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THE LEAST DEVELOPED COUNTRIES REPORT 2002

Escaping the Poverty Trap



UNITED NATIONS

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Generalized poverty, domestic resource availability and economic growth

Chapter

2

A. Introduction

The existence of generalized poverty in most LDCs has important implications for the relationship between economic growth and poverty. In situations of generalized poverty, sustained increases in the level of per capita income and of per capita private consumption have particularly large effects in reducing the incidence and depth of poverty. But generalized poverty itself acts as a major constraint on the sustained economic growth and structural transformation that are necessary for such increases to occur. In short, most LDCs are stuck in a poverty trap. The central policy problem in the LDCs is how to break the cycle of economic stagnation and generalized poverty, and to realize the great opportunity for fast poverty reduction that can occur through sustained economic growth and development.

The fact that many poor countries are caught in a poverty trap is widely acknowledged. The IMF has described “the persistent failure to break the cycle of stagnation and poverty in the poorest countries” as “perhaps the most striking exception to the otherwise remarkable economic achievements of the twentieth century” (IMF, 2000: 36). Similarly, the OECD/World Bank, in their paper on the problem of financing development in the LDCs prepared for the Third United Nations Conference on the Least Developed Countries, has argued that LDCs are caught in a “low-level equilibrium trap” (OECD/World Bank, 2001: 3). It is also increasingly recognized that this problem is of global significance. The despair and anger associated with persistent generalized poverty are an incubator of violence that, as the events of 11 September 2001 show, can have a global reach.

This chapter identifies the magnitude of the opportunity for poverty reduction in the LDCs, and examines some of the national-level cause-effect relationships through which generalized poverty itself acts as a constraint on the realization of this opportunity. It begins by looking more closely at how the incidence of poverty can be expected to decline in the LDCs as per capita private consumption and per capita incomes rise (section B). It then goes on to examine (in section C) a central mechanism through which generalized poverty undermines the conditions for economic development, namely the effects of generalized poverty on domestic resource availability. The chapter discusses how the incidence of poverty affects the domestic resources available to finance private capital formation and public investment, as well as to provide vital public services (section D). It also examines the complex inter-relationships between generalized poverty, population growth and environmental degradation, which in a number of LDCs are leading to a downward spiral in which the natural resource base, on which the livelihood of the majority of the population depends, is being eroded (section E).

In situations of generalized poverty, sustained increases in the level of per capita income and of per capita private consumption have particularly large effects in reducing the incidence of poverty.

But generalized poverty itself acts as a major constraint on the sustained economic growth and structural transformation that are necessary for such increases to occur. In short, most LDCs are stuck in a poverty trap.

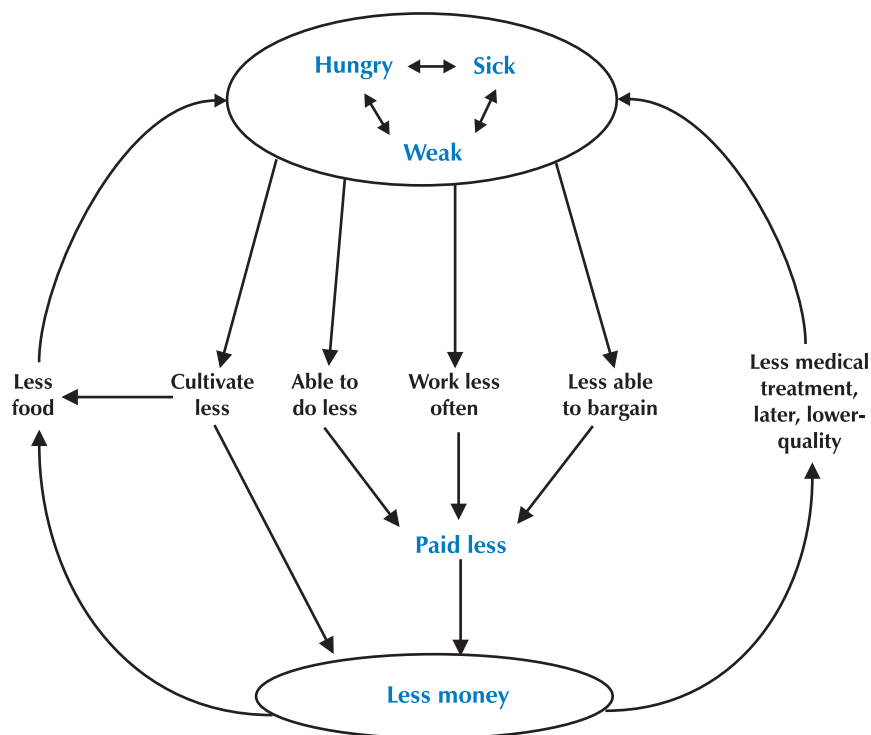
It must be stressed at the outset that generalized poverty affects institutions and incentives, as well as domestic resource availability, and that these relationships are also important mechanisms through which generalized poverty constrains growth and development in the LDCs. In this regard, the relationships between generalized poverty and the nature of market institutions, between generalized poverty and domestic corporate capacities, and between generalized poverty and systems of governance, are all relevant. Some LDCs are also caught in a downward spiral in which generalized poverty is interacting with political instability and armed conflict. These relationships, though important, are largely left aside here in order to focus on the resource issue properly. The chapter also leaves aside for the moment the effects of international relationships on the cycle of economic stagnation and generalized poverty in the LDCs, although these are integral to the poverty trap (box 6). Chapters 3 and 4 take up the question of how international trade may reinforce, or help countries to break out of, the poverty trap.

BOX 6. THE NOTION OF A POVERTY TRAP

A poverty trap can be said to exist when poverty has effects which act as causes of poverty. The causes of poverty can be identified at different levels of aggregation, running from the micro level (the characteristics of the household and community), up to the national level (characteristics of the country) and up to the global level (the nature of the international economy and the institutional structures which govern international relationships) (see box 18). It is thus possible to identify poverty traps at different levels of aggregation.

Box Chart 1 sets out elements of a poverty trap which can occur at the individual level. Within this pattern of circular causation, there are a number of feedback loops. Very poor people tend to be hungry, sick and weak. Being hungry makes one prone to being sick and being weak. People are thus able to cultivate less and work less, and as a result they have less money to buy food or can produce less food, and so they are hungry. They also have less money for medical treatment, and so they are more likely to be sick and weak. Becoming HIV-positive can be an integral part of this poverty trap, and as AIDS becomes more prevalent in a population, it has important consequences throughout society.

BOX CHART 1. A POVERTY TRAP AT THE LEVEL OF THE INDIVIDUAL



Source: Narayan et al. (2000: figure 5.1).

Box 6 (contd.)

When one moves up to a higher level of aggregation, it is evident that regions within countries can also be stuck in a poverty trap. An aspect of this may be isolation from the main centres of economic activity within a country. Profitable business opportunities may be few, and thus productive employment lacking, owing to poor transport and communication links with those centres. But the low level of economic activity in the isolated region means that transport services are inadequate and that improved transport infrastructure cannot be economically justified, thus perpetuating the isolation.

At the national level, similar circles of causation can occur and make poverty persist. Low income leads to low savings; low savings lead to low investment; low investment leads to low productivity and low incomes. Poverty leads to environmental degradation, which in turn undermines the assets of the poor and exacerbates poverty. Poverty can lead to violence and conflict, and the associated destruction of physical, human, social and organizational capital in turn causes poverty to intensify.

An international poverty trap exists when international relationships are implicated in the process of circular causation which makes poverty persist at the national level. This does not mean that it is only international relationships that are the causes of poverty. Rather, it means that international relationships reinforce, instead of helping to break, the vicious circles of cumulative causation within countries which make poverty persist there.

Saying that there is an international poverty trap does not necessarily mean that globalization is causing poverty. Globalization, understood as increasing interrelationships between countries, is important as it implies that it is logically impossible to explain persistent poverty at the national level solely by national factors. By definition, globalization implies that what is happening within countries is increasingly related to what is happening elsewhere. Globalization thus necessitates a shift in the framework of analysis so that the poverty trap at the national and local levels is put into a global perspective.

