OIL EXPORTING DEVELOPING COUNTRIES MACROECONOMIC POLICIES AND ADJUSTMENT ISSUES

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Introduction

1. The oil price rises in 1974 and in 1979 brought very large windfall gains in income and foreign exchange to the group of oil exporting developing countries (OEDCs). This paper briefly outlines the major policy issues that have confronted the OEDCs in translating these increased revenues into tangible increases in the welfare of their citizens or into sustainable paths of development. This paper does not attempt to provide a full evaluation of the macroeconomic policies pursued by various OEDCs. Rather, it is designed as an outline of the sorts of considerations that need to be taken into account in making such evaluations.

2. For purposes of analysis the OEDCs have been broken into two groups. Group I, at which this paper is primarily directed, comprises those developing countries where petroleum exports in 1980 accounted for more than 60% of total exports. The countries in this group consist of Algeria, Congo P.R., Indonesia, Iran, Iraq, Mexico, Nigeria, Syria, Trinidad and Tobago and Venezuela. 1/ The Group II countries comprise the remaining oil exporting developing countries and include Bolivia, Ecuador, Egypt, Malaysia, Peru and

1/ Also included in Group I are Angola, Gabon and Oman. However, they have been excluded from the tables since the relevant data are not readily available.
Tunisia. The nature of the economic issues confronting this latter group are, of course, similar, as are the economic issues facing all mineral exporting developing countries. It is by virtue of the scale and degree of the problems that confront the Group I countries that they have been specifically selected for analysis.

3. A typical OEDC faces a hierarchy of decisions that must be made -- including the appropriate rate of depletion of its oil reserves, the allocation of the resulting revenues between the accumulation of foreign assets, domestic investment and consumption, the appropriate division of economic activity between the public sector and private sector, and finally the inter-sectoral allocation of investments. This paper focuses mainly on four sets of issues, the choice of which stems primarily from the fact that they are highly specific to OEDCs. Firstly, what factors should determine the pace at which aggregate demand -- both consumption and investment -- is allowed to expand in the wake of an oil price rise? Secondly, what are the implications of the preceding analysis for the conduct of fiscal, monetary and exchange rate policies and what in actual practice has tended to occur? Thirdly, what are the nature of the adjustments in the structure of domestic production that are induced by an oil price rise, and what implications do these adjustments hold for Government policy? Finally, the paper focuses on the considerations that determine both the level and composition of public expenditures in an OEDC.

4. This paper does not focus to any great extent on oil depletion policies. However, as a preliminary note, it is important to discuss the relationships between oil depletion policies and the other aspects of macroeconomic policy. The presence of international capital markets makes the
problem of oil depletion a matter of portfolio choice -- whether to hold wealth in the form of oil reserves or foreign assets -- and allows a country to divorce its expenditure decisions from its decision regarding current oil production. A country, if it believed that the expected rate of return on holding oil in the ground \(^1\) exceeded the real rate of interest in international capital markets, could chose to cut production and borrow against its oil reserves to finance expenditures. An example of such behavior was Mexico which, in 1980 and 1981, chose to obtain foreign funds more by borrowing than by exporting larger quantities of oil. As this example illustrates this set of choices is taken in an environment of high uncertainty and the downside risk of borrowing against future income can be very great.

5. In practice, of course, the portfolio choice between oil reserves and foreign assets cannot be quite so simply divorced from expenditure decisions. International capital markets are not perfect and there do exist constraints on the capacity of countries to borrow against future income. Moreover, the borrowing capacity of countries does depend on anticipations regarding future expenditure decisions which can be strongly influenced by current aggregate demand policy. Finally, there exist considerable political pressures in the oil exporting developing countries to spend their foreign exchange reserves. In contrast wealth held in the form of oil in the ground is less visible and, thus, less amenable to political compulsions.

\(^1\) Large exporters or members of OPEC do not face a perfectly elastic demand for their oil. In evaluating oil depletion options, a single country has to take into account not only the likely evolution of oil price but also the impact of its own production decisions on the level of price.
Table 1: OIL EXPORTING DEVELOPING COUNTRIES: GROWTH OF PRODUCTION AND EXPENDITURE

(Annual average rate of growth, 1970-1980)

