THE ROLE OF PUBLIC FINANCE IN ECONOMIC DEVELOPMENT: AN EMPIRICAL INVESTIGATION

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by

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Abstract

This paper focuses on the role of government finance in economic development. The effects of various kinds of public spending and revenue (mainly taxes) are examined. An empirical investigation of 56 developing countries is used to assess this role of the government and to evaluate whether it is facilitating or hindering the process of economic development. The findings suggest that government finance has played a positive role, refuting the conclusion advanced by some economists that there has been a government failure in development.

ملخص

تركز هذه الورقة على دور مالية الحكومة فى التنمية الاقتصادية. وقد جرى بحث وتمحيص آثار مختلف أنواع النفقات العامة والايرادات العامة (الضرائب أساسا). وقد أجرى بحث تجريبى على ست وخمسين دولة نامية، لتقييم دور الحكومة هذا، بحيث يتسنى الوقوف على ماذا كان هذا الدور، يسهل أم يعوق عملية التنمية الاقتصادية. وتشير النتائج الى أن التمويل الحكومى قد لعب دورا ايجابيا. وعلى هذا، فليس للمرء أن يقبل النتيجة التى خلص اليها بعض الاقتصاديين بشأن اخفاق الحكومة فى عملية التنمية.

INTRODUCTION

During the 1950s and 1960s, many economists believed that greater government intervention was the best, if not the only way to achieve certain goals and objectives like economic growth and development. However, in the 1980s there was growing scepticism concerning the achievements of governments. In recent years, an emphasis on government failure has replaced the previous concern for the market failure.

The dramatic success of the East Asian Newly-Industrialised Countries in achieving sustained economic growth provided conflicting evidence on the role of state intervention. For some while, it was widely-believed that these economies demonstrated the effectiveness of the free market in promoting economic development, with Hong Kong being viewed as the prime example. However, more recently the reality of the importance of state activism has been recognised, especially in respect of Singapore, South Korea and Taiwan. Thus the World Bank has argued that these countries have thrived on market-friendly government intervention. The clear implication of this experience is that the *form* of government intervention is crucial: some interventions may encourage economic growth and development, others may be a hindrance. This issue is explored in this paper, which adopts an empirical approach to examine this relationship, focusing on the role of various components of government finance in the economic development of less-developed countries (LDCs).

In any such attempt to evaluate state intervention, it is clearly important to have clearly-expressed criteria which may be used to judge "success" or "failure". This is fraught with difficulty. Even setting aside the measurement problems, different societies may have different objectives and should be judged relative to their own aims (Smith (1993)). However, it is difficult to accommodate this in a cross-sectional study. In this work, two alternative measures are explored: the conventional growth of GNP *per capita*, and the UN's Human Development Index.

After a brief discussion on the theoretical background of this issue in Section 1, more recent works are examined to assess their contribution to this issue in Section 2. Then, the core of the paper will be the empirical investigation of a sample of 56 LDCs in Section 3. Section 4 examines the case of the OPEC countries. Section 5 uses a different indicator for development (The Human Development Index) to study the same issue. Finally, Section 6 summarises the main findings to emerge from the research.

1 Economics and the role of the state

When Adam Smith introduced the notion of the Invisible Hand, he laid the foundations for a controversy that is still alive in the 1990s. If the Invisible Hand, working through the market mechanism, can lead to an efficient allocation of resources, then why should there be a role for government? If a society wishes to see economic growth, then the state should avoid the risk of distorting resource allocation through government intervention and allow the market free rein. The opposite polar view would argue that such a *laissez-faire* approach would fail to protect weak members of society, and that superior growth and development could be achieved through central planning and coordination of economic activity.

In practice, neither of these extreme positions can be sustained. The breakdown of the centrally-planned regimes of the Former Soviet Union (FSU) and Eastern Europe has cast doubt on the validity of this approach, whereas the high unemployment in Western Europe during the 1980s has called the free-market approach into question. Within this perspective, questions concerning the role of the state in economic development become questions of the *balance* between public and private sectors, between state intervention and the market.

We may perhaps identify two rationales for state intervention in economic activity. First, it might be argued on efficiency grounds that governments may be justified in intervening in the economy to correct for some form of market failure. Second, it could be argued on equity grounds that the state should intervene to affect the distribution of resources, in order to protect certain groups within society. It is debateable whether this may also be regarded as being an instance of market failure.

1.1 Forms of state intervention

It is well-known that there are circumstances in which markets may fail to produce socially-desirable outcomes. This may be because of some imperfection in a particular market - or may reflect the absence of markets for some commodities.

The existence of externalities is important. If social costs or benefits are not fully reflected in market prices, then the *laissez-faire* outcome will be sub-optimal for society at large. In order to correct for this sort of market failure, the state may typically need to intervene in *particular* markets, for instance in ensuring environmental protection or controlling congestion. Such intervention will tend to be in the form of taxes or subsidies.

The existence of imperfect competition may require a different sort of intervention. Where a market is a natural monopoly, nationalisation may be indicated, although the growing wave of privatisation around the world suggests that this argument may have been over-regarded in the past. Alternatively, some sort of competition policy may be required to curb imperfect competition through market regulation.

Further government intervention may be required to ensure the optimal provision of *public goods*. This need not entail direct government production, although this is one solution to this sort of market failure. The identification of the appropriate *quantities* of public goods to be produced may be problematic. This may be especially apparent in the case of defence, where it may be important to maintain the proper priority to be given to defence expenditures relative to other social expenditures.

It may also be argued that the state needs to be involved in economic activity to the extent of enabling the market system to operate. In order to achieve this aim, it may be necessary to make a conscious effort to create an environment in which markets can work. This may include stabilisation policy to ensure stability in prices.

Helping to ensure the efficiency of allocation of resources may not be the only task in which state intervention may be justified. The distribution of resources between groups in society may also require appropriate policy measures.

1.2 The state in developing countries

The arguments outlined above have been well-rehearsed in the context of the industrial economies of the 1990s. However, do these same arguments operate with equal weight in regard to the developing countries - or are there special circumstances which need to be taken into account in this context?