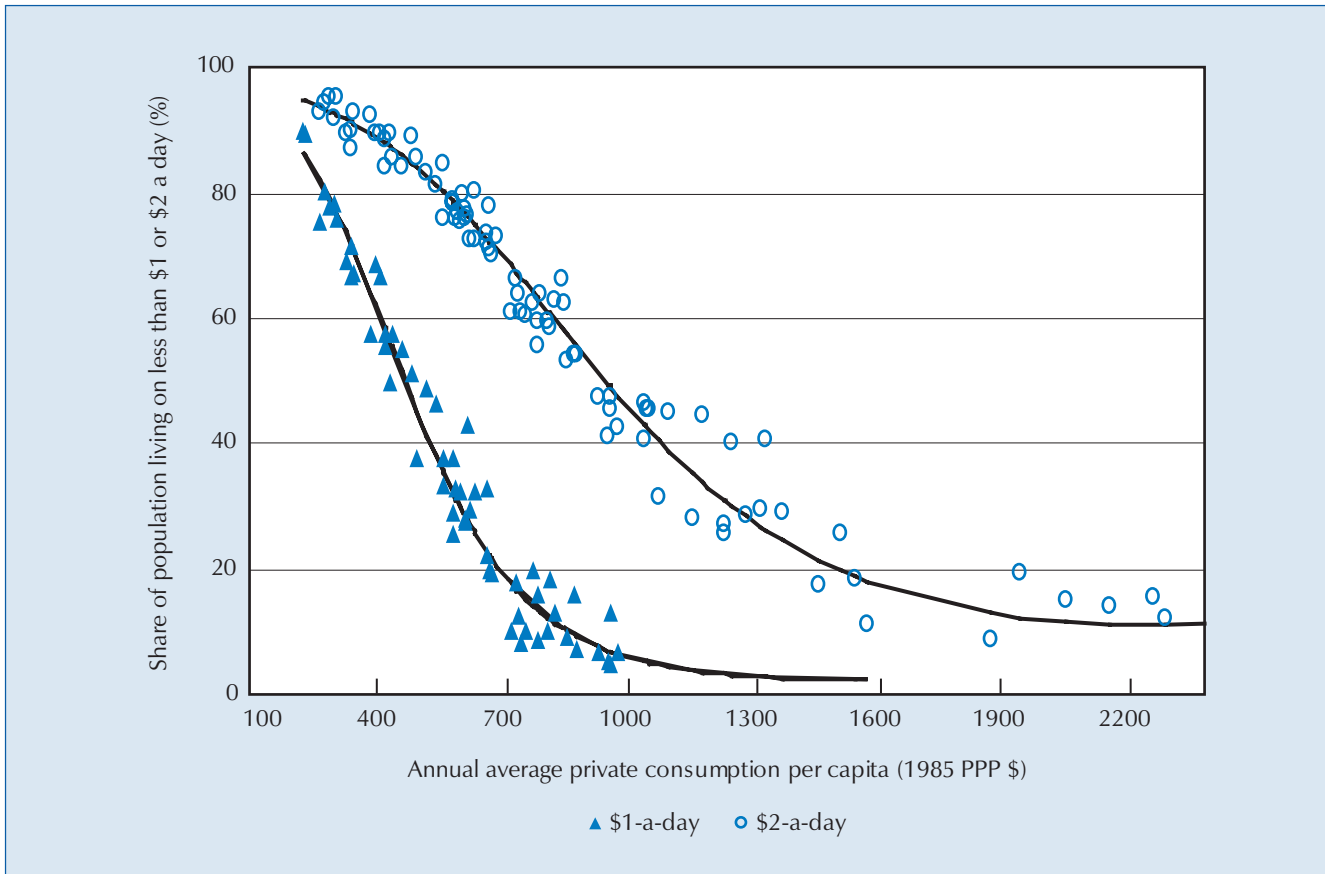
Saying that a country is caught in a poverty trap does not imply that the future prospects for that country are hopeless. Rather, identifying the key relationships within a poverty trap is important for policy purposes. They indicate the interlocking constraints that must be addressed by national and international policies in order to have sustained poverty reduction. The elements of a poverty trap do not necessarily provide a complete analysis of the causes of poverty in the country, which would require analysis of how the poverty trap originally arose. But they do provide a sufficient basis for identifying the policies that are necessary for escaping the poverty trap.

In general, in countries suffering from generalized poverty, which are trapped either in a low-level equilibrium or a downward spiral, an orchestrated policy package consisting of the simultaneous deployment of various policies and measures in several areas is likely to be necessary. The unifying idea behind such a policy package should be to break the downward economic spiral or to shift the economy out of its low-level equilibrium. If the poverty trap is international, adequate policy must encompass both national and international policies. Neither national nor international policies can break the poverty trap on their own.

B. The long-run relationship between economic growth and poverty reduction¹

If there is a sustained increase in average levels of private consumption in the LDCs, the incidence of poverty will normally fall sharply. This expectation is founded on the close relationship that this Report finds to exist between average private consumption per capita and the incidence of \$1-a-day and \$2-a-day poverty in countries in which the annual private consumption per capita is less than \$2,400 (in 1985 PPP dollars).

The precise nature of that relationship is set out in chart 13. The chart depicts two “poverty curves”, which define how the share of the population, living on less than \$1 a day and on less than \$2 a day respectively, varies with the level of annual private consumption per capita for a sample of developing countries in which the average private consumption per capita ranges between \$270 a year and \$2,400 a year (in 1985 PPP dollars).² The observations on which the poverty curves are based are national-accounts-consistent poverty estimates. As explained in the annex in the last chapter, it is these poverty curves that have

CHART 13. \$1-A-DAY AND \$2-A-DAY POVERTY CURVES^a

Source: Karshenas (2001).

- a The poverty curves show the relationship between average annual private consumption per capita and the share of the population living on less than \$1 or \$2 a day in a sample of LDCs and other low- and lower-middle income countries. For sample composition, see annex table.

been used to estimate expected poverty in countries and years where there are no survey data on the distribution of consumption. But the poverty curves themselves are founded on actual poverty estimates for countries and years where household survey data of consumption expenditure are available.³

The poverty curves depict the “normal” long-term relationship between average levels of private consumption per capita and the incidence of \$1-a-day and \$2-a-day poverty... In the long run, countries which are emerging from a situation of generalized poverty as average private consumption per capita rises are expected to follow these paths of change.

As the observations relate to different countries at different levels of development, the poverty curves in the chart can be regarded as depicting the “normal” long-term relationship between average levels of private consumption per capita and the incidence of \$1-a-day and \$2-a-day poverty. It is the normal relationship in the sense that it is a historically observed empirical regularity. It is reasonable to infer that the poverty curves depict the typical pattern of change in the incidence of poverty that occurs as development takes place.⁴ That is to say, in the long run countries which are emerging from a situation of generalized poverty as average private consumption per capita rises are expected to follow these paths of change.

The poverty estimates in the chart are based on both average private consumption per capita and the distribution of private consumption expenditure amongst households, and thus the long-run paths of poverty change, which are expressed by the poverty curves, incorporate the effects of “normal” changes in the inequality of private consumption per capita which historically have occurred as the average level of private consumption per capita and income per capita rise. The pattern of change is actually such that inequality can usually be expected to increase within countries in the early stages of development (Karshenas, 2001). But despite increasing inequality, the poverty

curves indicate that in conditions of generalized poverty, rising average private consumption per capita is not only necessary for poverty reduction on a major scale, but in normal conditions can also be sufficient.

There are certainly exceptions to the pattern. But the exceptional historical experiences of countries such as South Africa and Zimbabwe, and the lack of political and economic sustainability of the historical inequalities and exclusionary practices in those experiences, indicate that these may be exceptions that indeed prove the rule. Although there is no guarantee that the future trajectories of growth in average private consumption per capita and the incidence of poverty will follow those of the past, it is highly likely that there will always be a strong relationship between the two in conditions of generalized poverty.

The strength of the relationship between average private consumption per capita and the incidence of poverty is apparent in the closeness of the scatter of the observations around the average poverty curve. Indeed, the close fit of the national accounts-consistent poverty estimates to the poverty curve is an important finding of the present Report. However, the relationship depicted is non-linear. This means that the relationship between the rate of growth of private consumption per capita and the rate of poverty reduction varies according to a country's average level of private consumption per capita. In fact, for any given \$10 increase in average annual private consumption per capita, the reduction in the share of the population living on less than \$1 a day will be greatest when a country has an annual private consumption per capita of around \$400 (in 1985 PPP dollars), and the reduction in the share of the population living on less than \$2 a day will be greatest when annual private consumption per capita is around \$750 (in 1985 PPP dollars). A further consequence of the shape of the poverty curves is that elasticity of poverty reduction with respect to private consumption growth (i.e. the percentage change in the incidence of poverty for an increase in average private consumption of 1 per cent) varies according to where the poverty line is set and according to the average private consumption per capita within a country. This is a very different picture from that usually assumed in discussions of the relationship between economic growth and poverty (see box 7).

The poverty curves in chart 13 indicate the magnitude of the opportunity for poverty reduction in the LDCs if increases in average private consumption per capita can be sustained over a period of time. The curves show that:

- For a country where average private consumption per capita is about \$400 a year, one would expect about 65 per cent of the population to be living on less than \$1 a day. If the average private consumption per capita doubled to \$800 a year, one would expect less than 20 per cent of the population to be living below the \$1-a-day international poverty line.
- For an average African LDC where close to 88 per cent of the population live on less than \$2 a day, and where average private consumption per capita is on average \$1.01 a day, a doubling of the average private consumption per capita would reduce the incidence of \$2-a-day poverty to around 60 per cent. However, if average private consumption per capita increased to about \$4 a day or about \$1,400 a year (in 1985 PPP dollars), one would expect the incidence of \$2-a-day poverty to fall to 24 per cent.
- For an average Asian LDC where 68 per cent of the population live on less than \$2 a day and where the average private consumption per capita is \$2.21 a day, a doubling of the average private consumption per capita should reduce the incidence of \$2-a-day poverty to 21 per cent.