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP</th>
<th>Public Consumption</th>
<th>Private Consumption</th>
<th>Gross Domestic Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>7.0</td>
<td>10.8</td>
<td>9.3</td>
<td>13.2</td>
</tr>
<tr>
<td>Congo, Peoples Republic</td>
<td>3.1</td>
<td>..</td>
<td>..</td>
<td>2.7</td>
</tr>
<tr>
<td>Indonesia</td>
<td>7.6</td>
<td>12.9</td>
<td>8.1</td>
<td>14.4</td>
</tr>
<tr>
<td>Iran</td>
<td>2.5</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Iraq</td>
<td>12.1</td>
<td>..</td>
<td>17.0</td>
<td>27.2</td>
</tr>
<tr>
<td>Mexico</td>
<td>5.2</td>
<td>9.9</td>
<td>4.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Nigeria</td>
<td>6.5</td>
<td>11.3</td>
<td>6.6</td>
<td>15.8</td>
</tr>
<tr>
<td>Syria</td>
<td>10.0</td>
<td>16.1</td>
<td>11.9</td>
<td>16.7</td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>5.1</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Venezuela</td>
<td>5.0</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Oil Exporting Developing Countries/a</td>
<td>5.5</td>
<td>9.9</td>
<td>6.9</td>
<td>11.0</td>
</tr>
<tr>
<td>Middle Income Oil Importers</td>
<td>5.6</td>
<td>6.4</td>
<td>5.1</td>
<td>6.6</td>
</tr>
</tbody>
</table>

/a/ All OEDCs including Group II countries

.. Not available

Macroeconomic Performance 1970-1980

6. Before proceeding with the discussion of issues it is useful to briefly review the macroeconomic performance of the Group I OEDCs. As shown in Table I, the bulk of the windfall gains arising from the rise in oil price have been translated into increases in investment and, in some measure, into increases in public consumption. Within investment, public investment has been the most buoyant component. In general private consumption has been restrained compared to the growth in income and the growth of other components of expenditure. The pace at which expenditures have expanded in the OEDCs has not been uniform during the 1970s. Immediately following the 1973/74 oil price rise, most of the OEDCs pursued highly expansionary aggregate demand policies. This led to high rates of inflation in the mid 1970s as supply bottlenecks emerged, particularly in services and construction. During the latter 1970s there was a pronounced shift towards greater restraint and the growth of public expenditures was curtailed substantially. Following the oil price rise in 1979, the OEDC again shifted to more expansionary policies. The response to second oil price rise was, however, much more cautious than to the first.

7. A further striking characteristic of the OEDCs during the 1970s has been the sharp rise in their capital/output ratios. In spite of very large increases in investment after 1974, there has been little acceleration in rates of growth of non-oil output. The causes of the increase in capital/output ratios are wide-ranging. Much of the increased investment originated in the public sector, a substantial part of which went into longer gestation infrastructure and human capital formation. In addition, many of
the OEDCs had major investment programs in the hydrocarbon sector, which tends to be highly capital-intensive. Nevertheless, the experience of the OEDCs during this period also abound with ill conceived investments, that were planned too hastily and subject to enormous implementation constraints.

Aggregate Demand Policy and the Real Exchange Rate

8. Traditionally the availability of foreign exchange has been identified as one of the major constraints to increases in aggregate demand in developing countries. The oil price rises brought to the OEDCs a sharply expanded capacity to finance their imports and thus a considerable relaxation in the balance of payments constraint on aggregate demand. Under these rather novel circumstances, what should have determined the pace at which aggregate demand was allowed to expand?

9. At first cut it is useful to approach the problem in a somewhat abstract manner. If all goods and services can be freely imported, aggregate demand policy can be viewed as resulting from two decisions -- the split of income between consumption and savings and the allocation of those savings between foreign assets and domestic investment. The former represents a tradeoff between the welfare of future generations against that of present and depends on the social rate of time preference. The allocation of savings between domestic investment and foreign asset accumulation can also be simplified as a problem of portfolio choice -- which offers a higher return? The interactions between the rate of return on domestic investment, the social rate of time preference and the rate of return on financial investment abroad are therefore central to an analysis of aggregate demand policy in an OEDC.
If, for example, there exist widespread opportunities for domestic investment, it may be appropriate to allow aggregate demand to expand quite sharply following an oil price, and let the balance of payments surplus quickly erode.