First, it should be noted that the market mechanism itself may be less developed in the developing countries. A relatively high proportion of transactions may take place outside the conventional market system, so that market prices cannot fully and effectively guide resource allocation. A fundamental role of government in such a situation may be to encourage the development of markets.

It has also been alleged in the past that individual economic agents in developing countries do not respond to market signals, or at least that they respond only slowly. For instance, it has been argued that this has affected the efficiency of agricultural sectors in various parts of the world. Other evidence suggests that this is illusion, and that where market prices do reflect relative scarcity, individuals have been prepared to respond, and take good decisions. If this is the case, then it is important for the state to ensure that markets do exist and operate effectively.

Manufacturing activity has often been seen as central to economic growth. However, efficiency in this sector often requires the ability to exploit economies of scale. For many industrial sectors, this is difficult to achieve in a developing country context, because of the limited size of the effective domestic market. This has implications for a number of strands of government policy. For example, it might mean that the state's enthusiasm for regulating and avoiding monopolies or imperfectly competitive market structures may need to be curbed. It may not be beneficial for the state to insist on encouraging (or legislating for) competition in a market where this would deny producers the opportunity to exploit economies of scale. Alternatively, this argument has been used to justify the imposition of tariffs on "infant-industry" grounds, protecting certain industries in order to achieve dynamic gains from trade in the long run.

Poor information flows to individuals, or externality arguments may be invoked to justify the state provision of aspects of human capital formation: the encouragement of improved levels of nutrition, health care and education (Stern (1990)). The importance of having a well-nourished, healthy and educated labour force for economic growth and development is now widely accepted. There may also be externalities associated with investment projects, with implications for employment, the pattern of production and for foreign exchange outlays and earnings.

Private economic activity is likely to be greatly hindered in a market environment lacking in physical infrastructure. The availability of reliable power supplies, good transportation links and communications systems in particular may be seen as crucial if a country is to undergo the structural transformation which has been seen as a key part of the development process.

Many developing countries are characterised by an especially skewed distribution of income, wealth and educational opportunities It is likely that resource allocation is biased towards catering for the needs of higher income groups (Eshag (1987)). If the alleviation of extreme poverty is seen as one of the objectives of the development process, then some redistributive policy will be required to protect poor groups in society. Such policies may not have a startling impact on economic growth when interpreted in the narrow sense of expansion of GDP *per capita*, although improving the capabilities of the poor may have direct effects on human development and indirect benefits in terms of productivity in the long run.

1.3 Government failure?

As time has gone by, the strong faith in the state's ability to guide the economy (which was a feature of the 1950s and 1960s in particular) has dwindled, to be replaced by a more sceptical attitude in which "market failure" is no more important than "government failure". In part, this criticism rests on arguments about poor incentives for managers of publicly-owned enterprises to be efficient; these sorts of factors led to the privatisation drives of the 1980s and 1990s. Krueger (1990), for example, shows that governments in developing countries have failed to promote development, perhaps by neglecting infrastructure or by implementing over-restrictive trade regimes or credit rationing.

For the purposes of this paper, of special importance is the discrediting of fiscal policy which was part of the monetarist counter-revolution which had such an impact on so many governments from the early 1980s. Previous sections of this part of the paper have identified a number of ways in which the state may be seen to be justified in intervening in economic activity. Many of these policies entail questions of public finance - either expenditure undertaken by government, or taxation policy. It is also clear that some aspects of government expenditure may be expected to have a greater impact on growth and development than others.

1.4 Evaluating state intervention through public finance

So, it has been argued that government intervention in the economy may take a number of forms. Governments may directly undertake production. Governments may influence private economic activity by subsidies or taxes, or they may exercise direct control over behaviour in the private sector through regulation. Governments may deliberately alter their total spending and taxation to influence the level of national income. Alternatively, governments may transfer purchasing power from some persons to others. This paper will focus on the use of fiscal instruments (both public expenditure and revenues) in seeking to evaluate the past role of government in development.

It is argued that public finance can contribute to economic development (See Atkinson and Stiglitz (1980)). Public expenditure can stimulate economic productivity by providing assistance for the establishment of new industries or the introduction of activities not yet launched by the private sector. It can directly affect education, health, housing and the provision of basic needs. It can, through the provision of infrastructure, make it possible for

existing resources to be put to their best uses. This paper will present empirical evidence that attempts to explore the impact of the components of public expenditure and revenue on economic development in developing countries.

Of course, a commitment of expenditure by government has to be financed. In developing countries, the potentialities of government revenues are limited. Money creation, borrowing and taxation are the main sources of revenues. Taxation is the primary effective source of revenue, since money creation can so easily lead to inflation, and foreign borrowing is limited and cannot be relied upon for routine governmental expenses. The structure of revenue may have a substantial influence on development. This study will thus focus on taxation policy as well as on expenditure items.

However, taxation policy is not solely concerned with revenue-raising. One of its aims is to restrain or curtail consumption and thus transfer resources from consumption to investment. It tries to increase the incentive to save and invest. In addition, taxes on income aim at attaining a more equitable income distribution in the society. Taxes can affect a firm's ability to diversify and expand through their impact on input costs. Also, taxes on trade (e.g. import duties) are used to restrict imports in order to free foreign exchange, the lack of which is an obstacle for development in many economies and to encourage domestic producers via protection (however, trade taxes may also have distortionary effects as will be discussed later). Accordingly, deliberate adjustment of expenditure and revenue can aid in the attainment of growth and development.

2 PAST EMPIRICAL STUDIES

The empirical relationship between growth and public finance has been explored by economists from three major directions. In the first set of studies, the chain of causality was thought to run from income growth to public finance - in other words, the main aim was to study the determinants of government expenditure (for example, Wagner (1883) and Peacock and Wiseman (1961)). Attempts were made to explain the growth of public expenditure either in terms of national income, or permanent changes in the economy such as population growth and events like wars.