For a country where average private consumption per capita is about \$400 a year, one would expect about 65 per cent of the population to be living on less than \$1 a day. If the average private consumption per capita doubled to \$800 a year, one would expect less than 20 per cent of the population to be living on less than \$1 a day.

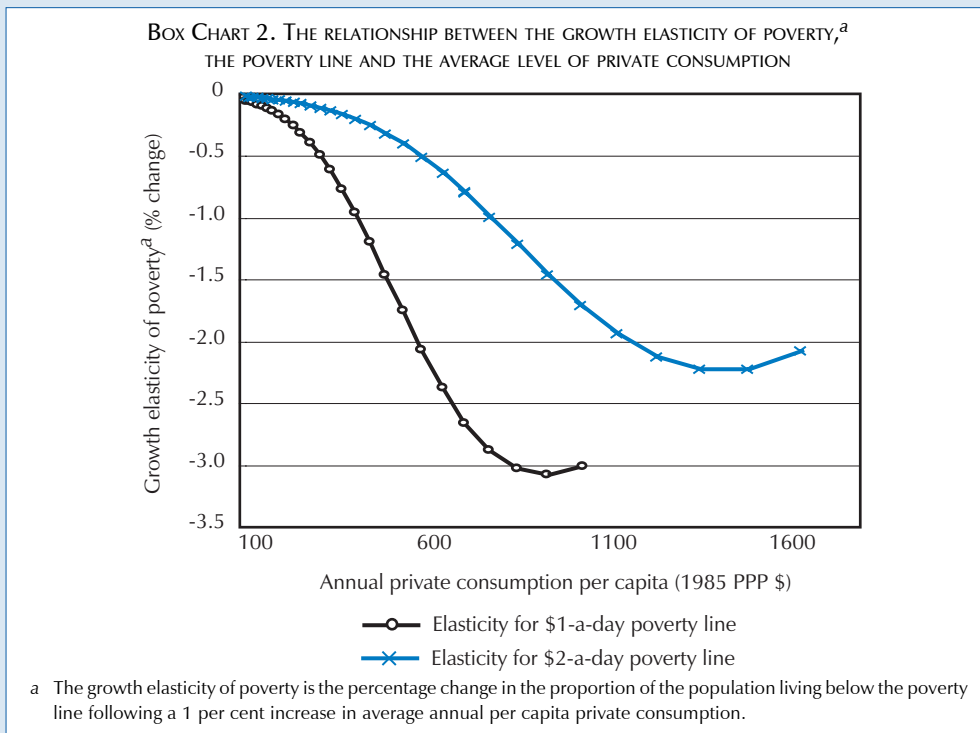
Box 7. THE ELASTICITY OF POVERTY REDUCTION WITH RESPECT TO ECONOMIC GROWTH

Aggregate estimates of the elasticity of poverty reduction with respect to economic growth are central in current discussions of the growth–poverty relationship in developing countries and also in attempts to analyse whether international poverty targets will be met. Such elasticity estimates generally measure the percentage change in the share of the population living below the poverty line following an increase of 1 per cent in the average income or private consumption per capita of the population as a whole. Most of the elasticity estimates are based on observations of the percentage change in the incidence of poverty and the percentage change of per capita private consumption or income during “spells” defined by the periods of time spanning two successive household surveys of the distribution of income or consumption in a country. Such observations are made for a large number of spells and countries, and the elasticity is then estimated through a regression analysis that specifies the average relationship for the sample as a whole. The results are generally presented as a fixed- or single-value elasticity for the whole sample. These results, however, vary substantially, depending on the particular sample of countries chosen, and the poverty lines and poverty measures adopted.

For example, Ravallion and Chen (1997) provide estimates of the income growth elasticity of the incidence of poverty ranging from -0.53 to -3.12 for various poverty lines and samples, based on consumption averages from household surveys. In everyday language, this means that with every 1 per cent increase in average private consumption, the proportion of the population living in poverty will fall by between one-half (0.53) and three (3.12) per cent. With similar methodologies, UNECA (1999) provides measures of income growth elasticity of headcount poverty for Africa of -0.92 and -0.85. Ravallion, Datt and van de Walle (1991), on the other hand, calculate elasticities of poverty reduction of -2.2 for the developing countries and -1.5 for sub-Saharan Africa, based on per capita consumption growth. And the list goes on. In general, if growth has a weak effect on poverty, it is assumed that this is due to high inequality or a worsening income distribution, and thus poverty reduction policies should focus more on inequality than on growth.

But the question that arises in the light of the form of the \$1-a-day and \$2-a-day poverty curves in chart 13 is: what meaning can one give to an aggregate elasticity estimate for a heterogeneous group of countries with different levels of private consumption per capita? The highly non-linear shape of the relationship between the incidence of poverty and the average level of private consumption per capita which is apparent in the long-run poverty curves indicates that one should be wary of aggregate measures that assume a fixed elasticity (e.g. Collier and Dollar, 2001).

Box chart 2 below focuses on the incidence of \$1-a-day and \$2-a-day poverty and estimates the expected poverty reduction elasticities with respect to growth in average private consumption per capita on the basis of the long-run poverty curve. It is apparent that the elasticity is critically dependent on the poverty line chosen as well as on the average level of private consumption per capita in the country concerned. From the chart it can be seen that, for the \$1 poverty line, the growth elasticities of poverty can range from -0.5 to about -3.0. In everyday language this means that if average private consumption per capita goes up by 1 per cent, the share of the population living on less than \$1 a day will fall by between 0.5 per cent and 3 per cent. For the \$2 poverty line it can vary between -0.5 and just over -2.0.



The range of estimates, which is the inevitable consequence of the shape and position of the poverty curves, may explain the apparent instability in the elasticity estimates and the wide variation in different estimates reported in different studies since the country sample and the poverty line adopted vary. This indicates that a single-value aggregate elasticity applied to heterogeneous groups of developing countries, as has become customary, is bound to be misleading. As shown above, cross-country data indicate significant variations in elasticity estimates, depending on the choice of the poverty line and the average level of private consumption per capita of individual countries.

Source: Karshenas (2001).

One important implication of these findings is that sustained and rapid economic growth which raises average levels of income and consumption in the LDCs can be expected to have a major impact in reducing the share of the population living on less than \$1 or \$2 a day. The magnitude of the effects is due to the fact that poverty is generalized.

The reason this is so can be understood if a situation of generalized poverty is compared with the typical situation in a rich country where poverty is not all-pervasive, but rather where a minor proportion of the population are poor. In rich countries where poverty affects only a minor part of the population, economic growth is neither necessary nor sufficient for poverty reduction. It is not necessary, because the economy already has sufficient resources to introduce poverty reduction programmes. It is not sufficient, because no matter how high an economy's per capita income level may be, there will always be individuals or households that, because of their own special circumstances or because of sectoral shifts or cyclical fluctuations in the economy, fall below the poverty line. Poverty reduction in these circumstances depends on social and political processes and necessarily involves a redistribution of income. The introduction of different types of social welfare system in the European countries after the Second World War is an example of this type of poverty reduction. The differences in observed rates of extreme poverty in different European countries in the post-war period are explained more by their social and political institutions than by their per capita income levels. High rates of economic growth may ease the acceptance of redistribution policies, but there is no necessary empirical relationship linking high growth rates to the introduction of more adequate welfare systems in those countries.

In situations of generalized poverty, in contrast, since the majority of the population fall below the poverty line, growth and poverty reduction are necessarily linked. Redistributive transfers can play a direct role in alleviating the worst aspects of poverty. However, generalized poverty, as we understand it, is a situation where the available resources in the economy, even when more equally distributed, are barely sufficient to cater for the basic needs of the population on a sustainable basis. In these circumstances, poverty reduction can be achieved on a major scale only through economic growth. What is possible is indicated by the dramatic effects of rapid and sustained economic growth on the incidence of poverty in those low-income countries, particularly in East Asia, which, beginning from a situation of generalized poverty, have managed to achieve sustained growth.

Nevertheless various qualifications are necessary to complete the picture of the long-run relationship between economic growth and poverty.