10. The presence of non-tradeable sectors (e.g., infrastructure, construction, services) complicates these choices considerably. For increases in demand — whether investment or consumption — lead to an increase in expenditures on non-tradeable commodities. The price of non-tradeables rises in relation to tradeables, and the real exchange rate therefore appreciates. Since increases in aggregate demand lead to increases in the real exchange rate, the determination of an optimal aggregate demand policy is closely linked to the determination of an optimal real exchange rate. Clearly, some appreciation in the real exchange rate is justified. An OEDC which experiences an unanticipated increase in the international price of its oil exports has received a foreign exchange windfall. Non-tradeables have become relatively more scarce and their price should rise. Over time, however, the economy can expand the availability of non-tradeables through investment in new capacity. While the real exchange rate may therefore appreciate in the aftermath of the oil price rise, it should fall again over time as capacity in the non-tradeable sector is expanded. 1/ The real question is how much of an appreciation in the real exchange rate is warranted in the immediate aftermath

1/ The real exchange rate is unlikely to return to the level prevailing prior to the oil price shock. The income elasticity of non-tradeables is higher than that of tradeables and tradeables tend to be more capital-intensive than non-tradeables. As income grows there is therefore a well established tendency for the real exchange rate to appreciate. In addition, the windfall gains from an oil price rise lead to a sharp improvement in the international credit worthiness of the country. This, in turn, should lead to an appreciation in the real exchange rate.
of an oil price rise? Put alternatively in the presence of supply constraints in non-tradeable sectors, what are the appropriate criteria for determining both current and future levels of private consumption, investment and public expenditure?

11. The questions posed above can, most fruitfully, be analyzed by considering the effects of a single public investment project. If all resources were freely importable, an increase in public investment would lead to an equivalent rise in imports, a fall in the balance of payments surplus and thus in the accumulation of foreign assets. The opportunity cost of capital for the investment project is simply equal to the real rate of return in international capital markets.

12. If the investment project requires inputs of domestic resources or goods that are not freely tradeable, an appreciation in the real exchange rate will be brought above. As a result there is likely to be a partial "crowding out" of some other component of expenditure. The mechanism by which such crowding out occurs varies to some degree with the nature of monetary and fiscal policy. The most obvious case is where the project bids scarce domestic resources away from other projects. Another common channel is through the monetary system. If the appreciation in the real exchange rate is achieved through domestic inflation, the Government, in effect, secures the requisite resources through an inflation tax on domestic holders of money.

13. Even if no crowding out of current consumption occurs, the appreciation in the real exchange rate is a reflection of the fact that in order to secure a given increase in the welfare of its citizens, the country has to progressively give up a greater quantity of foreign exchange -- a commodity that is currently in large supply but which, over the longer run, is
likely to become progressively more scarce. Therefore, attempts to raise public investment will encounter progressively higher opportunity costs — either in terms of foregone current consumption or future consumption.

14. The preceding discussion suggests that there are limitations arising specifically from constraints in the supply of non-tradeable resources — on the degree at which the Government should allow aggregate demand to expand in the wake of an oil price rise. The more inelastic the supply of non-tradeables and the less freely substitutable they are by imports, the more stringent are these limitations. This would suggest for example that OEDCs with limited infrastructure should adopt a more cautious policy towards expansions in aggregate demand than the more well-developed OEDCs.

15. Refinements of the type of analysis outlined above do allow one to derive analytical expressions relating the optimal real exchange rate and a fortiori, the level of aggregate demand to the social rate of time preference, the rate of return on domestic investments, the real rate of interest on financial investments abroad and the gestation lags involved in the development of new capacity in the non-tradeable sector. 1/ Further work, however, does need to be done in providing quantitative estimates of the optimal real exchange rate for various OEDCs and tracing through the implications of these estimates for aggregate demand policy.

16. The policy significance of these sorts of calculations arises because the conventional macroeconomic aggregates that are typically used in

1/ For example, economic theory would imply that the rate of return on investments in the non-tradeable sector should be equated to the real rate of return on financial investments abroad plus the rate at which the shadow price of foreign exchange is rising. The latter in turn depends upon the gestation lags of new investment in the non-tradeable sector.
making judgements regarding the overvaluation of an exchange rate are not very useful and can even be highly deceptive in the case of an OEDC. For example, in most developing countries with fixed exchange rates, excessively expansionary aggregate demand policies will lead to both an overvaluation of the currency and growing balance of payments deficits that become increasingly difficult to finance. By way of contrast, in an OEDC, an overvalued currency can coexist with large current balance of payments surpluses. An overexpansionary aggregate demand policy and an overvalued currency in an OEDC do not create current balance of payments difficulties. Rather, they are a sign that the country is striking a poor bargain for the future.