The second approach examines the relationship between the *size* of the government and economic growth. The focus of these studies reflects doubt and controversy surrounding the role of the government i.e. whether the government is important in influencing the growth process. Several authors have examined the relation between growth in government size and total economic growth. (See for example, Lall (1969), Rubinson (1977), Landau (1983), Ram (1986) and Grossman (1988)).

Finally, the third direction is characterised by an important change of emphasis: the relationship between government's size and growth is taken to be established and the primary problem is that of assigning values or assessing the importance of the various *components* of the government finance. Economic growth is the focal point (the dependent variable) in this last strand of empirical investigation.

Marsden (1983) employed a sample of 20 countries for the period 1970-79, to assess the links between taxes and economic growth. He used taxes as a ratio of GDP in both aggregate and disaggregated form. He concluded that there was a negative relation between the total tax/GDP ratio and the growth rate of GDP. This paper by Marsden is one of very few papers relating taxes to economic growth and discussing revenue rather than expenditure.

Tanzi (1988) focused on the role of the public sector in nine developing market economies. This paper sketched the theory of public sector intervention and analysed the activity of the public sector in nine Asian countries, giving special attention to the debt problem. Although public expenditure and revenues were examined, no econometric modelling was used. Data description was used to support the author's view of the crucial role the public sector should play in LDCs.

Landau (1986) set out to explore the general impact of the government on economic growth. His comprehensive study emphasised the expenditure side of the government's activity as opposed to revenue, arguing that the level of revenue raised was a function of the level of expenditure. In seeking to explain growth rates, he included four components of government expenditure as well as a wide range of other possible influences such as the real exchange rate, real interest rate, population characteristics, historical and political factors, and world economic conditions. These explanatory variables were not derived from a specific growth model, but were considered to be plausible influences on economic growth. His results confirmed his conclusions in an earlier (1983) paper that a larger government size, as measured by the share of government consumption spending in GNP, depressed the growth of per capita incomes.

Finally, Diamond (1989) carried out an empirical investigation of the contribution of government expenditure to the growth performance of a sample of developing countries, using the Denison growth accounting approach. He concluded that at the aggregate level public spending had not exerted a major influence on growth. However, using disaggregated data (expressing each item in terms of its share in GDP), he found that social capital expenditure on health, housing and welfare seemed to have a significant impact on growth in the short run. Infrastructure capital expenditure was seen to have little influence on real growth. Moreover, productive capital expenditure seemed to exert a negative influence, while productive current expenditure exerted a positive one. He also emphasized the importance of the growth of exports to the overall rate of growth. A number of other variables that were not specified in his initial model were added, such as the foreign interest rate and exports as a proportion of GDP.

The present paper extends this last strand of empirical research with the objective of assessing the relative importance of the different types of public finance for development.

3 THE EMPIRICAL INVESTIGATION

3.1 The First Stage of the Empirical Investigation

The standard neoclassical "source of growth" approach uses a simple production function. For example, in Denison's approach the growth rate of real output, y is specified as follows:

$$y = \lambda + \alpha + \beta \kappa + (1-\beta)h$$

where λ is efficiency in the use of resources, α is technical change, κ is physical capital growth and h is human capital growth. Many studies have emphasised the role of capital accumulation and labour growth as determinants of growth (Denison (1974), Lucas (1988), and Stern(1990)). Diamond (1989) argued that the above identity revealed the potential importance of government expenditure. This is partly because government capital spending can contribute directly to physical capital, and may enable an increase in human capital formation through spending on education. In addition, government expenditure on research and development could influence technological change. Although the effect of government expenditure on the growth rate that arises from the more efficient use of resources is difficult to quantify, one of the traditional justifications for government intervention is the inefficiency of the market. Thus, government expenditure has a variety of roles to play in influencing growth.

Many empirical studies have highlighted the deficiencies of using a simple production function as an analytical framework for studying economic growth. (See for example, Diamond (1989) and Landau (1986)). As a result many other plausible influences on growth were suggested, and found to be significant. Some recent studies have successfully explained the relative growth performance in LDCs using growth in exports (See Lucas (1988), Ram (1986) and Diamond (1989)). They argued that developing countries are highly dependent economies and that capital utilization is ultimately dependent on overseas markets for goods and technology, so an indicator of the economy's outward orientation (like growth of exports) should be introduced.

As a preliminary exercise, an equation was specified and estimated to examine the extent to which the rate of growth of GDP *per capita* for countries in the sample could be seen to be related to growth in the labour force (LABGR), the rate of growth of gross domestic investment (GDIGR), and the rate of growth of exports (EXPGR). All of these would be expected to have a positive effect on economic growth, although labour force growth may fail to encompass the human capital aspects of labour input. At this stage of the investigation, government expenditure was included in only a crude disaggregated form, with current and capital expenditures appearing separately:

$$RGDPC = f(CUREXP, CAPEXP, GDIGR, LABGR, EXPGR) \quad (1)$$

TABLE 1:
Exports, labour, investment and economic growth
Dependent variable: Growth rate of real *per capita* GDP

Regressor	Coefficient	t-ratio
CONSTANT	0.0107	0.604
Labour force growth	-0.0047	-0.918
GDI growth	0.0012	2.247
Export growth	0.0016	2.297
Current expenditure	-0.0107	-1.223
Capital expenditure	0.3288	2.636

R^2 = 0.2713 F(5,50) = 3.7231 N = 56
Diagnostic tests:
Functional Form F(1,49) = 2.789
Heteroscedasticity F(1,54) = 0.012

The results (shown in Table 1) provide some limited support for the postulated relationship. Growth in investment and in exports are seen to have a positive effect on output growth, as does government capital expenditure. However, current government expenditure displays a negative (but statistically insignificant) relationship with output. Labour force growth also has a negative (but insignificant) effect. It is possible that this reflects an association between the growth of the labour force and population growth.