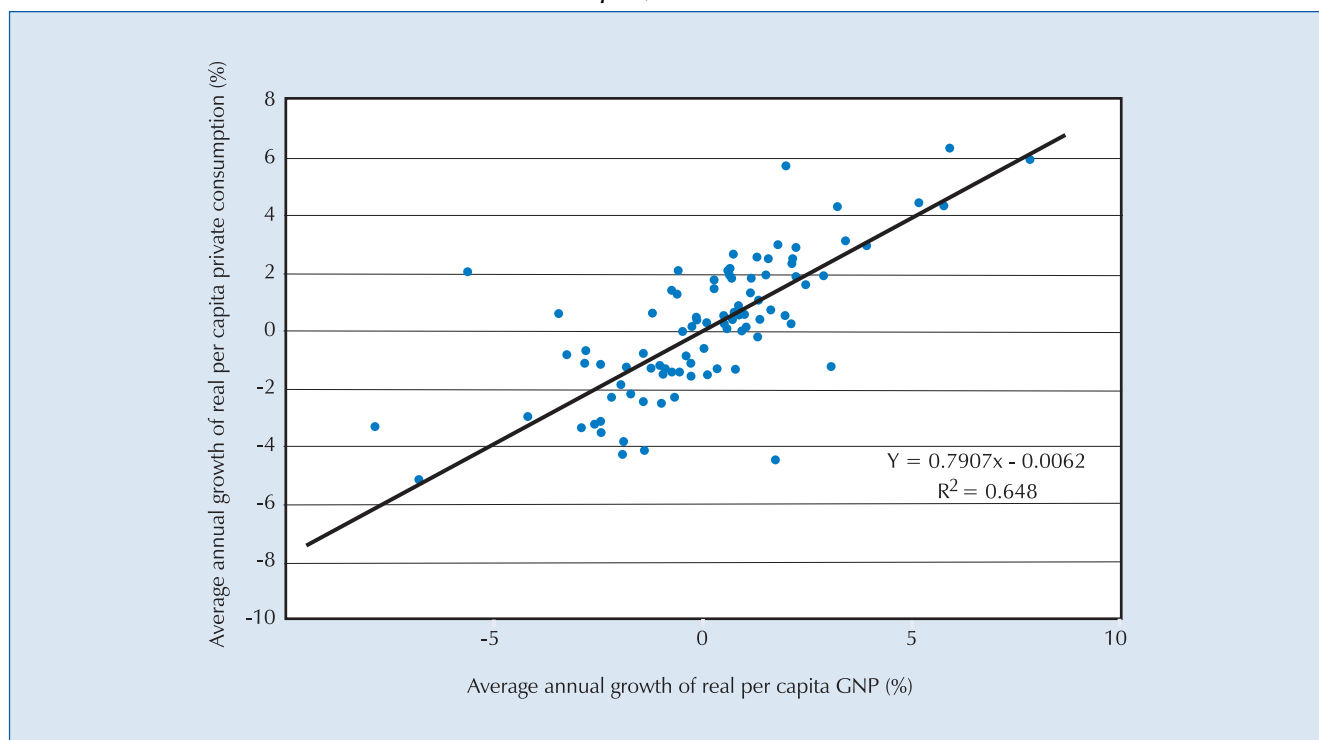
First, growth in GNP per capita and in GDP per capita are less closely related to poverty reduction than growth in average private consumption per capita. Although average private consumption per capita generally increases as GNP per capita rises, there are variations around the normal trend (chart 14). As a consequence, the relationship between increases in average incomes, as measured by GNP per capita, and poverty reduction is less close than the relationship between increases in private consumption per capita and poverty reduction. When one examines the relationship between increases in average GDP per capita (rather than average private consumption per capita) and poverty, the growth-poverty relationship will become even more blurred. It is possible, for example, to imagine economies in which the bulk of the GDP is produced in foreign-owned mining enclaves whose growth can have little effect on the population's average levels of private consumption, and hence little effect on poverty.

The magnitude of the effects of sustained and rapid economic growth on the incidence of poverty is due to the fact that poverty is generalized.

Growth in GNP per capita and in GDP per capita are less closely related to poverty reduction than growth in average private consumption per capita.

CHART 14. THE RELATIONSHIP BETWEEN PRIVATE CONSUMPTION GROWTH AND GNP GROWTH IN THE LDCs DURING THE 1970s, 1980s AND 1990s

(Per capita, in real terms)



Source: UNCTAD (2000: chart 18).

Note: Annual growth rates refer to average 10-year trends during the 1970s, 1980s and 1990s.

For any given rate of income growth, the faster the growth of savings, the slower the growth of consumption, and thus poverty reduction.

Second, for any given rate of income growth, the faster the growth of savings, the slower the growth of consumption, and thus poverty reduction. UNCTAD (2000: 33–37) shows that there is a strong savings effort in the LDCs when economic growth occurs. This effort reduces the amount by which private consumption increases as the average income increases. An important corollary of this relationship is that the more the growth process depends on domestic resource mobilization as countries emerge from generalized poverty, the slower will be the rate of poverty reduction associated with rising GNP per capita. The short-term trade-off between the mobilization of domestic resources for investment on the one hand, and the growth of private consumption and poverty reduction on the other hand, is lessened if countries do not have to rely totally on national savings, but have access to foreign savings as well.

Sustainable increases in living standards and average levels of private consumption depend on the accumulation of capital and skills, productivity growth and the expansion of employment opportunities.

Third, sustainable increases in living standards and average levels of private consumption depend on the accumulation of capital and skills, productivity growth and the expansion of employment opportunities. It is these proximate causes and effects of economic growth that are important for poverty reduction. This can be seen by looking at the sources of living standards when viewed from the perspective of the household (see box 8). The inability to achieve minimally adequate levels of consumption is, within this micro-level approach, rooted in a lack of household assets that serve as the basis for livelihoods, and in the low productivity and low remunerability of those assets. This is a far from complete picture of the causes of poverty. But it is sufficient to show that economic growth will not reduce poverty unless it releases these constraints on consumption possibilities. It is this type of growth that is important for poverty reduction.

Fourth, inequality and social exclusion still matter. The fact that, in situations of generalized poverty, poverty reduction on a major scale can be achieved only through economic growth does not mean that redistribution of income and assets has no role to play in such circumstances. It has been shown empirically that the redistribution of income is more important for poverty reduction in middle-income countries than in poor countries (Hagdeviren, van der Hoeven and Weeks, 2001). Nevertheless, efficiency-enhancing redistributions of assets and income can be important for poverty reduction in situations of generalized poverty. Moreover, the behaviour of the small proportion of the population in the LDCs who are rich is also very relevant. As UNCTAD (1997: 151–176) argues, when viewed from a dynamic perspective, what matters more than inequality per se is whether the rich use their high incomes and wealth, and in particular reinvest profits, in ways which support accumulation of capital and skills, productivity growth and technical progress, and the creation of employment opportunities for the majority of the population.

As the average levels of income and private consumption of the population as a whole rise, there is a high probability that certain regions and social groups will be left behind. This will be more likely to happen to the extent that discrimination on the basis of gender, ethnicity, race or social status prevents people from enjoying the potential benefits of assets and skills, or denies them the opportunity to acquire those assets and skills. The danger of certain groups being left behind can be lessened through policies that are undertaken to reduce their marginalization. Also, particular attention should be paid to gender relations and the special needs of economically dependent groups such as the disabled, children and old people.

C. Generalized poverty, domestic resource mobilization and low-level equilibrium

In situations of generalized poverty, economic growth that raises average levels of household income and consumption should normally lead to major reductions in poverty. However, another implication of generalized poverty is that poverty of this type also affects the prospects for growth. Indeed, in these situations the promise of rapid poverty reduction, which is evident in poverty curves that define the normal relationship between average private consumption per capita and the incidence of poverty, cannot be realized precisely because generalized poverty can have a negative impact on growth.

A major way in which generalized poverty constrains economic growth is through its effects on domestic resource availability. In conditions of generalized poverty, domestic resources available to finance capital formation and provide for vital public services are extremely limited. As a consequence, the available resources are barely sufficient to provide the necessary physical capital stock, education, health, and other social and physical infrastructure to keep pace with population growth. Many LDC economies are caught in this situation, which the development economists of the 1950s described as a “low-level equilibrium trap” (Liebenstein, 1957; Nelson, 1956).

Where the majority of the population earn less than \$1 or \$2 a day, a major part of GDP is expected to be devoted to the procurement of the basic necessities of life. The domestic resources which are available for financing investment, both private and public, and public services, including administration and law and order, would under these circumstances inevitably

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A major way in which generalized poverty constrains economic growth is through its effects on domestic resource availability.

Box 8. A HOUSEHOLD MODEL OF THE GENERATION OF LIVING STANDARDS

Pyatt (2001) develops a useful way of understanding the factors affecting poverty seen from the perspective of an individual household, which is summarized in box chart 3. At the base of the diagram in the chart are household assets, and human and property rights. Household assets include: (a) physical assets owned individually or jointly by household members, such as land, workshop tools, livestock, housing, transport vehicles and domestic appliances; (b) human assets, such as capacity for basic labour, skills and organizational abilities, educational attainment, and good health; (c) financial assets in various forms; and (d) social assets, such as networks of contacts. These assets are the basis of livelihoods. But for assets to matter, rights of various kinds must be respected. Benefits which can flow from owning land or tools or dwellings cannot be fully realized if property rights are not respected. Similarly, human capital depends on human rights in order to be fully functional, as discrimination on the basis of gender, ethnicity, race or social status can negate the potential benefits of abilities and skills.