Sterilization Measures

17. The discussion so far has focused primarily on the effects of increases in aggregate demand for the real economy. The mechanism by which such increases occur, and the potential instruments for sterilizing the impact of the balance of payments surplus on the domestic economy are heavily influenced by the institutional characteristics of oil production in the typical OEDC. In the developed oil producing countries where a high percentage of oil windfalls accrue to the private sector, the pace at which aggregate demand expands in the wake of an oil price rise depends on private portfolio and expenditure decisions. In order to control these decisions, the monetary authorities would have to take deliberate actions to sterilize the effects of these oil windfalls, and the concomitant balance of payments surplus, on domestic liquidity (e.g., through increases in reserve requirements).
18. In an OEDC, as a result of Government taxation of petroleum rents or ownership of oil reserves, oil windfalls accrue directly to the public sector. Following an oil price rise, the country experiences a large budget surplus and a surplus in its current account balance, offset by an accumulation of foreign assets in its capital account. The budget surplus serves to automatically sterilize the impact of the balance of payments surplus on domestic liquidity. The oil windfall is therefore accumulated abroad in the form of foreign assets. In contrast to a country where oil windfalls accrue to the private sector, in an OEDC the monetary authorities do not have to take deliberate actions to sterilize the impact of the balance of payments surplus. 1/

19. From such a situation increases in aggregate demand can be effected in one of two ways -- an increase in private credit availability or an increase in Government expenditure. Both serve to monetize part of the balance of payment surplus, thus leading to an increase in domestic liquidity. In general the primary expansionary force has stemmed from increases in Government expenditure. It is important to note that without a domestic bond market, monetary and fiscal policy are intimately connected. Moreover, the relationship between budget surpluses or deficits and the rate of growth of domestic liquidity is somewhat unconventional when compared to other developing countries. An increase in Government expenditure from oil

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1/ The major exception occurs in situations where oil windfalls, by improving the international credit worthiness of an OEDC, lead to increased flows of private external borrowing. Such flows would not be automatically sterilized and would require specific actions (i.e., increases in reserve requirements) on the part of the monetary authorities in order to sterilize them.
revenues, even though the budget remains in surplus, creates an increase in domestic credit to the Government and an equal increase in high powered money. Domestic expenditures out of oil revenues are therefore akin to deficit financing in terms of the impact on the domestic economy. 1/

Aggregate Demand Expansion in OECDs 1972-1976

20. The broad conclusions of the preceding paragraphs are essentially two-fold. Firstly, as a result of supply constraints of complementary domestic resources and non-tradeable goods and services, adjustments in aggregate demand following an unanticipated rise in oil prices need to be carefully calibrated to prevent an excessive appreciation in the real exchange

1/ The traditional framework of the monetary survey can be written as

\[ dM = B + dP + dF \]

where \( dM \) is the change in domestic liquidity, \( dP \) is the change in private sector credit, \( B \) represents government borrowing from the banking system and \( dF \) is the change in net foreign assets of the banking system, or alternatively the overall balance of payments surplus. Government borrowing from the banking system can be written as:

\[ B = (G-R) - O \]

where \( (G-R) \) is the difference between government expenditures \( G \) and non-oil revenues \( R \) and \( O \) is oil revenues. Therefore,

\[ dM = dP + (G-R) + (dF-O) \]

\[ dM = dP + (G-R) + dFP \]

where \( dFP \) is the non-oil balance of payments surplus. The first round effect therefore of an increase in government expenditures from oil revenues and thus in the non-oil budget deficit \( (G-R) \) is an increase in domestic liquidity \( (dM) \). This may be partially offset through second round effects on imports and the resulting decline in the non-oil balance of payments surplus \( (dFP) \).
rate. Secondly, the institutional arrangements are such that the effects of
the oil windfall on aggregate demand are automatically sterilized unless
increases in Government expenditure or private credit availability occur.
Over-expansionary policies cannot, therefore, be attributed to a lack of
sterilization mechanisms or instruments.

21. Some indication of the tenor of aggregate demand policies in the
OECDs following the first oil price rise and the resulting impact on the real
exchange rate is depicted in Table 2. The annual rate of growth of the money
supply is used as a measure of the expansiveness of aggregate demand
policies. Information on real exchange rates should be treated cautiously
since many of the OECDs imposed wide-spread price controls to limit the rate
of inflation and thus domestic prices are a distorted measure of aggregate
demand pressures. As is apparent the poorer OECDs (e.g., Nigeria and
Indonesia) pursued the most expansionary aggregate demand policies and
experienced the largest increases in their real exchange rates. In contrast
more well developed OECDs, in particular Trinidad and Tobago and Venezuela,
both responded more cautiously by accumulating reserves and were able to
sustain increases in expenditure without major changes in their real exchange
rates. Algeria was able to achieve the latter through a combination of a
highly import-intensive government investment program in manufacturing, and
through a policy of divorcing resource allocation decisions from pricing
policy.

