

# **OIL CRISIS AND ECONOMIC ADJUSTMENT:**

**Case Studies of  
Six Developing Countries**

**ANDREW MACKILLOP**



**Edited by Salah Al-Shaikhly**

# **The Oil Crisis and Economic Adjustments,**

**( Case Studies of Six Developing Countries )**

**Andrew MacKillop**

edited by

**Salah Al-Shaikhly**



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## PREFACE AND ACKNOWLEDGEMENTS

As the impact of the energy crisis began to be felt by developing and developed countries alike, international organisations and Western academic institutions began to promote what became popularly known as 'conventional hypothesis' on the theory of adjustment. The Centre commissioned Andrew MacKillop to review the publications and statements of these institutions and to make a comparison between the forecasts of these institutions and what actually happened in developing countries. He produced the first draft which I then took upon myself to review and edit — aligning the various findings that he had presented

Mrs Veena Jha-Singh had the task of working together with the publishers' readers, making numerous corrections and adjustments and answering the queries raised by the publishers. I am grateful for her contributions and other efforts which she has put into this work. I am also grateful to Mrs Heather Bliss and Mrs Elizabeth Moore for reading the typescript of the book and pointing out relevant shortcomings in the flow of the subsequent drafts. I must also thank Miss Meg Peacock and Mrs Joan Peacock for originally typing and retyping the manuscript, without whose efforts this valuable work would have been much delayed.

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## INTRODUCTION

1. This study surveys the process of international economic and social change. Most of these economic changes have been described as 'economic adjustment'. This term is the very core of this study and in it the term, its corollaries, implications, and varied interpretations have been carefully analysed.
2. The processes described as 'economic adjustment' cover a wide spectrum. They are not in any way confined to the energy sector alone. The generality of their application is further extended by time, and by geographical dimensions. Nevertheless, both developed and developing North and South countries are adjusting their economies to changing factor prices, economic pressures, and new policies.
3. In the current era, however, economic adjustment has reached an intensity and a political importance hitherto unknown. The data sources on economic changes are not uniform. Therefore, a wide range of errors may be present in data on the same subject from different sources. Many examples can be cited, such as that of national debt. This is often presented (if presented at all) using complex definitions many months out of date and susceptible to many interpretations.
4. International economic adjustment is currently taking place in an environment which can be described, at best, as critical. As the current global recession intensifies, it becomes increasingly difficult to collect and interpret data. Energy is particularly easy to 'identify' as perhaps the single most significant factor among those causing economic stagnation, budgetary problems, national indebtedness, and so on. This is because 'energy', and particularly oil, is a single unitary factor of production, virtually ignored as a major economic factor until the mid-1970s.
5. It is, therefore, not surprising that there now exist quite well-

defined hypotheses which attribute the economic problems of the South (seen notably in the deficit developing countries) to the energy sector. A summary of such hypotheses provides this study with what can be termed the 'conventional hypothesis'. It is this conventional hypothesis, as advanced by agencies and institutions in both the North and the South (but particularly by the World Bank (IBRD) and certain UN agencies), that is analysed in detail throughout this study.

6. Briefly, the 'conventional hypothesis' states that the supply cost and financing of energy imports present a serious problem for most less developed countries (LDCs), especially the deficit LDCs. This hypothesis has many significant implications for the national investment programmes of developing countries, particularly with regard to investment in sometimes costly 'alternative energy' schemes, now heavily advocated by the IBRD.

7. Because of their importance, certain of the study's conclusions (summarised in Chapter 8) can be referred to at this introductory stage. Of these, probably the most important is that which underlines the very serious and unwelcome interaction of two major economic changes currently operating at world level. On the one hand, economic adjustment in the North is almost exclusively concerned with protectionism and capital intensification of industry. On the other, the monetarist policy operated by several major industrial nations has increased the interest rates to historically high levels, while cutting commodity prices. At the same time, world trade has stagnated. Capital intensification of the North's industries can be a successful adjustment measure, provided that the market is expanding and that the relationship between interest rates and industrial growth is direct and certain.

Thus, at a time when both the industries of the North and the developing countries of the South are re-equipping, it is apparent that markets are stagnant or shrinking, interest rates are at record highs, and receipts by the south for primary product exports are deteriorating. This conjunction is a recipe for the bankruptcy of industries in the North, and of nations in the South.