Household assets are translated into consumption possibilities through production activities, and also reproductive activities, which in the present context refer to the raising of children and supporting an older generation that is no longer able to sustain itself without some help. If the household is self-sufficient, the key factors affecting the set of consumption possibilities are the size of the household and its dependency ratio, the physical assets which the household commands through private ownership or access to common property resources, and the productivity of those assets. But in more complex circumstances, markets and Governments as institutions critically affect the returns and productivity of assets.

As households engage in the cash economy, productivity gains from trade and specialization become possible. This can be a potent mechanism for poverty reduction in situations where the division of labour is rudimentary, which is often the case with generalized extreme absolute poverty. But the gains depend on access to markets for those goods and services that the household can produce and wishes to sell, as well as on the ways in which those markets function.

Access to employment is critical for many households since their basic asset is their labour power, and thus the availability of employment and the organization of labour markets are central factors affecting the relationship between the assets and productive activities of households. Access to credit markets is also vital for expanding financial assets and obtaining more productive forms of informal employment. In addition, access to services provided by Governments, including health care and education services — the basis for improved human capital — is also important, as is the availability of physical and administrative infrastructure. Communities may also play a role in provision of those services.

Once households are engaged in market transactions, including the purchase of public services, the terms of trade of the household become an important proximate determinant of the household's living standards. This is likely to be different for households with different occupations. For farmers, what matters is the price of the goods that they produce as against the price of final consumption goods and services that they purchase, as well as the cost of fertilizer and seed. For the wage earner the wage rate in relation to the price of food and other basic goods is central.

Finally, the consumption possibilities available to a household depend on transfers. They can be significantly extended if the household becomes a net recipient of transfers, but conversely they can contract if net payments are made, for example in paying a debt.

The factors discussed so far are proximate determinants of the set of consumption possibilities. But it is apparent from box chart 3 that the actual consumption standards of members of the household depend on choices made within the constraints of the feasible set of consumption possibilities. Complex issues of intra-household distribution may arise at this point. Moreover, the size and composition of the household will matter for individual living standards.

Poverty can be explained, within the framework of the diagram in box chart 3, as the result of various constraints and circumstances which limit the feasible set of consumption possibilities to an extremely low level. Although individual choices enter the picture, and transfers can modify the pattern, the basic causes of poverty are identified here as the large size and composition of the household, lack of skills and abilities, lack of physical and financial assets, low productivity, limited access to markets, inadequate wage employment, poor public services and common property resources, and unfavourable terms of trade for the goods and services which the household buys and sells.

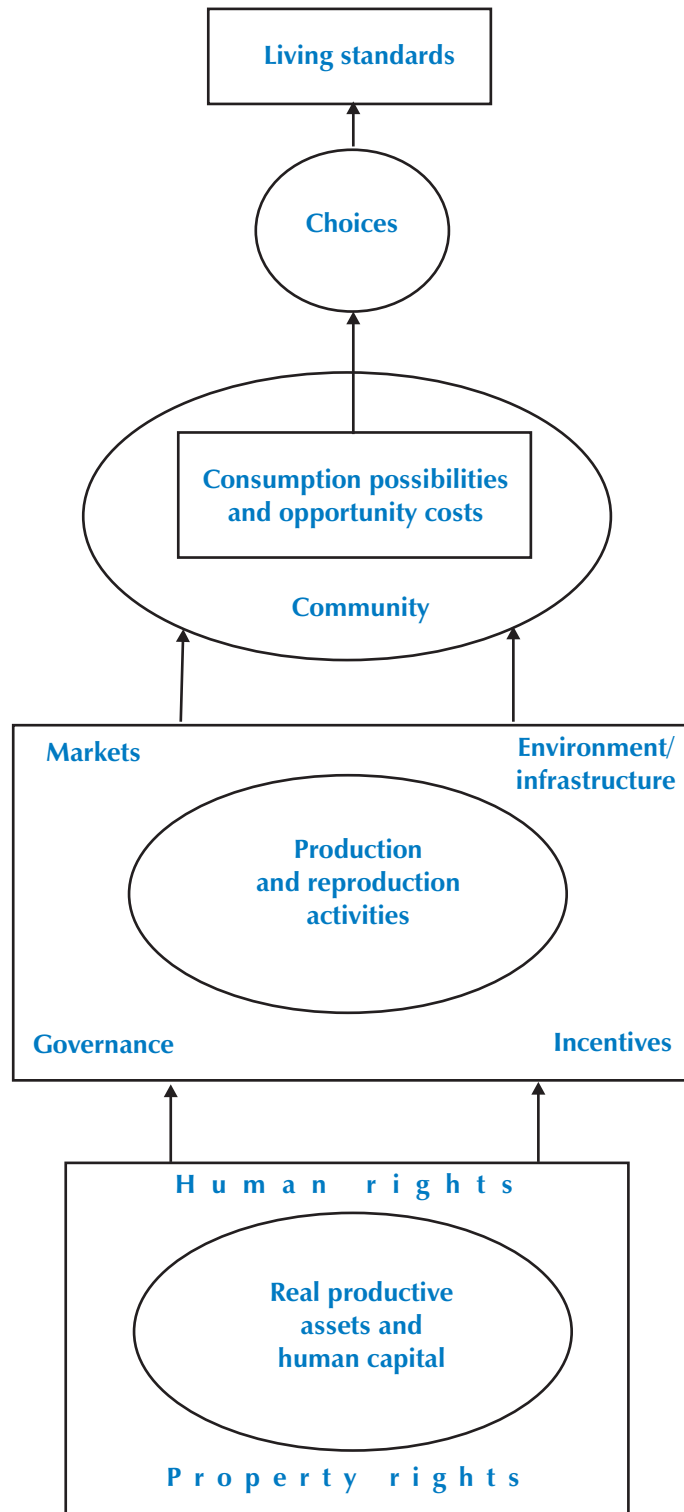
These factors are "causes" of poverty in the sense that if they improve, the consumption possibilities of the household can expand so that actual consumption levels are above the poverty line. Economic growth is very closely related to poverty reduction in situations of generalized poverty because it is necessary for such improvements to occur. Economic growth shifts the factors limiting consumption when it is underpinned by the processes of accumulation of physical and human capital, increasing specialization and the division of labour, productivity growth through technical progress or structural change, and more widespread and improved public service provision as well as infrastructure development.

This household model makes possible an intuitive view of the congruence between the growth process for a national economy and poverty reduction at the household level. But it must be stressed that as an explanation of the causes of poverty the household model is limited. It is a partial equilibrium approach that takes prices, access to market, and so

Box 8 (contd.)

on, as given. Furthermore, it does not take account of the broader social externalities that arise from individual household decisions. A broader view of the determinants of low consumption standards requires an economy-wide framework in which households, companies, non-governmental organizations and government are all key actors. It is the combined behaviour of each of these that determines household living standards within the context of international trade and other aspects of international economic relationships.

BOX CHART 3. A SCHEMATIC REPRESENTATION OF THE GENERATION OF LIVING STANDARDS



Source: Pyatt (2001).

be very low. Furthermore, in the prevailing living conditions for the majority of the population in such economies there is little potential for expanding the domestic resources available for financing investment and public services without an initial period of sustained growth in the domestic economy.

The average domestic resources available to finance investment and public services for other developing countries are about 35 per cent of GDP. The average domestic resources available to finance investment and public services in the poor LDCs are, in contrast, around 24 per cent of GDP. In the poorest LDCs, they are less than 15 per cent.

Estimates of the domestic resources available for financing investment and public services for the LDCs and other developing countries⁵ for the period 1995–1999 are shown in chart 15. They are calculated as the difference between GDP and private consumption, expressed as a percentage of GDP. In order to show how the severity of poverty affects domestic resources available for financing investment and public services, the LDCs are subdivided into the poor LDCs and the poorest LDCs. The poorest LDCs are those countries where over 40 per cent of the population live on less than \$1 a day and over 80 per cent live on less than \$2 a day. The remaining LDCs are referred to as poor LDCs.⁶ The domestic resources available for financing investment and public services in these different groups are compared with the sample of other developing countries for which poverty trends were described in the previous chapter.

As can be seen from chart 15, the average domestic resources available to finance investment and public services for other developing countries are about 35 per cent of GDP.⁷ The average domestic resources available to finance investment and public services in the poor LDCs are, in contrast, around 24 per cent of GDP. In the poorest LDCs, they are less than 15 per cent. Considering that the provision of basic public services such as education, health, law and order, agricultural extension services and public administration absorb at least 10 to 15 per cent of GDP in any modern economy, all these activities can barely be properly funded out of domestic resources.

