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Middle East Oil Revenues   11 pages

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Summary

The share of the Middle East in world oil production has risen less than 20 per cent since 1950 but estimated oil revenues of the area have more than tripled—they rose from $190 to $605 million—over the same period.

There are substantial differences among the oil producing countries in (a) the projected length of life of their proved reserves, (b) in per capita oil receipts, and (c) in the relative importance of such receipts, in domestic income and in the balance of payments:

(a) At present rates of exploitation and assuming proved reserves to approximate actual reserves, Iran, with 137 years of reserves, would head the list, followed closely by Saudi Arabia with 104 years; the length of life of reserves would gradually decline to 20 years for Bahrein, the lowest as estimated at this time.

(b) Per capita oil receipts are highest in the countries with small populations, such as Qatar (25,000 inhabitants), Bahrein (120,000), and Kuwait (250,000)—in the first and last of these per capita receipts from oil alone are nearly as high as per capita national income in Belgium and Germany—and low in such countries as Iraq (4.9 million inhabitants) and Iran (20.3 million) where they are $39 and $4 per year, respectively, and represent only a small proportion of total per capita income.

(c) What balance of payments data are available for the area suggest that oil receipts constitute close to 100 per cent of all current receipts in Kuwait and Qatar, that they amount to around two-thirds in Iraq and Saudi Arabia, to about half in Iran, and to less than half in Bahrein. On the expenditure side a large part of oil receipts would appear to be going into capital exports and reserves in Kuwait, Qatar, and possibly Saudi Arabia.

While spending oil receipts at home is as inflationary as spending the proceeds of loans from abroad or the Central Bank, their size tends to provide financial authorities with a rough rule of thumb of how much they may spend internally without risking balance of payments difficulties. As a proportion of total budgetary revenues, oil receipts appear to be most significant in Saudi Arabia and considerably less important in the countries with comprehensive plans for development such as Iraq and Iran.

Once it has been decided how to divide oil revenues between consumption and investment, the authorities must make the additional choice between investment abroad and investment at home. The real income stream that may be derived from investing oil revenues abroad, or from a combination of domestic and foreign investment, might be larger than that derivable from using the revenues exclusively for domestic development.

On purely financial grounds, that is to say, without regard to the social undesirability of returns without effort, foreign investment might well become preferable as soon as certain domestic social improvements, such as housing and sanitation, have been made.

In some countries, including especially Iran and Iraq, the opportunities for the development of resources other than oil are obvious. In countries where there would seem to be no obvious opportunities at this time for domestic investment, a constant or moderately rising flow of per capita income might have to be assured by investing oil revenues abroad. Actually, even the proved oil reserves are so large that for the area as a whole only about 13 per cent of current oil revenues would have to be invested abroad (at 3 per cent) to assure in perpetuity a constant income flow equal to the remaining 87 per cent of these revenues.

This paper is intended to show the magnitude of oil revenues in relation to what is known of the producing countries' balances of payments, their public finances, and their income from other sources. It closes with a brief discussion of the general issues confronting the producing countries regarding the best use of oil revenues.

Oil revenues in the balance of payments

For all of the major oil producers in the Middle East, revenues from oil are the largest single source of foreign exchange. Table 1 gives some balance of payments data for producing countries. These are listed in the order of the relative importance of oil revenues in their total foreign exchange receipts. Full balance of payments data are available only for Iraq. The order of the countries is therefore approximate.

Oil revenues are practically the only source of foreign exchange receipts in Qatar and Kuwait. In Saudi Arabia, and Iraq they amount to two-thirds of known receipts and in Iran they might turn out to be only about one-half of total receipts if calculated on the basis of the first twelve months operations by the recently established consortium of oil companies. For Bahrein such revenue is about one-third of the estimated receipts. What might be called capital receipts from the point of view of receiving countries, i.e., income taxes, royalties and other fees, will vary more with output than will current receipts in the form of payments for local labor and supplies. It would appear that variations among producing countries in the relationship between capital and current receipts are due more to differences in the type of operations than to differences in wage rates or profit sharing arrangements.

The expenditures side of Table 1 gives an approximate idea of the manner in which foreign exchange earnings were spent on imports, increases in reserves, and other capital expenditures. Deficiencies in the data for some of the group make interpretation a hazardous task. It would seem that a larger part of foreign exchange receipts including revenues from oil is being spent on imports by Iran and Bahrein than by Qatar and Kuwait.