8. It is possible that this briefly evoked conclusion may appear too sombre. It should, however, be noted that the world economy now shows clear signs of further deterioration. The fact that in 1981 just

nine large developing countries together accounted for more than 70 per cent of the total oil imports of all developing countries (7.3 million barrels per day) shows that this one factor — oil energy imports — cannot be the sole cause of the current economic deterioration. However, this study does show that energy and energy-linked policy changes have had an impact on the economic trends of many countries of the North and of the LDC group.

9. There was no intention of making the chosen sample for this study large enough to be statistically significant, and the choice of six sample countries for detailed study was made at random. Two developing countries were chosen from Asia, two from Africa, and two from the Latin American region to represent each of these region's poorer nations. As it turned out, the economic indicators of these countries were not significantly different from the regional averages for each group. The country studies, therefore, can be regarded more as individual case studies than as statistical samples. The intention of this study was to show that the increase in oil prices was not the sole reason for the economic malaise of the developing countries. The World Bank's and the IMF's own figures and analyses are used to show that there are clearly alternative ways of economic adjustment apart from the deflationary approach that these two international institutions have been preaching, and which they have attempted to enforce on developing countries.

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# **1 ADJUSTMENT — THE 'CONVENTIONAL HYPOTHESIS'**

## **1.1 Introduction**

This study is primarily concerned with the social and economic changes which have come to be called 'adjustment'. The focus is on energy-linked, energy-constrained, and energy-determined aspects of adjustment. While adjustment concerns global economic change, this study is confined to developing countries, and within these a small sample of six have been chosen for special scrutiny.

### **1.1.1 Economic growth**

The role of economic growth is of critical importance in assessing the economic (and other) changes which are broadly categorised as adjustment. Such changes can occur at the global, regional, national, or sectoral level. Conventional definitions of growth, such as those adopted by the World Bank (IBRD), are used in the study except where explicitly stated otherwise. The World Bank's and other such analyses are referred to as the 'conventional hypothesis' and this is contrasted with the hypothesis of this study, which is developed in Chapter 3.

### **1.1.2 World economic growth trends**

The period between 1960 and 1973 was marked by high levels of economic growth all over the world. By comparison with the other period of major structural economic change (often referred to as the Industrial Revolution) in Europe, North America, and Japan,<sup>1</sup> when annual growth rates of 1.5 to 2.5 per cent were typical, the 1960–73 period showed far higher growth rates. During the period 1974–8, but especially after 1979, there was a marked decline in growth rates and in certain cases there was actually a net reduction in Gross National Product (GNP).

### **1.1.3 'Oil crisis' and adjustment**

It is not coincidental that during the period (1960–73) of very high economic growth rates real oil prices and real non-oil commodity prices were stagnant or falling, while those of manufacturers

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and services were rising world-wide. From late 1973 until mid-1974, oil prices were increased through unilateral action by the major producers within the Organisation of Petroleum Exporting Countries (OPEC). This change was popularly termed by the Western media the 'first oil crisis' or the 'first oil shock', and was followed by spectacular increases in certain commodity prices, notably of sugar, coffee, gold, and copper.

During 1979 there were again large increases in posted oil prices. The popular media called it 'the second oil crisis'. However, the consequent economic and financial changes were different from those that followed the first oil price rise in 1973. Certain parallels and similarities, however, can and will be drawn throughout this study between the first and second sequence of 'oil-crisis', 'initial response', and 'adjustment'. These terms will be frequently used to condense the portrayal of the major changes that were taking place at many levels of the world economy during the period 1973–80. It should be clearly noted that causality, at this stage, is in no way attributed to this sequence.

### 1.1.4 **The post-1979 period**

From late 1978 to mid-1979 onwards, it is striking how rapidly and deeply the world economy has drifted into crisis and how it has been deliberately and systematically driven into deep recession. In some countries the economy was still showing rather high inflationary tendencies: after 1978, inflation rates were climbing in most industrial countries (the OECD countries and the United States) and in the majority of less developed countries (LDCs), but these were accompanied by a fast growth in interest rates, a development often described as the beginning of 'the interest rate war'. In 1980 these trends intensified, leading to the highest real interest rates since 1945 and the lowest commodity prices for decades. Since then, economic growth rates have plummeted, declining to around 5 per cent in some developing countries, while the level of world investment and trade has stagnated and, in certain sectors and countries, has actually decreased. In addition, unemployment rates in all countries have reached historic highs.<sup>2</sup> In many LDCs, particularly those with under \$US400 per capita income, low rates of growth, high interest rates, and inflation have exacerbated their problems, especially the problem of rural poverty.