22. On the basis of the present information it is difficult to make
unqualified judgements as to the appropriateness of the aggregate demand
policies that were followed in the OECDs enumerated above. Various a priori
considerations would, however, suggest that there exist powerful forces
tending towards overexpansion. Governments invariably tend to have high rates for discounting the future, and are therefore willing to trade a greater volume of foreign exchange, and thus future consumption, to secure increases in current real expenditure.

Table 2: Real Exchange Rates and Aggregate Demand 1/.

<table>
<thead>
<tr>
<th>Country</th>
<th>Real Exchange Rate 1976 2/ (1972 = 100)</th>
<th>Money Supply (Annual Growth Rate 1972-76)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>104.9</td>
<td>23.4</td>
</tr>
<tr>
<td>Congo</td>
<td>115.0</td>
<td>20.8</td>
</tr>
<tr>
<td>Indonesia</td>
<td>169.1</td>
<td>39.4</td>
</tr>
<tr>
<td>Iran</td>
<td>37.8</td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>128.5</td>
<td>47.7</td>
</tr>
<tr>
<td>Syria</td>
<td>117.8</td>
<td>28.6</td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>115.0</td>
<td>27.3</td>
</tr>
<tr>
<td>Venezuela</td>
<td>95.9</td>
<td>31.8</td>
</tr>
</tbody>
</table>

1/ Information on Iraq not available.
2/ The index of real exchange rate is obtained by deflating the index of the nominal exchange rate against the dollar by the U.S. Wholesale Price Index/Non-Oil GDP deflator.
3/ Since Mexico only became a significant exporter of oil in 1977 the data for Mexico covers the period 1977-80.

... Not available

23. Another factor is the instability in the world oil market. Oil prices have not risen smoothly but have been characterized by sharp discrete jumps (in 1974 and 1979) followed by periods in which oil prices in the international market have declined in real terms. Such behavior in the
international oil market would not pose a problem for macro-economic management in a typical OEDC if the evolution of price was known and the effects on world demand for oil predictable. Decisions regarding expenditure could be taken on the basis of the present value of the income stream from oil (or alternatively some measure of the permanent income from oil exports) and international capital markets could be used to smooth out fluctuations in real export revenues. However, the behavior of oil prices and the response of world demand for oil to price changes is subject to considerable uncertainty. As a consequence OEDCs have found it difficult to distinguish between permanent and temporary changes in oil revenues. Strictly speaking if the degree of uncertainty was recognized by the Government, this should reinforce the arguments in favour of less expansion in aggregate demand following an oil price. In practice, however, Governments, following the first oil price rise in 1973/74, behaved as if increases were permanent and failed to take into account the ensuing erosion in the real value of their oil exports. The more cautious behaviour following the second oil price rise would suggest that Governments have begun to recognize the inherent instability in the world oil market.

24. A further explanation for over-expansionary demand policies is that Governments tend to base expenditure decisions on the current state of their budgetary position. As was outlined above domestic expenditures out of oil revenues are similar to deficit financing in their impact on the domestic economy. This is in part a problem of a lack of transparency. Governments in less developed countries are unused to managing large balance of payments surpluses and budget surpluses. They tend to view such financial surpluses as being wasted, arguing that these resources should be used for "development"
purposes. There is often an inadequate appreciation of the real resource
requirements needed to match these financial resources. Since the current
budget in an OEDC tends to be massively in surplus there is a need to develop
alternative prophylactic measures to limit the rate of growth of both public
expenditures and domestic liquidity. One common recommendation is that
governments in OEDCs should use a domestic expenditure budget, that excludes
both revenues from oil exports and foreign exchange expenditures, for planning
public expenditures and evaluating the consequences of public expenditure for
monetary policy.

Nominal Exchange Rate and Monetary Policy

25. While much has been said about the relationship between aggregate
demand policies and the real exchange rate, the role of the nominal exchange
rate has so far been glossed over. An appreciation in the real exchange rate
can be achieved either by an appreciation in the nominal exchange rate -- and
thus a fall in the domestic prices of exports and import competing products --
or by a rise in the domestic prices of non-tradeable goods and services. The
advantage of the former is that it allows an OEDC to secure the required
change in the real exchange rate without a burst of inflation. This would
suggest that nominal exchange rate policies can be used very effectively as an
instrument for establishing some degree of overall price stability. The
disadvantages are primarily two-fold. There may be political pressures from
producers on the Government which prevent prices from falling in absolute
terms in export or import competing sectors. In addition if prices or wages
in these sectors are stickier on the way down than on the way up, an
appreciation in the nominal exchange rate may in the short run lead to greater falls in output in the tradeable sectors.