3.2 The Second Stage of the Empirical Investigation

The results so far do not provide an adequate explanation of the role of government in development. Disaggregation will be used in an attempt to overcome the problem of misleading aggregates since aggregate relationships may conceal differences between the various components. Diamond used disaggregation into current and capital expenditure (as in equation (1) above). However, it could also be argued that an even finer disaggregation is needed, as different forms of expenditure may be expected to have different effects on growth and development i.e. the composition of expenditure rather then its magnitude may be critical. Hence, disaggregation into different functional components for total government expenditure and for revenue as well is used. All the regressions are estimated by ordinary least squares (OLS). Independent variables are ratios to GDP. The underlying question is whether the government is utilizing its resources, namely its spending and revenue, to help development or to hinder it. The main concern is not on capital versus current expenditure but on whether particular components of expenditure and revenue have any discernible and separate impacts on development.

Diamond (1989) argued that the Denison growth accounting methodology revealed the potential importance of government expenditure, as discussed earlier. In this paper, it is argued that the approach may also reveal the potential importance of government revenue (taxation policy) as well. Taxation policy can affect investment, and thus the existence of physical capital and the economy's capacity to produce. Taxation policy can affect the choice between leisure and work and thus human capital growth. Furthermore, taxation policy may affect the efficiency of the use of resources through its distortionary effects. On these arguments, both government expenditure and government revenue (taxation policy) can influence economic growth.

3.2.1 The Composition of Expenditure

Aggregate government expenditure is decomposed into five different functional components. First, social expenditure is total spending allocated to education, health, social security, housing and community amenities. Infrastructure expenditure is defined as spending on electricity, gas, water, roads, waterways and other transport and communications. Productive expenditure is on economic services such as agriculture, forestry and fishing, mining, manufacturing and construction, and other economic services. Defence (military spending) is another component. Finally, the rest of expenditure (spending on cultural, religious and recreational services and other expenditure) is grouped together. This disaggregation is chosen because it outlines the main activities of the government mentioned earlier. These are: provision of public goods (social expenditure), military protection (defence expenditure), building of the infrastructure (infrastructure expenditure), and undertaking production (production expenditure).

3.2.2 The Composition of Revenue

The revenue side of public finance is also decomposed. There are two main types of taxes: direct and indirect. In general, LDCs rely much more heavily on indirect taxes (compared to direct taxes) than do the more-developed industrial market economies. Direct taxes refer to taxes on income, profit, capital gains, social security contributions, pay-roll and work force, and financial and capital transactions. Direct taxation is assigned to the equity objective i.e. redistribution of income. Direct taxes aim at influencing the distribution of private disposable income. If such redistribution affects the overall propensity to save in society, then there may be implications for the funding of investment. Indirect taxes are divided into two forms: those on domestic sales of goods and services and those on internationally traded goods. These are referred to as domestic and trade taxes respectively. This distinction is necessary because in LDCs, trade taxes play a more crucial role than in the established industrial economies. Domestic sales taxes are used to influence the pattern of consumption, while trade taxes, like import duties, are used to influence the pattern of imports. Indirect taxes affect consumption by raising the prices of goods and services on which taxes are imposed. Higher consumer prices of taxed items relative to those for untaxed ones, will lead to consumers reducing the purchases of these items, being now relatively more expensive, and increasing that of the other goods (this will depend on the respective elasticities of demand). Accordingly, the pattern of production will be altered. Non-tax revenues are also distinguished. Non-taxes refer to both non-tax revenues and capital revenue. These include royalties on minerals like those from oil and sales of capital assets

and land. Finally, foreign aid in the form of grants, referred to as Aid, is differentiated. Thus, revenue is decomposed into five main sources: direct, domestic, trade, non-tax and aid. According to Kaldor (1963), in the 1960s LDCs did not know how to tax, such that their tax revenues were 8-15% of GNP, while DCs' were 25-30%. However, Stern (1990) argues that developing countries now raise substantial amounts of tax revenue. He adds that non-tax revenue has lately started to have a larger share in total revenue in developing countries.

Since capital expenditure is spending of long term nature with long gestation periods, especially where human capital formation is concerned, lags or dynamics should be used to display the effect of capital expenditure on economic growth. As a result, lags were introduced in this work. Lags were used for all the components of total expenditure except defence. Since spending on infrastructure (e.g building roads or spending on education or other social services) takes a period of time to generate a flow of benefits, lags were used. Aid may play a dominant role in development and in financing development projects, so a lag is used for aid as well. These lags are introduced by using averages for the dependent variable (GDP growth) for 1980-85 and using averages for 1975-80 for explanatory variables where lags are desirable.

The basic equation incorporates the following: income taxes, domestic taxes, trade taxes, non-taxes, aid and its lag, defence, social spending and its lag, infrastructure spending and its lag, production spending and its lag, the rest of expenditure and its lag, the rate of growth of exports, the rate of growth of labour and the growth rate of gross domestic investment. The short term effect will be defined as the effect of a variable in 1980-85 on the growth of real per capita GDP in the same period, while the long term effect is the effect of a variable in the period before on growth in the next period.

3.2.3 The Impact of Expenditure Components on Growth and Development

Since various types of government expenditure may have different impacts on development, the effect of each type is examined (following Stern (1990), Eshag (1984), and Due (1968)). Also, it is important to distinguish between the short and the long run effects of expenditures as some may exert contradictory effects in each term.

Production expenditure is expected to have a direct impact on GDP growth because it entails direct spending on productive activity in agriculture, industry and other economic services. It is expected to have a strong positive influence on growth, mainly in the short run, as a five year span is probably sufficient for most agricultural and industrial projects to have begun bearing fruit. In the long run, it may be the case that government expenditure on production will lead to the crowding-out of private investment, thus having a detrimental effect on the growth of GDP *per capita.*

Social expenditure is spending on basic needs like housing, health and education. Investment in human resources contributes to the enlargement of productive capacity by improving the quality of the labour force. It is hardly necessary to underline the significance for growth and development of a healthy, educated and trained labour force. It is thus expected that spending on social activities would have a positive impact on development, although the effects may

be most apparent in the relatively long term. Indeed, in the short run, it is possible that social spending may reveal a negative relation to growth. If resources are being used to build schools and hospitals, this expenditure would not be contributing to growth in the short term. To ensure that maximum economic benefit is derived from social spending (for example, education outlays), it is important to ensure that the education and training policies adopted are relevant to the social and economic requirements of the country.

