to press for better concessions.

A supplemental agreement, "The Geneva Agreement" signed on January 1972, raised posted prices at Ras-Tanura, and Sidon by 8,49 percent effective in the same month.

In May 1972, OPEC formed a maritime Company for petroleum transport with paid capital of U.S.\$ 100 million.

In December 1973, Saudi Arabia, Bahrein, Abou Dhabi, Iraq, Qatar, Kuwait, Libya and Egypt signed the articles of association for establishing shipbuilding, and drydock facilities at Bahrein, with paid capital US \$ 30 million.

In September 1974, OAPEC, formed the Arab Petroleum Investment Company to be located at Dahrán, with paid capital 30 million dollars.

Meanwhile Saudi Arabia maximized its revenues more than six folds to seven folds within 1971 - 1974. (Table 31).

Furthermore, it was agreed then that in the future, posted prices would be calculated quarterly based on prevailing exchange rates⁽¹⁾.

Table 31.—Saudi Arabia's Revenues per Barrel (1970-1974)

	Dollar per barrel		
	Crude Oil		
	Light Oil	Medium	Heavy
31-8-1970	0,989	0,930	0,143
15-2-1972	1,261	1,203	1,106
20-1-1972	1,448	1,384	1,302
1-1-1973	1,516	1,450	1,367
1-6-1963	1,702	1,628	1,535
16-10-1973	3,040	2,917	1,754
1-1-1974	7,008	6,954	6,881

1 — Arab Governments Oil Revenues were estimated about 52 Billion Dollars in 1974, 62 Billion in 1975 — 1976. By 1980 exports estimations (110 Billion) Dollars or more.

In fact, the amount of oil revenues received by Arab countries (governments) during this decade were determined by four factors :

- a) Total crude oil output
- b) Crude output mix,
- c) Output of refined products
- d) Special payments resulting from retroactive application of agreement changes.

Tables Nos 32 - 33 indicate total Arab revenues.

Table 32.—Arab Countries Petroleum Revenues

	1961	1964	1967	1970	1971	1972
Kuwait	464	655	718	897	—	—
Saudi Arabia	400	651	852	1200	1944.9	2779.3
Iraq	266	353	361	513	—	—
Abu Dhabi	—	12	105	231	—	—
Qatar	53	66	102	122	—	—
Libya	3	197	631	1295	—	—
Others	13	14	24	150	—	—

Statistical Year Book, Annual Report, Saudi Arabia Monetary Agency, 1972, Research Center for Industrial Economies,

Table 33.—Saudi Arabia's Oil 1968 - 1973 Revenues

Million dollars

	Revenues	Rate of Growth %
1968	926,8	1,9
1969	949,0	2,4
1970	1214,0	27,9
1971	1884,1	55,3
1972	2743,1	45,0
1973	4330,9	58,0

Source : 68-73 Saudi Arabian's Monetary Agency, Annual Report 1392-1393 AH, p. 27

Oil Prices After 1973

The year 1974 was an oil revolution year; prices fastly amounted from 5,03 dollars per barrel (October 1973) to more than 11,65 dollars per barrel (1st January 1974). Though there was a reduction to 11,251 dollars by Gulf states at November 1974, yet it was compensated by a higher rent percent from 16,67% to 20%, and a higher income tax to 85%.

Saudi Arabia and Aramco signed an agreement through which the government acquired a 25 percent interest in Aramco's crude oil concession rights, in crude oil produced and in production facilities.

On 5th of June 1974, the government interest was increased to 60 percent effective on 1-1-1975.

Saudi ownership of Aramco operations is a major step towards establishing a Saudi-owned integrated production marketing operation, to control the exploitation of its hydrocarbon resources.

Kuwait and Bahrain, Qatar, Abu Dhabi, Oman, obtained also 60 percent in 1975 as well as Saudi Arabia. Table 34 clarifies Middle East oil prices through recent seven years till 1977. Table 35 deals with Arab oil prices according to last agreement in that year.