The low levels of domestic resources available for financing private capital formation, public infrastructure and public services reflect the fact that average savings rates are very low in the LDCs. This can be seen more directly by a comparison of the average savings rates in the LDCs with those in other developing countries in chart 16. For the poor LDCs, the average domestic savings rate is around 12 per cent, almost half of the average rate for other developing countries. In the case of the poorest LDCs, the domestic savings rate is on average no more than 2 to 3 per cent.

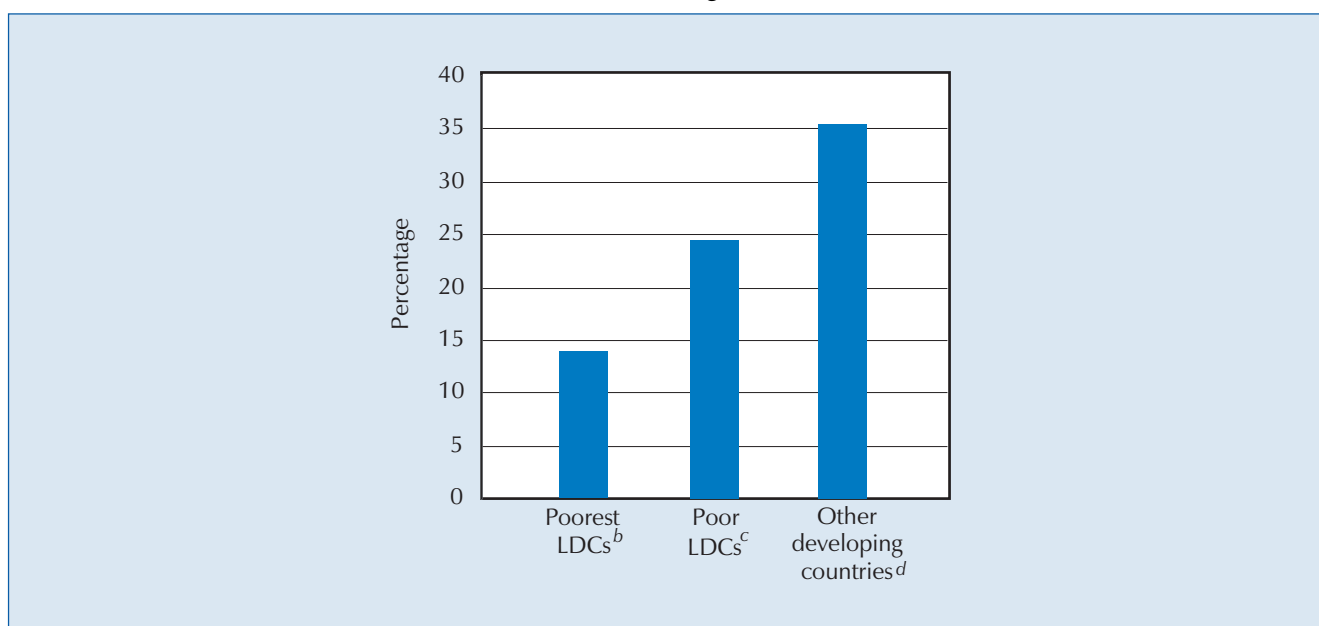
For the poor LDCs, the average domestic savings rate is around 12 per cent of GDP. In the case of the poorest LDCs, the domestic savings rate is on average no more than 2 to 3 per cent.

Such low savings rates are not even sufficient to keep intact the stock of wealth in the LDCs, let alone to generate economic growth. Evidence of this can be seen by comparing the “genuine savings” rates in the LDCs and other developing countries. Genuine savings rates are net estimates which subtract from domestic savings the reduction in national wealth associated with the depletion of environmental resources and the depreciation of man-made capital stock. The “genuine” savings rates for the poor LDCs are barely above zero. For the poorest LDCs, genuine savings are on average minus 5 per cent of GDP (chart 17). This implies that not only are domestic savings extremely low, but also the natural and created capital stock, the assets on which livelihoods depend, is not being maintained.

The extremely low average savings rate in these countries is rather the result of low levels of per capita income, or the prevalence of generalized poverty. Evidence shows that when per capita income increases in the LDCs, there is a strong domestic savings effort. Indeed, the savings effort in the LDCs, as measured by the degree to which extra income is saved, is at least as strong as in other developing countries (see UNCTAD, 2000: 36–37). Thus if growth can be started and sustained, and the LDCs emerge from generalized poverty,

CHART 15. DOMESTIC RESOURCES AVAILABLE FOR FINANCE^a AS A SHARE OF GDP
IN LDCs AND OTHER DEVELOPING COUNTRIES, 1995–1999

(Percentage)



Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2001*, CD-ROM.

Note: The figures are simple averages. No data are available for Angola, Liberia, Solomon Islands, Somalia and Sudan.

- a Domestic resources available for finance is estimated as the difference between GDP and private consumption.
- b The “poorest LDCs” group comprises: Angola, Burkina Faso, Burundi, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Ethiopia, Guinea, Guinea-Bissau, Haiti, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Somalia, Togo, Uganda, United Republic of Tanzania and Zambia.
- c The “poor LDCs” group comprises: Bangladesh, Benin, Bhutan, Cape Verde, Gambia, Lao People’s Democratic Republic, Mauritania, Myanmar, Nepal, Senegal, Solomon Islands, Sudan and Vanuatu.
- d The “other developing countries” comprises: Cameroon, China, Congo, Côte d’Ivoire, Dominican Republic, Egypt, Ghana, India, Indonesia, Jamaica, Kenya, Morocco, Namibia, Nigeria, Pakistan, Philippines, Sri Lanka, Thailand, Tunisia, Turkey and Zimbabwe.

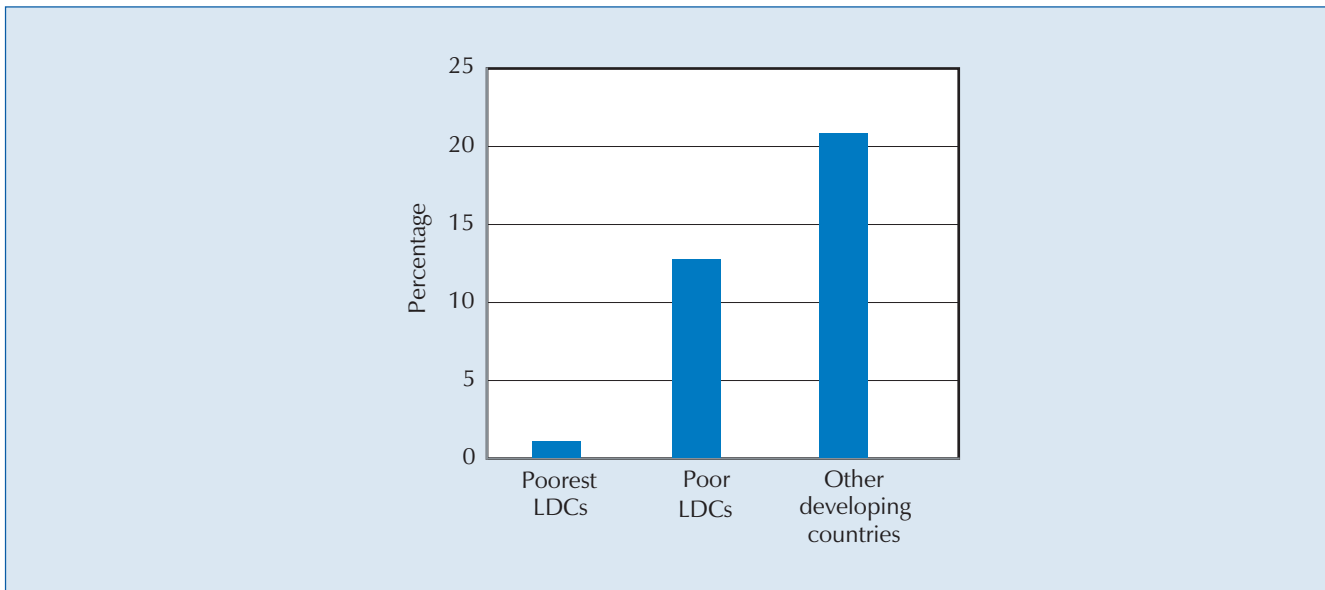
significant increases in domestic resource mobilization can be expected. But with sluggish growth, economic stagnation and even economic regression, this potential cannot be realized. With many people living hand to mouth, and with a weakly developed corporate sector, domestic savings are necessarily very low. This not only limits domestically financed economic growth, but also is a fundamental source of vulnerability of LDC economies.

During the period 1995–1999, the domestic resources available to finance investment and public service in the LDCs, when measured at current prices and exchange rates, were on average no more than 0.15 dollars per person per day. In other words, on average there were only 15 cents a day available per capita to spend on private capital formation, public investment in infrastructure, and the running of vital public services such as health, education and administration, as well as law and order. The implications of this situation for investment and growth, and also for the provision of public services and governance, are serious.