26. A more pertinent question arises when fiscal policy, in particular government expenditure, is more expansionary than warranted by the sorts of calculations that were outlined above, and the real exchange rate begins to appreciate excessively. Clearly, the first best solution is a reduction in public expenditures or increases in taxation. If this cannot be achieved, what is the second best role for monetary and exchange rate policies?

27. Three stylized policy responses that have been attempted at different times in different countries can be distinguished. The first is to accommodate the expansionary fiscal policy by allowing the money supply to accelerate but to limit the consequences of this policy for the real exchange rate (which may be somewhat appreciated over pre-oil shock parities) and maintain the real exchange rate, either through a crawling peg type of system, or, more commonly, by periodic large devaluations. While the real exchange rate may be prevented from appreciating excessively, this is achieved at the cost of high inflation. The Government, in effect, obtains the required command over domestic resources through an inflation tax on money balances.

28. The second is a tight monetary policy of restricting private credit availability either through increases in statutory reserve requirements or through credit ceilings. The private sector is therefore crowded out by an expansionary public sector and the real exchange rate is stabilized at the expense of private expenditures. As is well known, with fixed exchange rates, the ability of the authorities to maintain a tight monetary policy depends critically on the degree to which capital markets are open. In the more open OECD attempts to restrict monetary growth and private credit availability may
be offset by increased inflows of capital. Under these circumstances an appreciation in the real exchange rate may be very difficult to prevent through monetary policies alone.

29. The final stylized policy responses, and in some respects the most common, comprise a package of an accommodating monetary policy combined with subsidies on a range of commodities, particularly non-tradeables (e.g., utilities), ostensibly to prevent inflation. Since these subsidies have to be financed, a vicious cycle of growing subsidies combined with accelerations in domestic liquidity growth, rising inflation and growing distortions in relative prices is created.

The Real Exchange Rate and Resource Allocation

30. A further set of issues arises from the effects of the real appreciation in the real exchange rate on resource allocation and the structure of production. Even under optimal demand management policies, the real exchange rate would appreciate somewhat in the short run and then progressively depreciate as capacity in the non-tradeable sector is developed. The short-run appreciation in the real exchange rate implies that tradeable sectors, such as agriculture and manufacturing, experience an erosion in profitability and competitiveness while non-tradeable sectors such as construction and services expand sharply. While there may be a relative shift in the structure of production towards construction and services, the net effect of the oil shock on the growth of production in tradable sectors such as agriculture and manufacturing can be somewhat ambiguous. On the one hand, the appreciation in the real exchange rate creates a contractionary effect on
production in agriculture and manufacturing. On the other, an OEDC has a sharply expanded ability to finance investment in new capacity. This may even lead to an acceleration in the growth of tradable sectors, particularly if prior to the oil price rise the OEDC faced severe constraints in borrowing abroad. In addition to these broad sectoral shifts, a variety of other changes in the pattern of production are likely to occur. Since non-tradeables tend to be relatively labor intensive, the growth of employment is likely to accelerate. At the same time, within manufacturing, rising real wages will induce a shift to more capital-intensive subsectors and techniques.

31. Some evidence illustrating the effects of oil windfalls on the structure of production is provided in Table 3. For reference two countries belonging to Group II -- Tunisia and Malaysia -- are also included. As is apparent, agricultural growth for the majority of OEDCs has been poor. The Congo, Nigeria and Mexico in particular have experienced very low rates of growth in agriculture. In contrast the service sector in OEDCs has grown considerably faster than in the reference group of middle-income oil importing countries. The growth of manufacturing has, however, been high among the OEDCs--in part due to high rates of growth of public sector activity in manufacturing and in part due to the increased ability to finance investments in new capacity.