The seriousness of the evolving world economic situation has, of

course, been particularly marked in the LDCs. However, despite the existence of a global economic recession, the 'conventional hypothesis' continues to explain the economic and development problems of LDCs in terms of the rise in oil prices. While the set of policy analyses which constitutes the 'conventional hypothesis' has been publicised by major development and financial institutions from 1978 onwards, it is only recently that it has come to be termed 'adjustment'. It should therefore be noted that this term is commonly used to describe and prescribe changes in the economies of the OECD countries, and thus the 'conventional hypothesis' largely provides an analysis of adjustment in these countries. However, because of their importance to this study, an analysis is provided of the LDC adjustment policies and programmes.

## **1.2 Data sources and problems**

It is of critical importance to be aware of the unreliability of the data base upon which any analysis of large-scale, recent economic events (in both the North and the South) must be founded. There are many reasons for this, some of which are briefly identified and described in the following pages. Essentially, the data sources, and more particularly the mathematical hypotheses, that are from time to time presented in this study, have short time spans and, for the oil-producing developing countries, often draw upon data of unknown reliability. This makes for a continuing need for caution in the analysis of such data, even when they offer an apparently plausible explanation for events.

### **1.2.1. Definition of terms**

A useful departure point for illustrating the problems of data assembly and analysis is that of the financial and economic sector. In analysis of this sector the actual level of current account deficits can vary by several per cent according to the definition of balance of payments utilised by each particular data source. A standard definition of the balance of payments is:

[These are] traditionally defined as the record of a country's international transactions with the rest of the world (or in other words, transactions of its residents with non-residents), together with a very few transactions, such as the monetisation of gold, that do not fall under the main definition. The concept of the

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balance of payments may sometimes be broadened [to include other factors].<sup>3</sup>

On this basis, the current account is a restricted entity which is limited to transactions in goods, net financial services, etc., but which on occasions may also include official aid flow, which for many of the LDCs in the sample is sizeable in terms of GNP.

For the purposes of this study, except where explicitly stated, the balance of payments and the current account are taken to be closely and functionally related. Where possible, the two are separated. Similarly, GNP and Gross Domestic Product (GDP) (which, particularly for the lower-income developing countries, show quite large differences) are always clearly identified in this study.

However, the difference between GNP and GDP is sometimes treated as rather insignificant by the IBRD itself. The IBRD *World Development Report* of 1980 states that the current account deficits of LDCs '... rose sharply from 2.3% of their GNP in 1970 to 5.1% in 1975 and from 2.3% in 1978 to 3.9% in 1981'.<sup>4</sup> However, the 1981 report, under the section entitled 'A ten year perspective',<sup>5</sup> states that the current account deficit of LDCs in 1975 was 5.1 per cent of their GDP and that it reached 4.4 per cent of their GDP in 1980. Such variations can easily be attributed to a change in the accounting base(s) used from year to year; a change in currency equivalents and the consequent corrections; and/or data variations for a specific year compared with the time of data collection and analysis.

However, it is important to be aware that the IBRD makes the obvious error, on certain occasions, of equating GDP with GNP. Furthermore, a close comparison of the country data for 1970–7 in the IBRD *World Tables* of 1980<sup>6</sup> with the equivalent data in various editions of the IBRD *World Development Report* reveals significant differences. And when IBRD data on specific topics (such as the current account deficit in year A for country B) are compared with the data from other institutions, such as the Bank for International Settlements, the General Agreement on Tariffs and Trade, the Organisation for Economic Co-operation and Development, or the European Communities Commission, and so on, the differences between them is sizeable, easily reaching 25 to 33 per cent.

In addition, many of the information sources used in the IBRD *World Development Report* present apparently concrete equations (for example, for the projection of commercial energy demand)

which, on closer examination, are found to be rather unreliable, due notably to the use of short time-series variables showing very high collinearity, and of data based on only a few, small, sample countries and which apply only to restricted sectors of energy demand, for example just electricity, or just industrial demand. As a result, in this study great caution has been exercised in making projections and analyses based on models which are not generally applicable or reliable.