Table 34.—Middle East Oil Prices (1970-1974)

Agreements	Crude Oil		
	Light	Medium	Heavy
1963-1970	1,800	1,590	1,478
31-8-1970	1,800	1,680	1,560
1-10-1970	—	—	—
14-2-1971	2,180	2,080	1,960
1-6-1971	2,285	2,187	2,064
20-1-1972	2,479	2,373	2,239
1-1-1973	2,591	2,482	2,345
1-4-1973	2,722	2,626	2,381
1-6-1973	2,898	2,776	2,623
1-8-1973	3,066	2,936	2,775
1-10-1973	3,011	2,884	2,725
16-10-1973	5,119	4,903	4,633
1-11-1973	5,176	4,957	4,684
1-12-1973	5,036	4,922	4,557
1-1-1974	11,561	11,561	11,411
1-11-1974	11,250		
14-7-1977	12,700		
Reduction by Gulf Countries			

Table 35.—Arab Oil Prices : 1-1-1974⁽¹⁾

Country	Degree	Prices	Country	degree	Prices
Abou-Dhabi	heavy	12,575	Huwait	light	11,671
	medium	12,636	(Ahmady)		
	light	12,686	Oman	light	12,298
Saudi Arabia	heavy	11,441	Qatar	light	12,414
(Ras Tanura)	medium	11,651		light	12,013
	light	11,661			
Iraq	light	11,671			

At Vienna Meeting (September 1975) fixed oil prices were to be stabilized till October, then 10% more till May 1976. Saudi Arabia objected any change to raise oil prices, but the 10 % more continued till Doha Conference on 15-13-1976. (Table 36)

1 — Petroroleum Review, vol. 8, No. 23, p. 4 - 5.

Table 35.—Arab Oil Prices 1975 (October 1975)

	Degree	Seb	Oct	%	Degree	Seb	Oct	%	
Saudi Arabia	34	11,251	12,376	10	Nigeria	34	11,663	13,071	10,6
Iran	34	11,475	12,495	8.9	Indonesia	35	12,600	12,800	10,6
Qatar	40	12,014	12,740	6	Venezuela	31	14,434	11,479	9,1
Abu Dhabi	39	11,686	12,815	9.7					
Kuwait	31	11,145	12,260	9					
(crude kargi)	28	11,061	12,168	10					
Algeria		11,750	12,650	8.5					
Libya	40	14,600	16,060	10					

Prices After 1977

On 15-12-1976 there were two points of view, at Doha Meeting, Saudi Arabia's insisting on no change in oil prices more than 1975 levels; Iraq' firmly fought to raise oil prices to about 25% more.

Majority of OPEC members agree to raise prices to 10 % on 1-1-1977, plus 5% in July the same year.

Saudi Arabia and Emirates were the only exception from the deal, they raised prices to 5% only.

Great reactions took place after this agreement, both politically and economically, all over the world.

World inflation ⁽¹⁾ exceeding world prices; devaluation of US dollar, floating some other currencies; all this gave good reasons to OPEC to demand higher levels of oil prices.

Three main points can be discussed through this new price policy :

- A) An economic one which aims to obtain a suitable compensation for great losses resulting from permanent devaluation of oil surplus
- B) A political one, trying to impose more strength with certain condition to the Middle East problem.
- C) A special one, hoping to give OPEC big push, as the Organization had come almost unscathed through a major time of testing.

As it is well known that OPEC faced serious and hard attacks; all cartels eventually founders, and Western oilmen with industrial governments alike have hoping hard that the day of the Organization of Petroleum Exporting Countries would come soon.

Yet any hope diminished as OPEC goes on as a cartel stronger than ever.

As to price policy, and as OPEC's biggest producer (Saudi Arabia) still leads the production and price policies, it was agreed at Caracas

1 — World inflation jumped within one year (1976-1977) to more than 20 - 30 percent. Meanwhile OPEC fixed oil priced till the end of December 1976.

meeting in December 1977 that prices should be frozen during 1978 till the coming meeting.

A study by the Federal Energy Administration comes to the gloomy conclusion that OPEC's power, should continue for at least the next fifteen years; and that there is little the West can do to keep oil prices from rising above \$ 16 a barrel in the near future.

But "the near future" came true so soon. Prices mounted again in December 1978 to 5% more with gradually rises to 13,9% till the end of 1979. This Abu-Dhahi meeting mentioned that during 1979 prices will go up as follows : 3,89% April 1979, 2,29% July 1979, 2,69% October 1979 with total rise to 13,9% at the end of the year.

According to this, recent prices will be 14,6 dollars per barrel (12,7 dollars, 1978).

Saudi Arabia declared that there will be a hard position against any other higher prices, and that the year 1980 will be the year of stabilization in oil prices.

Several reactions took place in January 1979. It is estimated that the West and industrial economies will face a burden of 140 billion dollars more in losses as a result of the recent prices.