Infrastructure expenditure is spending on roads, electricity, transportation etc. Investment in roads and irrigation is productive. Deficiencies of infrastructure are likely to account for a substantial part of low factor productivity i.e. poor capital utilization. Spending on infrastructure provides the environment for investment to flourish. It is expected that infrastructure would display an overall positive impact on development. As Stern (1990) argues in many developing countries "capital utilisation is likely to be low where the electricity supply goes off frequently, the road system is weak and it is difficult or impossible to get a telephone." It may be that infrastructure only becomes effective when a critical level of provision has been reached. With many LDCs in an early stage of investment in infrastructure, it is possible that the returns to this investment may not appear to be great. It may still be crucial in laying the foundations for the future.

Military expenditure by developing countries has risen rapidly during the past two decades. In 1983, total military expenditures by developing countries accounted for 21% of world military expenditures. The recent military expansion in LDCs has stirred debate over the impact of such spending on growth and development in developing countries, given their scarce resources. Arguments and empirical evidence have been presented in support of a positive impact on economic growth and development (See Benoit(1978)), but recent studies indicate that it has an adverse effect on growth (for example, Deger (1986)). Those who support military spending argue that it has a favourable impact on employment generation, technological innovation, skill formation, construction of the basic infrastructure, and increased aggregate demand generated by military spending. Its critics point to the high opportunity cost of military spending through the diversion of scarce resources from productive civilian uses. The costs of military spending are likely to be high in terms of reduced levels of human capital formation.

The "rest of expenditure" includes spending on public services, recreation and so on. Such expenditure would be expected to have a positive effect on the quality of life of members of a society. In this sense, this would contribute to "development". However, this effect would not necessarily be reflected in higher levels of GDP *per capita* or even in the Human Development Index.

3.2.4 The Impact of Revenue Components on Development

On the revenue side, some types of government revenues may have conflicting impacts on economic development (for example, Hicks (1964), Due (1968), and Eshag (1984)). As far as direct taxes are concerned, income tax in particular is seen to be a very small percentage of the overall revenues and GNP in developing countries. It is used as a tool to lessen inequality of income. It increases in the later stages of development because in the early

stages low literacy and dependence upon subsistence production mean the number of persons receiving monetary income is limited. It has been suggested that capital taxes have a particularly adverse effects on the accumulation of capital because of their negative effects on private saving and investment. Furthermore, profit taxes reduce profits and ultimately investment. Peterson (1981) established that tax rates and economic growth were negatively correlated in developed countries. He argued that this relationship found its origin in the high negative correlation between direct taxes and growth rates, because of their effect on savings, while there was a positive correlation between indirect taxes and economic growth as they did not bear on savings. However, the experience of developing countries may be different. There are several factors which prevent direct taxes from affecting saving and investment in LDCs. First, in practice a government is forced to choose between a tax with primary impact on consumption (personal income tax on the lower income levels) with little direct adverse impact on investment or taxes on the higher income groups with greater restraining impact on investment. Such taxes are usually politically difficult to implement since the ruling authorities themselves are part of the elite. Also, the desire for increased consumption is so great in many LDCs that income may be desired solely for the purposes of additional consumption. The most common form of direct taxes applied to the agricultural sector in LDCs is the land tax. In theory, land taxes can be so framed so as to serve the dual purpose of restraining the consumption of landholders and of stimulating agricultural production by encouraging a more intensive cultivation of land. Taxation revenue should be income-elastic (should rise faster than national income) to permit a faster rate of growth in investment and in private consumption which is not the case in many LDCs.

Domestic sales taxes are one form of an indirect tax. Domestic sales taxes on goods and services are usually limited in the early stages of development because manufacturing activity itself is limited and there are limited monetary transactions. Although they have distortionary effects, they curtail consumption and thus transfer resources to investment. If the generation of forced savings outweighs the distortionary effects, then the net effect on output growth is likely to be positive.

Moreover, taxes on trade are seen to be the traditional form of financing for development. LDCs rely heavily on foreign trade as a source of tax revenue. The importance of trade taxes in LDCs is very high. Import tariffs and excise duties could have a positive effect on development to the extent that they curtail imports. Also, trade taxes could contribute to development by protecting domestic infant industry from foreign competition. However, as Eshag (1984) points out that export taxes can have serious drawbacks. Export taxes levied in most developing countries consists of taxation of agricultural products exported abroad. These taxes provide no financial incentive to increasing land yields through investment and through a more intensive cultivation of land. For example in Egypt, export taxes liabilities are proportionate to the volume of production of the individual farmers and as such they provide no incentive to production. It is expected that trade taxes will have an overall positive impact because most developing countries are in the stage of adopting "import-substitution" so they protect their industries and curtail imports. Whether these effects will be significant has often been questioned. "Infant" industries rarely seem to grow up. It should also be remembered that tariffs and other trade taxes impose costs through distortion in resource allocation, leaving society worse off than under a free-trade regime.

Non-tax revenues include profits of marketing boards, sales of assets and land, mineral

royalties among others. Non-tax revenues would exert a negative impact on development, if they have adverse effects on investment. If they are used, for example, to finance the extraction of minerals they would have a positive effect. However, evidence suggests that non-tax revenues from oil have frequently been used to finance consumption rather than investment. (See Eshag (1984)).

The issue of the economic effects of foreign aid is fraught with disagreements. Several studies have examined the effect of aid (both grants and loans) on growth and development (See Cassen et al (1986) and White (1992)). Some studies found little relationship. Different regression studies came to quite different conclusions, varying from positive to strongly negative relationships. Those who believe that aid does not promote growth, argue that aid substitutes for domestic saving and investment and exacerbate LDCs' balance of payments deficits as a result of rising debt repayment obligations. Aid is further criticized for increasing the gap in living standards between the rich and the poor in LDCs by stimulating the growth of the modern sector. However, in the case of grants (where there is no debt repayment), it is argued that grants are expected to promote growth. However, repayment of debt is not the only hindrance to growth.