Table 1

Middle East Oil Producing Countries
Oil Revenues in Country Balances of Payments
(In millions of dollars)

	Kuwait 1954	Qatar 1954	Iraq a/ 1953	Saudi Arabie 1954	Iran 1954 b/	Bahrein 1954
Receipts						
1. Total known receipts	177	19	216	302	222	26
a. Current goods and services other than 1-b	...	...	(66)	(110)c/	(135)d/	(19)e/
b. Capital income	(177)	(19)	(150)	(192)	(87)	(7)
2. From oil	177	19	150 f/	192	119	7
a. Local services	...	...	...	...	(32)g/	...
b. Royalties, taxes	(177)h/	(19)h/	...	(192)h/	(87)i/	(7)h/
3. Item 2 as per cent of 1	100%	100%	69%	64%	54%	27%
Expenditures						
4. Total known expenditures		...				
a. Current	80	...	159	225	222	38
(i) Imports	(80)j/	...	(159)	(225)k/	(222)l/	(38)m/
(ii) Services (net) other than oil	...	...	... n/	...	...	...
b. Capital (increase in liabilities -)	97	19	57	77	-- o/	-12
(i) Reserves	...	...	(55)	...	...	...
(ii) Other, including errors and omissions	(97)p/	(19)p/	(2)	(77)p/	(--)	(-12)p/
c. Total (a + b)	177	19	216	302	222	26

... Not available.

a/ Balance of Payments as published by International Monetary Fund. Converted to dollars at rate of 1 dinar = $2.80.

b/ Figures are intended to present approximate orders of magnitude for a period when Iran earns a full year's oil revenue. Hence, no extraordinary assistance from the United States is shown under capital movements. Commodity trade only is included in the current account.

c/ Estimated by reducing value of total exports (partly estimated IMF, IFS) by estimated value of crude petroleum exported.

d/ For commodity trade, annual rate based on data for nine months (IMF, IFS). For services, estimate of $3 million based on Balance of Payments for year ending March 20, 1954 (IMF, IFS).

e/ Principal exports and reexports excluding oil.

f/ Net receipts from oil transactions.

g/ Annual rate based on data for November 1954-January 1955, Bank Melli Iran Bulletin, March-April 1955.

h/ The value of 1954 production has been estimated from 1953 accounts published in Oil and Gas Journal, August 16, 1954.

i/ Estimated income in the first full year of consortium operations.

j/ Approximate. Probably includes imports for oil company.

k/ Estimated on basis of partly estimated data for period October 1953-June 1954 (IMF, IFS). Probably includes imports for oil company.

l/ Annual rate based on data for nine months (IMF, IFS).

m/ Principal imports including government and oil company.

n/ Breakdown not available. Net services included under 1-a.

o/ In the year ending March 1954, capital movements other than U.S. aid were insignificant, no estimate of such movements is therefore included in this illustrative balance of payments for Iran.

p/ Residual derived by subtracting known expenditures from known receipts.

Oil revenues in relation to income

The oil producing countries of the Middle East may be ranked in the order of the contribution which the production of oil makes to their total income. As might have been expected, the areas with small populations relative to output and receipts, such as Kuwait, head the list while countries with large populations, such as Iran, come last.

Table 2 shows per capita gross national product (for some of the countries listed) and per capita oil receipts. Broadly speaking, the greater per capita oil receipts, the greater also would seem to be the dependence on oil.

Table 2

Middle East Oil Producing Countries
Per Capita Receipts a/ from Oil and Per Capita Gross National Product

	Per capita oil receipts (in dollars)	Estimated per capita gross national product (in dollars)	Population b/ (in thousands)
Kuwait	708 (1954)	...	250
Qatar	760 (1954)	...	25
Bahrein	58 (1954)	...	120
Saudi Arabia	27 (1954)	190 (1954)	7,000
Iraq	39 (1954)	126 (1954)	4,871 c/
Iran	4 (1955)	77 (1954)	20,253 c/

...   Not available.
a/   Does not include payments for local services and materials.
b/   Undated for all countries other than Iraq and Iran; estimates published in The Middle East, 1955, Europa Publications, Ltd.
c/   United Nations Monthly Bulletin of Statistics; 1952 for Iraq and 1953 for Iran.