In terms of GDP share, government revenue and final consumption expenditure⁸ in the LDCs do not appear to be significantly different from what they are in other developing countries (see charts 18A and 18B). Government revenue as a share of GDP during the period 1995–1999 in the LDCs as a whole was on average about 16 per cent, compared with 19 per cent in other developing countries. Government consumption expenditure of about 12 per cent average share of GDP in the LDCs also compares with about 13 per cent for other developing countries. This indicates that in terms of mobilization and use

In LDCs during the period 1995–1999, there were on average only 15 cents per person per day available to spend on private capital formation, public investment in infrastructure, and the running of vital public services such as health, education and administration, as well as law and order.

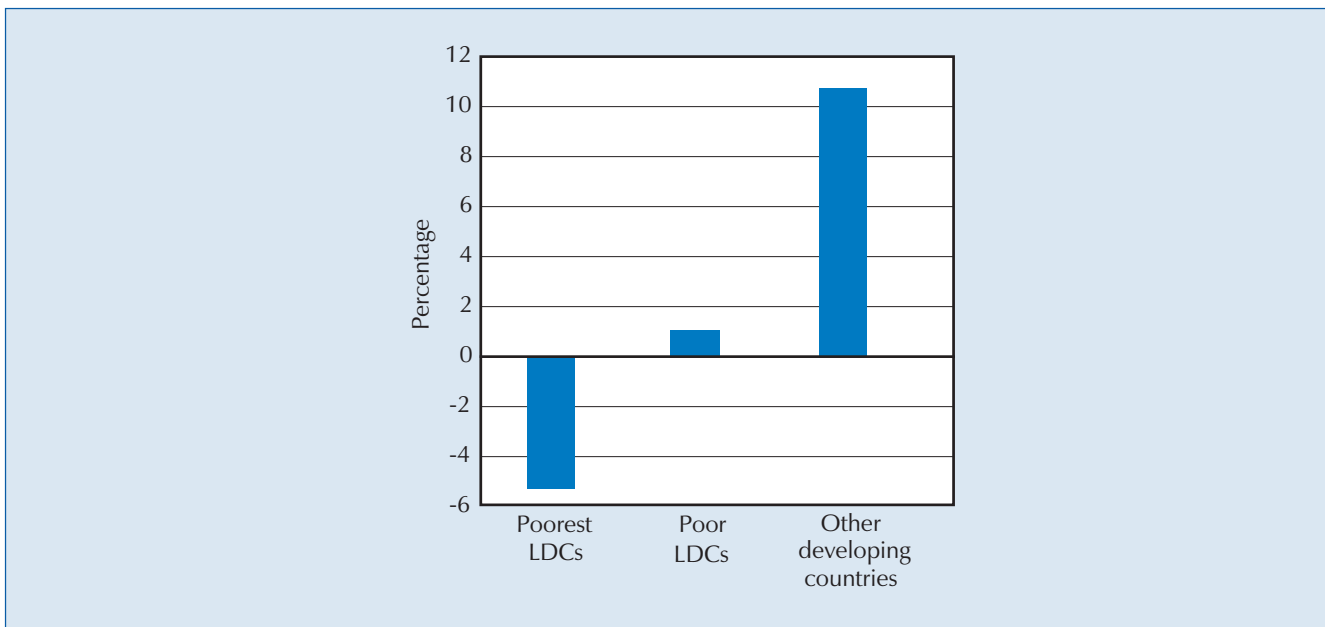
CHART 16. GROSS DOMESTIC SAVINGS AS A SHARE OF GDP IN LDCs
AND OTHER DEVELOPING COUNTRIES, 1995–1999
(Percentage)



Source: Same as for chart 15.

Note: The country groups are the same as for chart 15. The figures are simple averages. No data are available for Liberia, Solomon Islands, Somalia, Sudan and Vanuatu.

CHART 17. GENUINE DOMESTIC SAVINGS AS A SHARE OF GDP IN LDCs
AND OTHER DEVELOPING COUNTRIES, 1995–1999^a
(Percentage)



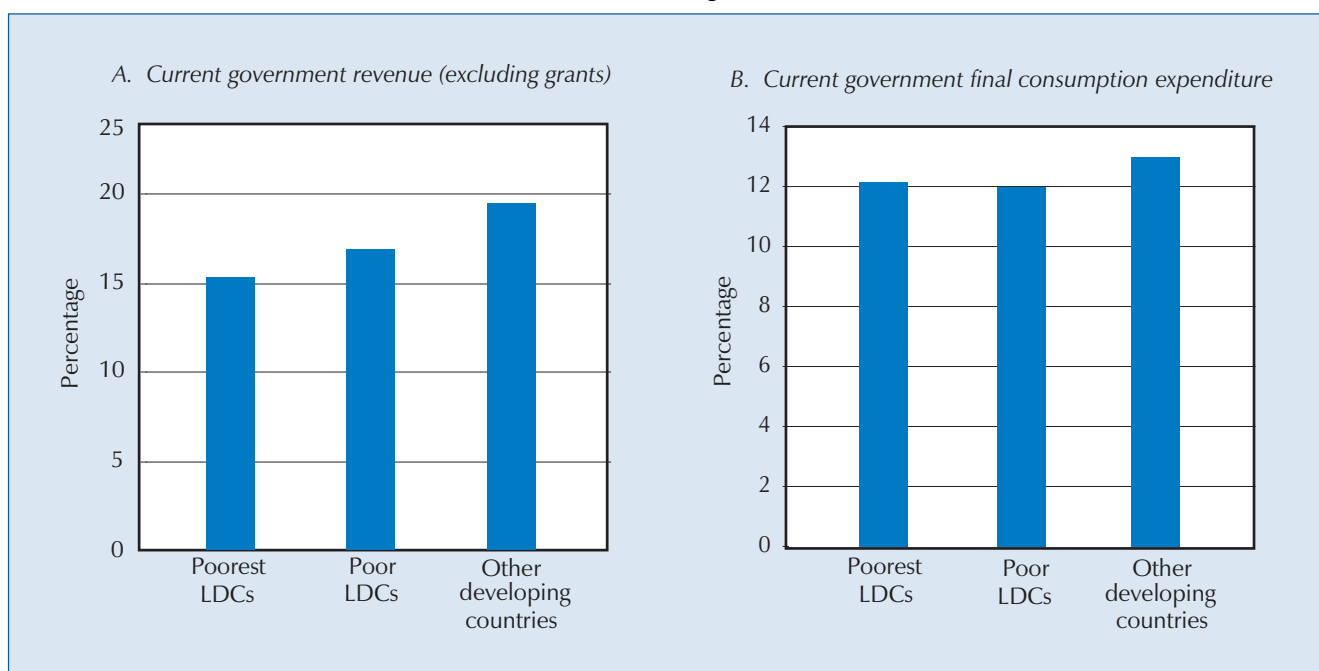
Source: Same as for chart 15.

Note: The country groups are the same as for chart 15. The figures are simple averages. No data are available for Angola, Bhutan, Cape Verde, Comoros, Djibouti, Liberia, Myanmar, Solomon Islands, Somalia, Sudan and Vanuatu.

^a Genuine savings rates are net estimates which subtract from domestic savings the reduction in national wealth associated with the depletion of environmental resources and depreciation of man-made capital stock.

CHART 18. CURRENT GOVERNMENT REVENUE AND FINAL CONSUMPTION EXPENDITURE AS A SHARE OF GDP IN LDCs AND OTHER DEVELOPING COUNTRIES, 1995–1999

(Percentage)



Source: Same as for chart 15.

Note: The country groups are the same as for chart 15. The figures are simple averages. Chart 18A is based on a small sample of LDCs for which data are available — Bhutan, Burundi, Democratic Republic of the Congo (1995–1997), Guinea (1998–1999), Lesotho (1995–1998), Madagascar (1995–1996), Nepal, Sierra Leone (1995–1997) and Vanuatu. In the sample of other developing countries, no data are available for Ghana, Jamaica, Namibia and Nigeria in chart 18A. No data are available for Liberia, Myanmar, Solomon Islands, Somalia, Sudan and Vanuatu in chart 18B.

of resources in the public sector, the development effort in the LDCs was not significantly below that of other developing countries.

However, under the conditions of generalized poverty in the LDCs these average government revenue and expenditure shares, once translated into real per capita terms, highlight the extreme resource constraints facing public sector service provision in the LDC economies (chart 19). Government consumption expenditure in the poorest LDCs was on average about \$37 per person per year over the period 1995–1999. For the poor LDCs group the average per capita government consumption was about \$64 per year for the same period. These figures compare with over \$160 on average for the sample of other developing countries.