The problem of evaluating the actual contribution of foreign aid to economic development is different from that of assessing its potential developmental value. The most important single factor determining its actual contribution to development is government policies. Evidence suggests that in many developing countries foreign aid is misused by governments. In many cases it is used to cover the deficiencies of the political institution (see Eshag(1984) for example)). To the extent that aid goes to countries most in need, and to the extent that these are the countries who are least likely to be able to use aid effectively, then we might expect to observe a negative relationship between aid and growth. However, this would not conclusively demonstrate that aid cannot stimulate growth or development.

3.3 The Empirical Results

The regression model is written as follows:

RGDPC = (SOC, SOC(-1), PRO, PRO(-1), INFRA, INFRA(-1), REST, REST(-1), DEF, AID, AID(-1), DIRTAX, DOMTAX, TRATAX, NONTAX, LABGR, EXPGR, GDIGR) (2)

Table 2 contains the estimation results, and can be seen to show a great variation between different types of expenditure and revenues in the signs and the size of the coefficients. However, in general the results match our *a priori* expectations. However, with such a large number of insignificant included regressors, the results may be misleading and unhelpful. Hence, Table 3 presents the results of the equation re-estimated with insignificant regressors having been eliminated. As expected, growth of exports and growth of gross domestic investment play a significantly positive role in influencing development. The coefficient for spending on production in the short run was positive and significant. Defence displayed a positive coefficient but was insignificant at the 5% level. The overall effect of social

TABLE 2:
The effect of different types of public finance
Dependent variable: Growth rate of real *per capita* GDP

Regressor	Coefficient	t-ratio
CONSTANT	-0.0160	-0.717
Labour force growth	0.0004	0.063
GDI growth	0.0009	1.579
Export growth	0.0014	1.925
Social exp	-0.7433	-2.506
Social exp (-1)	0.5218	1.824
Prod exp	0.1942	1.495
Prod exp (-1)	0.0356	0.152
Infra exp	0.2534	0.737
Infra exp (-1)	-0.0088	-0.026
Rest exp	0.0164	1.041
Rest exp (-1)	-0.0000	-0.856
Defence	0.2136	1.480
Aid	-0.6214	-3.619
Aid (-1)	0.1898	0.982
Direct tax	0.0892	1.045
Domestic tax	0.0334	0.260
Trade tax	0.3392	2.095
Non-tax	-0.0178	-0.322

R^2 = 0.535 F(18,37) = 2.361 N = 56
Diagnostic tests:
Functional Form F(1,36) = 0.023
Heteroscedasticity F(1,54) = 0.805

TABLE 3:
Strong influences on economic growth
Dependent variable: Growth rate of real *per capita* GDP

Regressor	Coefficient	t-ratio
CONSTANT	-0.0061	-0.512
GDI growth	0.0011	2.139
Export growth	0.0014	2.177
Social exp	-0.5195	-2.570
Social exp (-1)	0.3623	1.921
Prod exp	0.2035	1.884
Defence	0.1801	1.597
Aid	-0.6262	-4.176
Aid (-1)	0.2134	1.525
Direct tax	0.0894	1.195
Trade tax	0.2584	1.963

R^2 = 0.498 F(10,45) = 4.457 N = 56
Diagnostic tests:
Functional Form F(1,44) = 0.362
Heteroscedasticity F(1,54) = 0.307

spending on development was negative (it showed a positive impact in the long run which was smaller than the negative one in the short run). This was not as expected. It may in part be due to using the growth rate of real per capita GDP as the dependent variable to measure development, which might suggest that the use of another indicator to capture the influences on the "quality" of development is needed. A further possibility is that a five-year lag fails to reflect fully the long-term benefits of this form of expenditure. Revenues from trade taxes are the only type of revenue that was statistically significant and positively associated with development. The coefficient of direct taxes was positive and insignificant which reflects its weak impact on development. However, aid's overall effect was negative (a positive impact in the long run which is smaller than the negative one in the short run) and statistically significant. Thus the regression result supports the view that foreign aid can be considered as a factor limiting growth in the short run. Again, it is possible that the length of the lag was inappropriate.

4 THE OPEC COUNTRIES

It must be recognised that there is enormous variability within this sample of developing countries. In particular, it is important to be aware that the period being studied was an unusual one, following in the wake of the second round of oil-price shocks in 1979/80, which had such a great impact on many developing countries, lasting for many years in some cases (See Smith and Ulph, 1995). For oil exporters (specifically OPEC members), it might be expected that revenues flowing from oil would enable these countries to accelerate their pace of development. The oil revenues could provide the financial capital and foreign exchange, the absence of which poses obstacles to other LDCs. Thus, oil exporters, specifically OPEC countries, were distinguished from the rest of the sample.

Non-tax revenues play a major role in oil exporting countries' finance because they include oil royalties. It is expected to have a significant potential influence on development in these countries. However, this potential would only be translated into reality if the revenues were appropriately used. Some evidence suggests that during the few years following the oil price shocks, oil revenues were used to finance, directly or indirectly, private consumption of luxuries. Government consumption rose more than non-oil tax revenues in the OPEC countries. In this situation, it might be expected that non-tax revenues would display a negative impact on GDP *per capita* growth. Also, spending on infrastructure is seen to be given high priority in these countries not only because they have the funds for it, but also because it is essential for the flourishing of their oil activities. Thus, it is expected to play a stronger positive role in the economic development of OPEC members as compared with other countries in the sample. However, we must not ignore the possible impact of "Dutch Disease", whereby an oil discovery may cause growth in only one sector of the economy, namely the oil sector, which may hinder rather than facilitate overall growth. Since these economies are dependent on oil exports and proceeds, they are very sensitive to any fluctuations or shocks in oil prices, all of which might affect real per capita GDP growth unfavourably. 1980-1985 was also an unusual period due to the drop in oil prices in 1982.