With the exception of Kuwait and Qatar where per capita oil revenues alone are nearly as high as per capita national income in Germany and Belgium, the per capita gross national product remains at a low level in the oil producing countries of the Middle East.

The contribution made by oil production to per capita gross national product is significant also in the low income countries. Even in Iran where gross national product per capita is estimated at less than $80 per year and where the contribution made by oil is probably no more than 8 per cent, the oil contribution must represent about the maximum amount that can be saved out of national income. In other words, without

the income derived from oil, net saving might be negligible and it would
be difficult to maintain the existing capital equipment in the economy.

Oil revenues in public finance

No additional economic significance over and above their bal-
ance of payments effects attaches to oil receipts when considered as bud-
get revenues. The internal economic effects of the expenditure of the
funds is the same, regardless of whether they are received as oil reve-
nues or borrowed from the banking system. It is true that oil revenues
provide the foreign exchange cushion against the effects of their domestic
expenditures. The economic adviser, nevertheless, should be aware of the
inflationary effect of spending the receipts from oil, if only because
such awareness may supply him with another needed argument in the struggle
for internal financial stability.

The figures in Table 3 show the order of magnitude of oil
revenues in the public finances of some of the producing countries.

Once more, the paucity of material permits of reasonably accurate
statements of the relevant relationships for only a few of the countries.
Two of the large countries, namely, Iraq and Iran, collect significant
amounts in taxes and revenues not directly related to oil. Of a total
estimated revenue of about $300 million in Saudi Arabia (year ending
August 1955), about $258 million or as much as 85 per cent is expected to
come from oil operations. For Iraq the ratio is expected to be a little
less than 60 per cent, and for Iran only 35 per cent.

The relation of oil revenue to domestic investment expenditures
in the oil producing countries shows considerable variation. In Iran,
all oil revenues after resumption of oil operations may be channelled to
the Plan Organization's seven-year development program and in Iraq 70
per cent of oil income is devoted to the capital works program of the
Development Board. The funds allocated for public projects in the
1954/55 Saudi Arabian budget are equivalent to a fourth of oil revenue.

Uses of oil revenues

Should oil revenues be used to develop the producing area or
should they be invested abroad? This is the general problem which con-
fronts a number of recipient countries once the most elementary improve-
ments have been made there. After certain fundamental investments have
been undertaken--transportation in some irrigation in others--and primi-
tive welfare needs met, the choice soon becomes one between further domes-
tic use and foreign investment. Total income might be increased by ad-
ditions to domestic plant for non-oil output or by the purchase of for-
eign securities with a view to using the return from these investments
to finance imports in the future.

The choice between the two general alternatives will not be
made on purely economic or financial grounds, if the term "economic" is
to exclude such notions as the utility of work for the sake of health

<u>Table 3</u>

<u>Oil Revenues in Country Budgets</u>
(In millions of dollars)

	Saudi Arabia a/	Iraq b/	Iran c/	Kuwait	Qatar	Bahrein
Revenues						
1. Total revenue	305	297 d/	248 e/	...	...	...
2. Oil revenue	258 f/	170 g/	87 h/	177 i/	19 i/	7 i/
3. (2) as per cent of (1)	85%	57%	35%	...	...	...
Expenditures						
4. Current expenditures	299 j/	179	198 k/	...	...	...
5. Investment expenditures	62 l/	173 m/	87 n/	100 o/	2.5 p/	...
6. (5) as per cent of (2)	24%	102%	100%	56%	13%	...

...   Not available.

a/   Year ending August 1955. Converted to dollars at rate of 1 riyal = $0.27.

b/   Year ending March 1956. Converted to dollars at rate of 1 dinar = $2.80.

c/   Year ending March 1956. Converted to dollars at rate of 75 rials per U.S. $1.

d/   General budget, plus Development Board. Excludes I.D. 37 million ($104 million) transferred from previous Development Board Program.

e/   General budget plus line 2.

f/   Oil royalty and income tax. Assumes major portion of income tax is derived from special levy on oil company.

g/   Not reported separately. Estimate based on oil revenue in Development Board Program which is reported equivalent to 70 per cent of total oil revenue. Figure is lower than reported revenue for calendar 1954.