Many examples of this problem could be cited. One brief example can be seen in the recent reports of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP),<sup>7</sup> which considers commercial energy policy and its financial implications. The technical appendix of this report shows the regression equations used for predicting commercial energy demand per capita, in various years, based on four determinant variables. The projections made with these equations are claimed to be 'everywhere significant at the 5% level'. The equations have the general form:

$$\log CE = k + k_1 (1n \text{ GNP}) + k_2 (1n \text{ URB}) + k_3 (1n \text{ INDOP}) - k_4 (1n \text{ TAX}),$$

where:

CE = commercial energy demand per capita;

GNP = Gross National Product per capita;

URB = percentage urbanisation;

INDOP = percentage of industrial output in GDP;

TAX = percentage of indirect taxes in consumption; and

$k_1, k_2 \dots k_4$  are constants, varying with time of projection (1972–8) and with correction for heteroskedasticity (a measure of variation within the total sample population used).

### 1.2.2 Numerical relationships

Differences in definitions from source to source and date to date can lead to significant problems of interpretation. These problems are far more severe with apparently precise, numerical relationships, particularly when mathematical equations identifying certain trends and relationships are utilised.

At the most basic level, numerical expressions of precise economic criteria for specified periods of time can vary quite significantly from source to source. A simple example can be seen in the estimates, from various sources, of GDP growth rates over

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recent periods for all developing countries and low-income developing countries. A summary of these estimates is shown in Table 1.1. The most extreme variation in this selection of GDP growth estimates is between the IBRD's and the Commonwealth Secretariat's figures for low-income developing countries in the period 1960–70, a variation of about 33 per cent. Other estimates, for the sample countries alone, also show quite large variations. Since the GDP growth of developing countries from 1960–70 was about \$US650 billion (measured in 1979 dollars), rather small percentage variations have rather large quantitative impacts, at least equal, for example, to the oil account of LDCs outside the small group of major oil-importing developing countries.

The variation of the  $k$  constants over the period (for example  $k$

**Table 1.1** Real annual GDP growth rates, estimates from different sources for all developing countries and poorer developing countries for a specified period

Period	Percentage annual GDP growth rate		Source
	All developing countries	Low-income developing countries	
1960–73	6.1	3.3	World Economic Outlook, June 1981
1973–5	4.1	3.1	
1960–70	5.9	4.2	IBRD, <i>World Development Report</i> , New York, Oxford University Press, 1981
1970–80	5.1	3.0	
1960–70	5.3	3.1	Commonwealth Institute, <i>The World Economic Crisis</i> , Economic Paper 13, London, Commonwealth Secretariat, September 1980
1970–7	5.8	3.2	
1961–73	6.0	—	A. Pepic, <i>8th Roundtable Conference on Energy and Economic Development</i> , Zagreb, Institute for Developing Countries, 1980
1974–9	5.2	—	
1965–74	6.2	4.0	C. Baron, Discussion Paper 53, Development Planning Centre, Erasmus University, The Netherlands, 1980.
1974–7	4.9	4.5	



varying from 0.65 to 0.89 and  $k_3$  varying from 0.56 to 1.00) indicates the fluidity of the 'fixed' variables in determining commercial energy use per capita. From such equations it should be easy to develop numerically based quantitative relationships between the GNP growth rate and the commercial energy demand growth rate, namely, the national income elasticity of energy demand (NIEE). However, the predictive capability of the above regression equation, like many others, is rather poor. If the stated relationship for 1978 is used, but (perhaps significantly) a negative sign is inserted before the first  $k$  constant (which the UNESCAP report does *not* do),<sup>8</sup> the equation is as follows:

$$\log CE = -0.89 + 0.71 (1n \text{ GNP}) + 0.46 (1n \text{ URB}) + 0.56 (1n \text{ INDOP}) - 0.37 (1n \text{ TAX})$$

The resulting projections are as shown in Table 1.2. Although the UNESCAP report relates only to its member countries, and thus excludes Jamaica, the apparent generality of the regression equation indicates that it should be able to generate reasonable energy demand projections for this country also. However, as has been demonstrated, the resulting predictions are very poor.

This example also serves to underline the points made earlier relating to the use of apparently hard and concrete data and data relations in this subject area. A recent price elasticity study of car fuel demand in European Community (EC) countries<sup>9</sup> during 1956–76 (the period covering the first oil crisis) highlights this problem: '... after the crisis year 1973 here has been a complete break-

**Table 1.2** Actual commercial energy demand per capita compared with the regression equation of predicted demand for Bangladesh and Jamaica, 1978.

Country	Commercial energy demand per capita 1978 (kgce)*		Variation
	Actual	Predicted	
Bangladesh	41	106	158 per cent overestimate
Jamaica	1,823	2,288	26 per cent overestimate

\*kgce — kilograms coal equivalent.

Source: All data on GNP, URB, etc. are taken from the IBRD *World Development Report* of 1980, which presents country data for 1978.