It is clear that the recent escalation of oil prices led to an accusation that it presents a potentially deadly threat to the stability of the monetary system and to the maintenance of high employment levels in the developed economies of the West. As it is known that "government take" by Middle East and North African oil producing countries was raised by 70% on October 1973 (in terms of US dollar) and by 130% on 23 December 1973, the total increase in the revenues which the oil-producing governments receive per barrel has, therefore, increased by 290% which means oil tripped in prices.

It is estimated that if North Africa and Middle East oil producers succeed in spending, at most, three-fifths of their new oil revenues, they will receive at least \$ 25 billion more each year than they can possibly hope to spend.

The gold and foreign exchange reserves of OECD countries amounted to \$ 175 billion in 1973 but this estimated values of gold at \$ 39, and not at the new price of approximately \$ 152 announced.

Allowing for this, the reserves of OECD countries might amount to about \$ 280 billion. At least \$ billion of it will be diverted towards the oil producing countries every year⁽¹⁾. These countries could thus own half of the world's financial reserves within about seven years.

An insisting inquiry about oil reserves destiny, about Middle East's ability to direct, absorb, and manage huge future revenues is needed.

Though, studies, suggestions and even threats, began to surround the topic, giving several solutions : threatening with oil important substitutes ⁽²⁾coal and nuclear power, unexploited areas in Australia and North Sea,... etc.

Yet still remains one single fact, that is, crude oil products will go on, with a significant strategy importance as the most available, cheap, heavily abundant, and lasting source of energy.

Huge oil revenues created responsibilities upon producing countries towards their internal economy and other countries looking after financial resources to cure economic stagnation and backwardness. To oil producing countries economic development is no more a question of accumulating exchange which is dreadly more than its needs, but it is a

1 — Which considered to be a dangerous problem...

"Black Mail, op. cit., p. 34.

"...This raises the most serious problems... Australia, South Africa, and Canada all earn and have earned in the past, huge sums by exploiting new material deposits, without presenting any threat to the stability of the international monetary system; and the reason these countries caused no such problems for the rest of the world was that they always (spent) whatever revenues they received, Hence, there was not prospect of these countries acquiring half of the world's financial reserves in seven years.

However, this really is now a distinct possibility that countries which between them only have 2% of the world's population, may acquire half its monetary system.

Ibid, p. 34.

2 — Artificial oil, freezed petroleum rocks at Alaska, electricity... etc.

problem of technological deficiency, weak prosperity, poor rates of growth in both social, sanitary and educational sectors.

They have to preserve in changing its rigid, inflexible economic structure through certain strategy so as to confirm rapid, steady economic development. Many curious questions surrounded Arab billions. Within twenty years nobody can forecast exactly what Arab fortune will be. Not only petroleum returns, but also these concealed undiscovered, wide mineral resources. So year after year Arabs and Middle East would find themselves at a point of separation. they have seriously to decide whether to go on flowing their foreign currency for luxurious consumption needs, scattering reserves to foreign banks or directing their exchanges to rebuilt their economies⁽¹⁾ As it is well considered that bank-notes do not build economic development, while industry does, it becomes seriously urgent to review the whole problem.

Middle East having big opportunities for industrial progress sought hardly for financial resources. Specific industries can absorb immense quantities of capital, iron and steel industry, petrochemical, infrastructural industries. Arab revenues should be directed first to finance these important sectors in Arab economy.

Algeria and Egypt actually produce more than four million tons of iron and steel by their present full capacity. By 1985, world demand for Arab iron and steel will become more than 20 million tons per annum, that if every ton needs investments of 500 dollars, this industry would need more than ten billion dollars of Arab oil revenues.

Petrochemical industry would be able to absorb three to four billion dollars, but oil returns are not needed only for industrial projects. Developing countries face some acute problems as population problems, nourishing needs, different types of unemployment, illiteracy, inflation and other external problems⁽²⁾.

All capital needs must be well directed, well invested and well reserved.

1—Or, as it is said abroad, that Arabs will "eat their banknotes".

2—Raw material prices, balances of payments, fluctuations of international trade, terms of trade problems, etc.

Industry as an economic development foundation, and as a single solution for acute, high rates of economic growth, can not take the responsibility of economic progress unless it obtains correct means of financial resources.

Challenges to Arab developing industries are risen from concentrated industrial projects abroad, fluctuated raw materials' prices (Table 33) and decreasing of exporting returns.