32. Much has been written about the detrimental effects of the oil shock on the development of the tradeable sector in OEDCs -- a syndrome that has come to be known as Dutch Disease. There have, however, been few clear analyses of the nature of the problem. Some have argued, for example, that the change in the pattern of production represents a shift of resources from "productive" sectors, such as agriculture, to "unproductive" sectors, such as
<table>
<thead>
<tr>
<th>Country</th>
<th>GDP</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Manufacturing</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
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<td>3.1</td>
<td>7.9</td>
<td>11.4</td>
<td>6.3</td>
</tr>
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<td>Congo</td>
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<td>4.0</td>
<td>...</td>
<td>3.1</td>
</tr>
<tr>
<td>Indonesia</td>
<td>7.6</td>
<td>3.8</td>
<td>11.1</td>
<td>12.8</td>
<td>9.2</td>
</tr>
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<td>Iran</td>
<td>2.5</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Iraq</td>
<td>12.1</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Malaysia</td>
<td>7.8</td>
<td>5.1</td>
<td>9.7</td>
<td>11.8</td>
<td>8.2</td>
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... Not available.
service and trade. It is unclear on what basis such judgements about the "productiveness" of sectors are made. A more plausible argument is that there exist large adjustment costs associated with the changes in the structure of production and in the pattern of employment implied by a cycle of appreciation and subsequent depreciation in the real exchange rate. A second set of arguments relates to those conditions under which the allocation of private investment may not be optimal. In the presence of gestation lags, private investment decisions should be based not on the currently prevailing relative prices, but on relative prices that are likely to prevail in the future when capacity in the non-tradeable sector has adjusted and the real exchange rate has fallen. Under such circumstances inadequate private investment in the tradeable sector may stem from several factors, including myopic behaviour on the part of private investors, uncertainties about the future real exchange rate, and imperfections in domestic capital markets. The issues raised by these arguments are two-fold. There is the empirical issue of evaluating the orders of magnitude and the nature of these adjustment costs. This is an urgent task. Secondly, there is a need to analyze the nature of Government measures required, if any, to minimize the net social costs of changes in the structure of production. In particular, does this call for generalized measures, for example to restrict the growth of aggregate demand, or does it require a combination of taxes and subsidies either in commodity markets or in factor markets?

33. Several different approaches have been attempted to mitigate the detrimental effects on tradeable good sectors of a short-run appreciation in the real exchange rate. One common policy response is to protect certain domestic activities which are considered to have a long-run comparative
advantage through high tariff barriers or import quotas. Since the appreciation in the real exchange rate, and the adjustments associated with it, are primarily caused by increases in aggregate demand, conventional tools of commercial policy—tariffs and import quotas can, however, only have a limited impact. The main effect of commercial policy is to distribute the adverse impact of a real appreciation in the exchange rate differentially between various traded sectors. For example, an increase in tariffs on industry will, if total expenditures remain the same in real terms, lead to a greater fall in the relative price of other traded sectors (e.g., agriculture) and thus imply a larger burden of adjustment on the latter. Moreover, the usual strictures about the difficulties of correctly identifying sectors with long-run comparative advantage apply.

34. A second policy response is a devaluation of the nominal exchange rate, as, for example, occurred in Indonesia in 1978. It is well known that a depreciation in the real exchange rate can only be achieved by a nominal devaluation if real aggregate demand falls. The effects of a devaluation therefore depend upon its affects on demand. By raising domestic prices, a devaluation certainly imparts a deflationary impact to private expenditures. In most OEDCs the appreciation in the real exchange rate was, in the first place, primarily brought about by increases in Government expenditure. Therefore, the real effects of a nominal devaluation will be rapidly eroded unless Government expenditures are reduced and the rate of growth of domestic liquidity curtailed. The problem in achieving this arises primarily because the devaluation tends to improve both the current account balance and the budget surplus in domestic prices. Governments all too often tend to respond to the increase in the budget surplus by expanding expenditures rather than
curtailing them.

35. A third policy option that has been recommended is the imposition of uniform and across-the-board tariffs and subsidies on all tradeables, (excepting oil). An alternative variant that is equivalent is a dual exchange rate -- one for oil and a higher price of foreign exchange 1/ for non-oil transactions. The economic impact of such a scheme is essentially the same as that of a devaluation. However, by limiting the rise in the value of oil exports in domestic prices, the redistributive effects of a devaluation from the private sector to the public sector are reduced. To the extent that such a scheme serves to impose a greater degree of discipline on Government expenditure, dual exchange rates can be more effective in controlling aggregate demand.

36. The policies outlined above operate either by creating differential effective exchange rates for different sectors or by restricting aggregate demand. In many instances such policies have been framed without a clear analysis of the nature of the burden of adjustment. If the adjustment costs stem from the costs of shifting resources from tradeables to non-tradeables (e.g., the costs of large-scale urban migration or an erosion of labor skills in manufacturing), a priori considerations would imply that the appropriate policy is to achieve a given expansion in aggregate demand with less transfer

1/ Whether the dual exchange rate is achieved by a revaluation in the exchange rate for oil transactions or a devaluation on the exchange rate for non-oil transactions depends on the timing of the establishment of the dual exchange rate. Most Governments become concerned about their tradeable sector after an appreciation in the real exchange rate has occurred (i.e. in 1978 rather than 1974). The most likely scenario is therefore one in which the exchange rate for non-oil transactions is devalued.
of resources between sectors. This implies that the optimal intervention is a combination of taxes on non-tradeables and subsidies to tradeables. The real exchange rate faced by consumers in effect appreciates more than the real exchange rate faced by producers. How such a scheme could be implemented in practice requires further investigation.