There are only 5 OPEC countries in the sample: Indonesia, Iran, Kuwait, Venezuela and UAE. Table 4 displays the result of adding a dummy for the OPEC and two interactive dummies for the non-tax revenue and infrastructure expenditure. It is clear that in the OPEC countries, non-tax revenues and infrastructure spending have played a role in their development. However, infrastructure expenditure affects growth favourably and non-tax revenues affect it unfavourably. It is worth noting that defence expenditure does not figure in this version of the model.

TABLE 4:
OPEC countries and economic growth
Dependent variable: Growth rate of real *per capita* GDP

Regressor	Coefficient	t-ratio
CONSTANT	-0.0172	-1.461
OPEC dummy	-0.0496	-1.041
GDI growth	0.0010	2.115
Export growth	0.0012	1.986
Social exp	-0.3649	-1.860
Social exp (-1)	0.2085	1.221
Prod exp	0.1790	1.795
Infra	0.4145	1.823
I.D. Infra/OPEC	1.9827	1.797
Aid	-0.3715	-2.375
Trade tax	0.3187	2.375
Non-tax revenues	0.1208	2.214
I.D. Nontax/OPEC	1.9827	-2.854

R^2 = 0.592 F(12,43) = 5.190 N = 56
Diagnostic tests:
Functional Form F(1,42) = 0.049
Heteroscedasticity F(1,54) = 1.419

5 HUMAN DEVELOPMENT

5.1 The Human Development Index

The focus of the paper so far has been on the impact of public finance on the rate of growth of GDP *per capita*. However, this measure is well known to be deficient in a number of respects. If the objective of a government is to obtain a better quality of life for members of society, then a broader indicator is required, to reflect this broader objective. It may be that a society has been successful in achieving an acceptable level of "development" without this being fully reflected in the GDP statistics.

The UNDP (1990) have developed a new indicator, which can be seen to be based on Sen's

notion of capabilities (Sen, 1990). It is argued that the level of human development depends upon three key facets. First, it is inevitably related to the resources available to members of a society: this is reflected in GDP *per capita*, measured in Purchasing Power Parity dollars. Second, it depends upon the extent to which members of society are able to make good use of those resources: this is thought to be related to educational attainment, measured by adult literacy and mean years of schooling. Third, human development depends upon the period over which individuals in society are able to consume resources: this is reflected in longevity and measured by life expectancy. These indicators are combined into a single measure, known as the Human Development Index (HDI).

The HDI has not been without its critics (McGillivray (1991), Rao (1991) and Smith (1993), but nonetheless it may be taken to be a broad indicator of the level of human development achieved by a society.

5.2 The Empirical Analysis

This section attempts to examine whether the components of public finance contribute, or fail to contribute, to human development. The different types of expenditure and revenue are studied as various types of public finance can have different impacts on development. Also, it is interesting to note that not all variables that contribute to growth would do the same to human development. Some of them may even have a negative impact on one and not the other.

It is expected that the determinants of human development will be different from those of growth. Those variables that affect human capital should display a positive significant impact on human development. Thus, the rate of growth of labour and social spending in the long run are expected to display a positive correlation. However, any spending that diverts resources from schooling, education or health, i.e. other than social activities, will have a negative impact on human development. This may be true of spending on production, infrastructure, rest of expenditure and defence. Also, those variables that affect welfare would affect human development. Thus, direct taxes are expected to have a positive impact on human development since they aim for a more equitable income distribution. However, trade taxes may have a negative effect on human development being a form of indirect taxes that have distortionary effects.

Data on the Human Development Index (HDI) for 1987 was extracted from the UNDP, Human Development Report (1990). The same regression equation was re-estimated using HDI as the dependent variable.

The following regression model was estimated:

$$HDI = (SOC, SOC(-1), PRO, PRO(-1), INFRA, INFRA(-1), REST, REST(-1), DEF, AID, AID(-1), DIRTAX, DOMTAX, TRATAX, NONTAX, LABGR, EXPGR, GDI) \quad (3)$$

TABLE 5:
Strong influences on human development
Dependent variable: Human Development Index

Regressor	Coefficient	t-ratio
CONSTANT	0.0463	0.398
Labour force growth	0.1128	3.563
GDI	0.0051	1.194
Export growth	0.0083	2.220
Social exp (-1)	2.8499	3.849
Prod exp (-1)	-1.4568	-1.394
Infra	2.4696	1.562
Infra exp (-1)	-4.3523	-2.995
Direct tax	1.0126	2.477
Trade tax	-1.8337	-2.357
Non-tax	-0.2770	-1.079

R^2 = 0.582 F(10,45) = 6.252 N = 56
Diagnostic tests:
Functional Form F(1,44) = 0.011
Heteroscedasticity F(1,54) = 0.389

All the expectations were met as seen in Table 5. Not surprisingly, the two strongly significant positive variables were labour growth and spending on social activities in the long run. Export growth and direct taxes were also positively correlated to human development, and statistically significant. The coefficient on trade taxes was significant and negative. Spending on production in the long run and infrastructure expenditure in the short and long run displayed a negative impact: this had not been present in the earlier results concerning economic growth. Gross domestic investment revealed a positive, but insignificant correlation with HDI.

The OPEC countries were again distinguished. It has sometimes been suggested that the oil revenues generated by the oil price shocks of 1973/74 and 1979/80 have not always been best used in the promotion of human development. This is evident in the UNDP statistics, where a number of OPEC members (especially in the Middle East) are seen to have much higher international rankings when measured in GDP terms than in terms of the HDI. A dummy variable and two interactive dummies for infrastructure expenditure and non-tax revenues were added to the equation. Table 6 presents some evidence concerning this issue. There seems to be little support here for the argument that OPEC countries have fared significantly worse than other LDCs in terms of human development.