h/   Forecast of receipts for first full year of consortium operations. This amount is scheduled to increase to $188 million in third year of operations.

i/   Estimate. Table 1, note g/.

j/   Total expenditures less line 5.

k/   General budget expenditures.

l/   Public projects expenditures.

m/   Development Board Program.

n/   Assumes all oil revenue will be allocated to development.

o/   About two-thirds 1953 payments spent on new public development projects and maintenance (The Economist, February 27, 1954, page 592).

p/   Annual rate on the basis of $9.1 million expenditures on development between mid-1953 and the end of 1956 (The Economist, February 27, 1954, page 592).

or social tranquility. In other words, for certain areas, it may be possible to show that real income will be higher if oil revenues are invested abroad and the imports that are purchased with the interest or dividends are distributed at home than if the returns were used to buy the equipment needed to produce domestic substitutes. But the smaller income to be derived from putting foreign equipment to work at home might well be regarded as preferable to a higher real income accompanied by some enforced idleness.

Table 4 shows proved reserves, present oil revenues, and the amounts which countries would have to invest abroad so as to be assured of a constant money income in perpetuity. The figures suggest that the amounts of required foreign investment are on the average quite low relative to annual oil receipts at this time.

The computations in Table 4 give minimum results since actual reserves are assumed to be no greater than proved reserves, which is unlikely. The calculations also assume that annual output is going to remain at 1954 or 1955 levels whereas experts in the field forecast an increase in production at least in the next few years. With these two effects operating in opposite directions, the results in Table 4, especially as regards the life of reserves and the amounts that would have to be invested abroad to keep money income constant after exhaustion of the reserves, are probably less unrealistic than might appear at first sight.

Iran, which happens to come close to the average in terms of the percentage of current revenues that would have to be invested abroad if total income is to remain the same after exhaustion of reserves might serve as an illustration. It is expected that annual receipts in the first full year of renewed operations will be $87 million. If the country invests $15 million annually in foreign securities bearing 3 per cent interest and continues such investment while reinvesting returns throughout the 137 years of the estimated life of its oil reserves, the annual return from the accumulated capital will be $72 million after exhaustion of the reserves, i.e., the same as the income during their life ($87 million less $15 million). 1/

Computation of the maximum constant money income stream is of course merely one way of illustrating the size of the assets and returns from them. And the longer the estimated life of oil reserves the less meaning is to be attached to this computation, in view of probable secular changes in the terms of trade between exports of oil and the imports that may be purchased with constant monetary returns. More realistic measurements might well be devised to include changes in population and in foreign price changes. The subjective element in the choice of factors to be taken into consideration when setting up such other measurements will be greater, however, than in the simple method shown above. The more complex measurements, therefore, will not necessarily lead to correspondingly more meaningful and reliable results.

1/ See Appendix for formula and its derivation.

Table 4

Constant Income With Oil Revenues Invested Abroad

	Saudi Arabia	Kuwait	Iraq	Iran	Qatar	Bahrein
1. Reserves a/ (proved bbls, millions)	36,000	30,000	14,250	15,000	1,500	215
2. Annual output, 1954 b/ (bbls, millions)	348	347	228	110 c/	37	11
3. Life of proved reserves (years)	104	36	63	137	41	20
4. Estimated annual receipts (millions of dollars)	192 d/	177 d/	189 e/	87 f/	19 d/	7 d/
5. Amount invested abroad at 3 per cent (millions of dollars)	14	14	29	15	11	4
6. Constant income (millions of dollars)	178	163	160	72	8	3
7. Per cent of annual revenue that must be invested at 3 per cent to generate constant income as shown in line 6, above	7	8	15	17	58	57

a/ Oil and Gas Journal, December 27, 1954, page 118.

b/ Converted to annual basis from daily average production published monthly in Oil and Gas Journal.

c/ Forecast of 300,000 b/d in first full year of consortium operations. Output is scheduled to increase to 600,000 b/d in third year of operations.

d/ The value of 1954 production has been estimated from 1953 accounts published in Oil and Gas Journal, August 16, 1954.

e/ Reported revenue plus retroactive payment of $29 million under agreement of March 1955, reducing discount on sales of crudes to concessionaire companies.

f/ Estimated income in first year of consortium operations. One-fourth of this amount is included in the estimated revenue for 1954 shown on page one.