Public Expenditures

37. In all OEDCs there has been a large expansion in the scope of public expenditures. The question immediately arises—are there factors specific to OEDCs that require such an expansion in the role of both the Government and the wider public sector? Since oil windfalls accrue to the Government, budgetary constraints ease dramatically at least in the short run. To the extent that fiscal constraints in most developing countries—taken here to imply that the social value of public expenditures exceeds the social value of private incomes—impose undue limitations on the level of Government expenditures, an OEDC has a wider range of choices regarding the appropriate level of Government expenditures. Furthermore, in OEDCs the primary bottlenecks occur in the non-tradeable sector. Since many non-tradeable services—e.g., transport, public utilities—are publicly provided, an expansion in capacity in the non-tradeable sector will of necessity require an expanded role for public expenditures. Offsetting these considerations, Government expenditures, themselves, tend to be highly intensive in precisely those domestic resources that are scarce in supply—most notably, skilled labor and construction. On balance the arguments above suggest that public expenditure in most instances should rise faster than aggregate expenditure,
particularly in the poorer OECDs where publicly provided services may have been more sharply constrained in the past due to administrative and political constraints on taxation.

38. Certain generalizations are also possible regarding the nature of these expenditure choices. The circumstances of a typical OECD imply that increases in consumption levels are not difficult to effect through increases in imports in the short to medium term. However, over the long haul, it will progressively become more costly to maintain and provide for growth in these consumption standards. This implies that the social rate of time preference is declining over time. Thus an OECD should take a longer term view, and on average select longer gestation projects than might be appropriate for a typical developing country at the same income level.

39. The implications of this for the allocation of Government expenditure at various levels of sectoral disaggregation are not immediately apparent. The following examples of issues need further investigation. What is the appropriate balance between urban infrastructure -- which may have a short-run return -- and rural infrastructure -- which has a longer-run return? A priori considerations would suggest that returns to education will be high. There is evidence for this.

40. Public sector investments in manufacturing -- and specifically highly capital-intensive subsectors of manufacturing, such as petrochemicals, steel and cement have been particularly significant components of public investment programs in some OECDs -- most notably, Algeria, Venezuela and Indonesia. One set of arguments for such investments relates to their energy intensity. A second set of arguments for such investments has essentially been based on the premise that OECDs have significant access to "capital," and
this, therefore, warrants highly capital-intensive investments. In evaluating this argument, it is important to make the conceptual distinction between the stock of capital and the flow of savings. An OECD is characterized by a high rate of savings and thus, a potentially high rate of growth of capital accumulation rather than necessarily by a high level of capital per worker. The appropriate choice of techniques for a typical OECD should, however, depend more on the latter and thus on the level of real wages rather than on the rate of savings.

41. The forces underlying highly capital-intensive public sector investments in industry are primarily institutional, particularly in the less developed OECDs. With a limited base of skilled labor, public expenditure decisions tend to be biased towards large capital-intensive projects that require little in the way of domestic human resources or institutional changes for their implementation. Furthermore, a relative shift in the allocation of private sector investment resources from manufacturing to construction is engendered by the appreciation in the real exchange rate. Since industrialization is at least partly viewed as an end in itself, governments respond by attempting to offset the relative decline in private industrial investment by an expansion in public sector activity in manufacturing.

Conclusion

42. The issue of demand management and the associated problems of defining the appropriate level of the real exchange rate and arriving at criteria for determining investment levels are perhaps the most complex set of issues facing the OECDs. Conventional indicators, such as the current balance
of payments surplus/deficit and the budget surplus/deficit, provide little
guidance about the appropriateness of the types of policies being followed.
Moreover, the cushion provided by large foreign exchange revenues from oil, in
many instances, allows the consequences of inappropriate policies to be
postponed.

43. The issue that has received the most attention in policy discussions
has been the effects of oil windfalls on resource allocation and the structure
of production in OEDCs. While much has been written about the detrimental
effects of oil windfalls on the development of the tradeable sector in OEDCs,
there have been few clear analyses of the nature of the problem or of the
implications for Government policy.

Lahomed + ik
December 27, 1982