TABLE 6:
OPEC countries and human development
Dependent variable: Human Development Index

Regressor	Coefficient	t-ratio
CONSTANT	0.042	0.347
OPEC dummy	-0.009	-0.032
Labour force growth	0.115	3.120
GDI	0.005	1.025
Export growth	0.008	2.079
Social exp (-1)	2.902	3.631
Prod exp (-1)	-1.754	-1.570
Infra	2.570	1.389
I.D. infra/OPEC	3.496	0.312
Infra exp (-1)	-4.509	-2.801
Direct tax	0.886	2.019
Trade tax	-1.758	-1.132
Non-tax	-0.166	-0.417
I.D. nontax/OPEC	-0.634	-0.475

R^2 = 0.590 F(13,42) = 4.65 N = 56
Diagnostic tests:
Heteroscedasticity F(25,16) = 0.577

6 SUMMARY AND CONCLUSIONS

This paper sets out to explore the differential impact of the components of government expenditures and revenues on the pace of economic development in developing countries. Given that societies wish to achieve improvements in the quality of life of their citizens, and are not only concerned about the *quantity* of resources, the investigation focuses not only upon the growth of real GDP *per capita*, but also upon the level of human development achieved, as measured by the UNDP's Human Development Index. This offers a more broad-based indicator of a society's level of development.

The results confirm that different components of government expenditures and revenues have very different impacts on development, so it can not be simply argued that "government expenditure is beneficial for development", or that indiscriminate interventionism is to be recommended. Rather, the analysis indicates that there are some interventions by government which can be beneficial, but that governments need to plan their expenditures carefully, and to give some thought to the mode of financing to be adopted.

The data used in the study are subject to a number of criticisms: indeed, it may be that any data set which entails the collection of data is widely-diverse societies is likely to be of limited reliability. It is thus not wise to try to read too much into the detail of the results. Nonetheless, some tentative thoughts may be offered.

On the expenditure side, the results suggest that a society which devotes a high proportion of its GDP to social expenditure (on education, health etc) may experience somewhat lower growth of GDP *per capita* in the short run. However, the long run sees benefits not only for economic growth but also for human development. In contrast, government expenditure on directly productive activity may have positive effects on economic growth in the short run, but negative effects on human development in the longer term. Similarly on the revenue side, a high dependence on trade taxes relative to GDP may be seen to be associated with higher rates of economic growth but lower levels of human development.

Thus it seems that the types of government expenditure and revenues that have a positive influence on economic growth are not necessarily those that have positive influence on human development. If anything, economic growth and human development should be complementary objectives rather than competing ones. Thus, government should direct its finance in such a way as to enhance both objectives. Failure to achieve either objective would be a failure in attaining the aim i.e. failure in achieving economic development. Empirical findings suggest that government should direct its policies to those activities like the provision of public goods, production, and infrastructure, and should gear aid more to the real development needs of their developing economies. Governments should be aware that although it may seem that military spending is contributing to growth, it is actually draining their economies of scarce resources needed to finance development, because of its high opportunity cost in terms of lower human capital formation.

APPENDICES

The Data Base

The data for the governments' finance are from a single source (IMF *Government Financial Statistics*). Due to problems of national income estimates and foreign exchange, the Summers and Heston (1988) calculation of income per capita using an approach based on purchasing power parity is used for calculating the growth rate of real per capita GDP for all the countries of the sample. Data on the growth rate of labour, the growth rate of exports and the growth rate of gross domestic investment is extracted from the World Bank's *World Development Report* (several issues). The Human Development Index was taken from UNDP (1990). All variables are averages of the period 1980-1985, with "lagged" values being averages for 1975-80.

A.1 LIST OF COUNTRIES

Argentina	Mexico
Bangladesh	Morocco
Bolivia	Nepal
Botswana	Nicaragua
Brazil	Niger
Burkina Faso	Oman
Cameroon	Pakistan
Central Africa	Papua New Guinea
Colombia	Paraguay
Costa Rica	Rwanda
Cote D'Ivoire	Senegal
Dominican Rep	Sierra Leone
Egypt	Sri Lanka
El Salvador	Sudan
Ethiopia	Syria
Ghana	Tanzania
India	Thailand
Indonesia *	Togo
Iran *	Trinidad and Tobago
Jordan	Tunisia
Kenya	Turkey
Kuwait *	Venezuela *
Lesotho	Uganda
Liberia	UAE *
Mali	Yemen, Arab
Malawi	Zaire
Mauritius	Zambia
Malaysia	Zimbabwe

* Oil exporting countries: members of the OPEC.

A.2 LIST OF VARIABLES

RGDPC	=	The growth rate of real per capita GDP.
CAPEXP	=	Capital Expenditure.
CUREXP	=	Current Expenditure.
LABGR	=	The growth rate of labour force.
EXPGR	=	The growth rate of Exports.
GDIGR	=	The growth rate of gross domestic investment.
GDI	=	Gross domestic investment.
HDI	=	The Human Development Index.
SOC	=	Social expenditure is total spending allocated to education, health, social security, housing and community amenities.
INFRA	=	Infrastructure expenditure is defined as spending on electricity, gas, water, roads, waterways and other transport and communications.
PRO	=	Productive expenditure is on economic services such as agriculture, forestry and fishing, mining, manufacturing and construction, and other economic services.
DEF	=	Defence or military spending.
REST	=	The rest of expenditure (spending on cultural, religious and recreational services and other expenditure).
DIRTAX	=	Direct taxes refer to taxes on income, profit, capital gains, social security contributions, pay roll and work force, and financial and capital transaction.
DOMTAX	=	Domestic Taxes on sales of goods.
TRADTAX	=	Trade taxes on international traded goods.
NON-TAX	=	Non-tax revenues and capital revenue. These include minerals royalties like oil and sales of capital assets and land.
AID	=	Foreign Aid in the form of grants.

All independent variables are ratios of GDP (except growth rate variables).
SOC (-1), PRO (-1), INTRA (-1), REST (-1), and AID (-1) are lagged variables.

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