The problem of choosing the appropriate combination between domestic and foreign investment is related to the issue of what in countries receiving United States aid has sometimes been referred to as the ability to absorb such aid. In the present context a similar concept would be that of the ability of the oil producing countries to exhaust their revenues in domestic investment.

The term may be used in two different ways. In the first sense, the limit to the ability to absorb investment may be technological. In other words, if investment, whatever form it might take, is pushed beyond a certain point, the return would be less than what the country could earn by investing abroad. The solution lies in the appropriate combination between domestic and foreign investment.

In the second sense, the term ability to absorb foreign aid, or, in the present context, to absorb capital imports, means the ability to introduce imported capital goods into the economy without generating inflationary pressures. Under this definition it is of course possible that not all of the oil revenues earned per period can be "absorbed." In general terms, ability to absorb in this sense, depends on the well known factors of (1) the amount of domestic expenditures required to bring the imported equipment into use, relative to the amount spent on such equipment, (2) the volume of unused resources that can be brought into use with only a mild rise in some prices, and (3) the part of an increment in domestic incomes that is saved.

A more useful concept of ability to absorb might be one which includes imports of consumer goods as a legitimate way of absorbing foreign investment. For, if the producing country is free to distribute the expenditure of oil revenues between consumer and capital goods in any proportion it wishes, there need never be an amount of oil revenue that cannot be spent because of a lack of ability to absorb. Given the ratio of domestic installation costs to the value of imported capital goods, given the value of non-oil exports, and other domestic investment, and finally, the amount saved by the population of the producing country out of an increase in income, there will always be a combination of capital goods and consumer goods imports which is equal to oil revenues and which is consistent with internal financial stability. It is not surprising that the amount of consumer goods that has to be imported tends to be greater the higher are the domestic installation costs per unit of imported equipment. 1/ Even if the supply of domestic materials needed in the projects designed to use the imported capital goods is reasonably elastic, the increased labor income will lead to increased demand and hence to greater pressure on resources.

From the information given in Tables 1 and 3 above, it would seem that in most of the producing countries the amounts invested abroad are far larger than would be required to assure a constant or moderately rising income stream from such investment. This does not prove, of course, that the domestic opportunities for useful investment have been

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1/ See Appendix for symbolic statement of the relationships.

exhausted. It shows, on the contrary, that there is considerable lee-way for informed experimentation in the interest of the community as a whole. In countries, then, where the opportunities for development are small, it might be well to compute the amount that would have to be invested abroad so as to assure a constant or moderately rising flow of per capita income. This would represent a kind of insurance against the possibility of actual oil reserves turning out to come close to proved reserves. In this way part of a wasting asset would gradually be converted into what might be regarded as permanent assets. The part of the revenues not so used for depreciation or insurance can then be used for consumption and investment so as to achieve a total income stream (beyond the part assured by investment abroad) of whatever time shape is regarded as desirable.

APPENDIX

A. Constant income stream with foreign investment of oil revenues.

The relevant relationships may be written as follows:

$$z = R \left(1 - \frac{1}{(1+i)^n}\right)$$

where z = constant income, R = annual oil receipts, i = rate of interest, n = number of years of life of oil reserves. The formula can be derived as follows:

$$z = R - y$$

$$z = Si$$

where y = amount that is to be invested to generate constant income stream of z, S = fund required to yield z, i = rate of interest.

$$R - y = y(1+i)^n - y \qquad\qquad z = R - \frac{R}{(1+i)^n}$$

$$R = y(1+i)^n \qquad\qquad\qquad z = R\left(1 - \frac{1}{(1+i)^n}\right)$$

$$y = \frac{R}{(1+i)^n}$$

B. Conditions for internal financial stability and for exhaustion of oil revenues in imports of goods.

The two conditions that have to be satisfied for exhaustion of oil receipts and for internal financial stability.

with $I = f(M_i)$, say qM_i, are:

$$M_c + M_i - X = I - S = qM_i - S$$

$$M_c + M_i = R$$

where M_c = imports of consumer goods, M_i = imports of capital goods, X = exports, I = investment, S = saving, and R = oil revenues.

From the above, it follows that:

$$M_c = R - S + \frac{R - X}{q}$$

so that the greater q the greater is M_c.