Oil revenues compensate to a particular degree these difficulties

Table 34.— World Raw Materials Price Reduction (1974-1975)

Raw material	Rate of price reduction	Raw material	Rate of price reduction
Crude	37%	Wool	62%
Wheat	34%	Cotton	57%
Corn	22%	Silver	28%
Soya beans	46%	Steel	48%
Coke	32%		

More challenges come from the unfair share of underdeveloped countries from industrial production, which resemble 6,7% towards 93,3% of industrial production at advanced countries.

International division of labour, accompanied by right and elastic international trade patterns, make the problem uneasy to solve, unless taking in consideration oil production and its high returns.

Last ten years industrial countries shared 81% of world industrial exports, while developing countries faced decreasing rates.

Structural changes are strongly demanded, to stir stubborn relations, to create new elastic structures, and to cure most of these difficulties, bottlenecks and fluctuation.

Oil producing countries are in a position of privilege more than other underdeveloped countries. They have the financial facilities which enable to maintain a quick integration, cooperation between their economy and other developing ones so as to utilize capital, labour force, and technological means economically. Oil industries in Arab oil producing countries would absorb high rates of oil revenues, idle experts, and unemployed labour, in addition to their ability of maximising profits, returns, and national incomes.

Oil industries, if well established, can nourish other producing sectors from both inputs and outputs.

On the other hand, essential policies must go on binding petroleum prices with industrial imported goods and services. It is known lately that OPEC's essential imports represent 78% from industrial countries, while 50% of its national incomes directed to import goods and services from advanced economies⁽¹⁾.

Reconsideration for oil prices must be regulated with relevant estimation for prices of imports.

An Algerian report⁽²⁾ mentioned recently that OPEC's oil revenues in 1973 were 80 billion dollars⁽³⁾, while great fifty oil companies gained at the same period more than 391 billion dollars.

OPEC's revenues in 1974 indicated high revenues rates but low absorption ones. (Table 34)

In spite of these facts, advanced countries accuse oil countries by causing economic crisis, unsettled monetary system, wild inflation, and unemployment... etc. as a result of raising oil prices.

1 — France, Germany, Italy, Japan, U.K., U.S., deliver 60% of total OPEC's imports, 50% of OPEC's needs from Common Market.

2 — OPEC's Meeting 1975, Jan.

3 — Gulf countries 40 billion Arabic countries 11,6, other oil producing countries 19 billion dollars.

But it is true that oil price system before 1973 caused huge losses to oil and Arab economies, more than 200 billion dollars, while at the same time industrial world goes on accumulating its capital, and increasing its national incomes.

However, world economic equilibrium goes out of order according to many other factors.

Dollar devaluation in 1971 (two years earlier of new oil prices), stopping dollar-gold transference, breaking off famous Bretton Woods agreement, West Germany and Japan's elevated currency... are responsible more than new oil prices, which share 1,5% only of world inflation.

So, petroleum establishments are not only political ones but also quiet economical as well.

It is not fair enough to let individual incomes at advanced countries to go more than 4000 dollars yearly while producing oil exporting oil countries suffer at the bottom of rate 100 dollars per year. It is not fair to collect and concentrate all advantages to make the rich more richer, and leave source energy countries facing poverty, illness and backwardness.

Particular changes can be observed; for example, certain political and economic approaches that took place towards Arab oil countries from Japan and France.

Turning petroleum surplus revenues is another problem. Total Arab surplus revenues for year 1974 were about 67 billion dollars, but not as much as 20% of monopolistic oil companies' accounts, resembling 35% of West Germany's national income, 20% Japanese national income. So Arab oil countries are not to be blamed to collect, and accumulate their accounts, struggling to direct them to economic development plans.

Arab countries need oil revenues to invest their natural resources, rebuild their national industries, and finance their economic development plans. None oil countries, Sudan for example, look for loans and aids, as well as direct investment needs itself one billion dollar to produce 33% of world cereals. Arab world needs 25 billion dollars at least for its cultural development, 100 billion for transportation improvements,

35 billion for sanitary preparations, it had to double these percentages to be able to satisfy the needs of Arab population by year 2000.

More analysis will lead us to face another topics which are acute and fatal to Arab future. Questions about Arab integration, surplus revenues direction to non oil countries, gathering Arab economic forces within sound economic plans, raw materials future prices, turning Arab capital, and new monetary system. Such problems should be faced and discussed frankly.

At last if OPEC has succeeded to enforce rich countries to hear their point of view, other OPEC's are needed in our Arab area and developing countries as a whole.