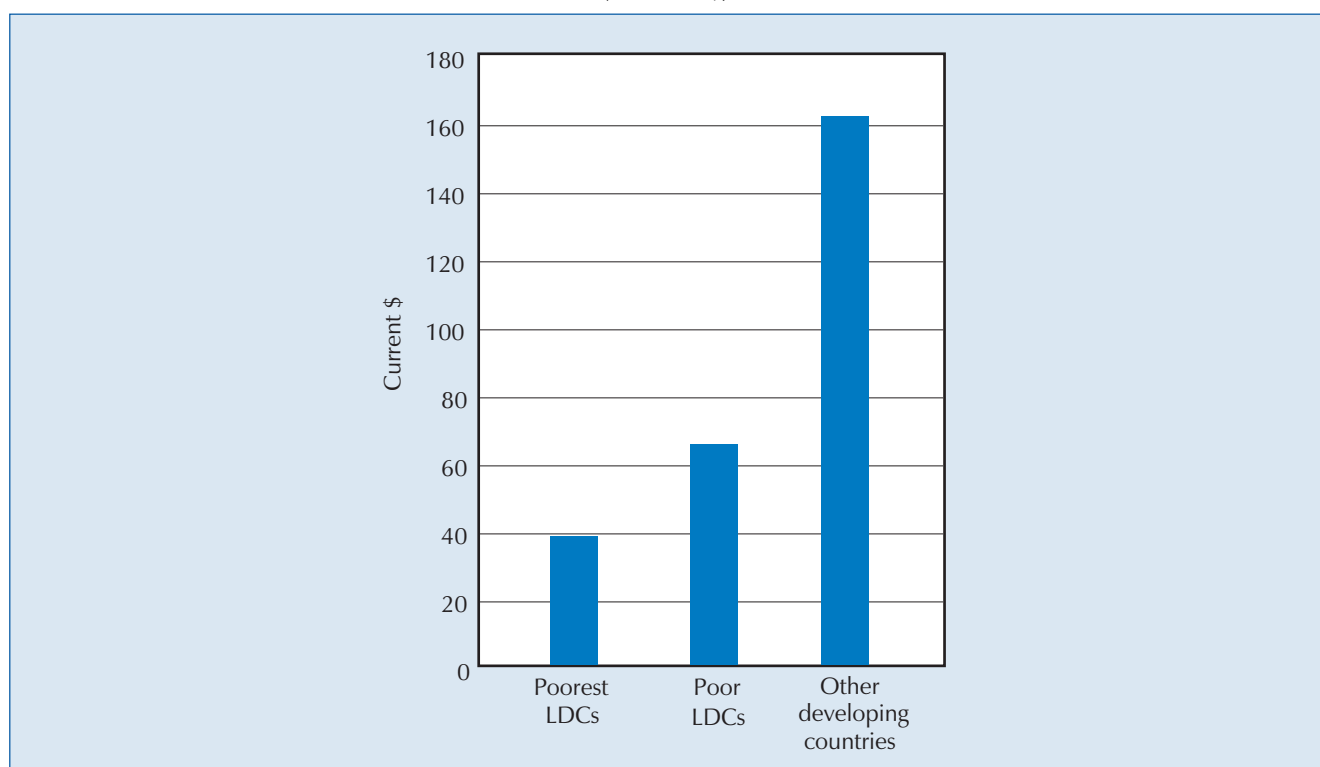
The extremely limited availability of resources implies that the Governments of LDCs are constantly faced with making difficult choices about the provision of different vital public services. Most of the public services such as health, education, agricultural support services, general administration and law enforcement, which form the foundations of modern economic development, are held back by serious supply constraints in the LDCs.

The example of health expenditure, where comparable data for other developing countries are available, highlights this point (see chart 20). Health expenditure per capita in the poorest LDCs during the period 1995–1998 was about \$14 per year, which was one sixth of the average \$84 per head in other developing countries. Over the same period the average per capita health expenditure in the poor LDCs was about \$25 a day.⁹ The low rate of per capita expenditure on essential public services such as health and education in the

Health expenditure per capita in the poorest LDCs during the period 1995–1998 was about \$14 per year.

CHART 19. ANNUAL GOVERNMENT FINAL CONSUMPTION EXPENDITURE PER HEAD
IN LDCs AND OTHER DEVELOPING COUNTRIES, 1995–1999

(Current \$)

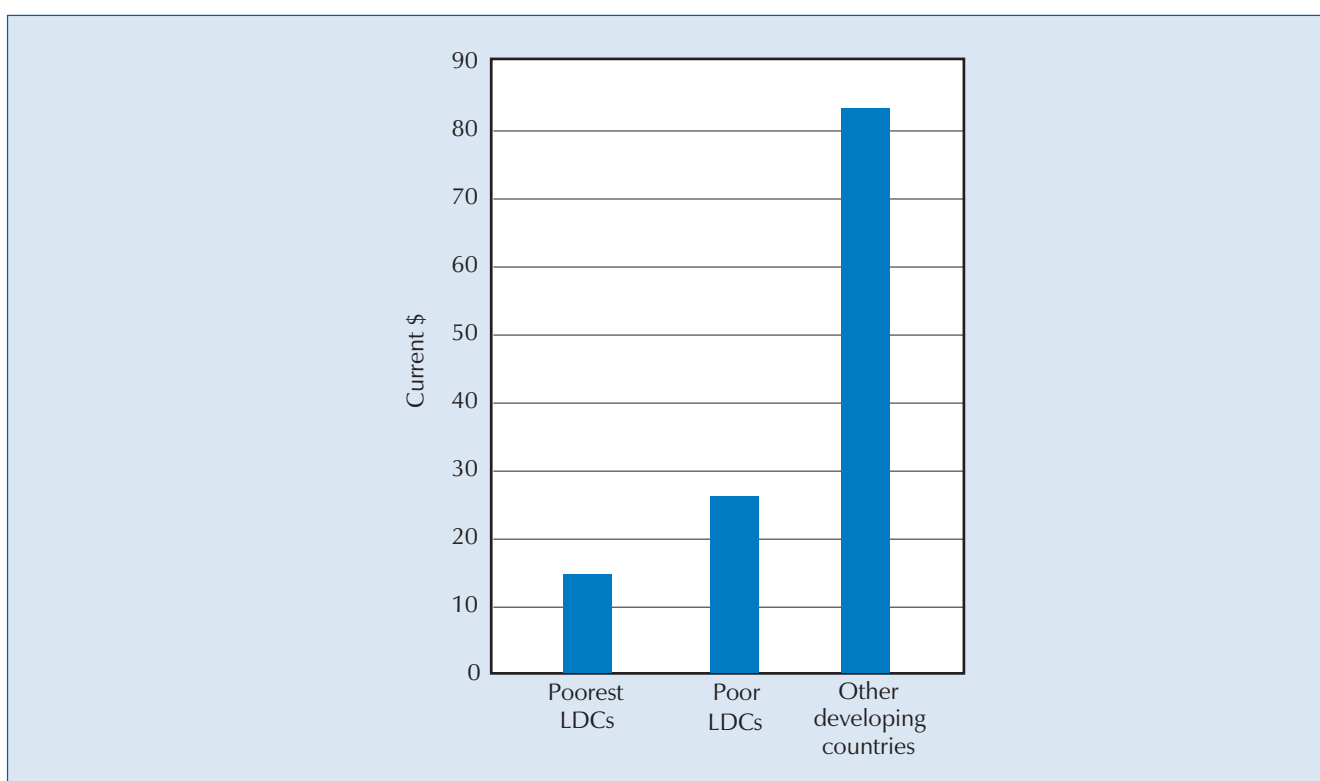


Source: Same as for chart 15.

Notes: The country groups are the same as for chart 15. The figures are simple averages. No data are available for Liberia, Myanmar, Solomon Islands, Somalia, Sudan and Vanuatu.

CHART 20. ANNUAL HEALTH EXPENDITURE PER CAPITA IN LDCs AND OTHER DEVELOPING COUNTRIES, 1995–1998

(Current \$)



Source: Same as for chart 15.

Note: The country groups are the same as for chart 15. The figures are simple averages. No data are available for Angola, Comoros, Democratic Republic of the Congo, Djibouti, Guinea-Bissau, Lesotho, Liberia, Somalia and Vanuatu.

LDCs does not result from different public expenditure priorities in those countries: it is essentially due to the extremely low overall resource availability in countries with generalized poverty. Under conditions of generalized poverty, poverty reduction strategies thus need to go beyond simple reallocation of public expenditure.

The paucity of domestic resources is one reason why very low levels of human development persist in many LDCs. Chart 21 shows levels of human development as measured by the UNDP's Human Development Index (HDI), and levels of real GDP per capita (in 1999 PPP dollars) in 1985 and 1999 for LDCs and other low-income and middle-income countries.¹⁰ It is clear, as has been noted in past LDC Reports, that the island LDCs are somewhat different from other LDCs. They have higher GDP per capita and also a higher HDI level. The majority of the LDCs are, however, clustered in the bottom left-hand corner of the chart, with an HDI level of less than 0.5 and GDP per capita of less than \$1,600 (in 1999 PPP dollars). Some other low-income countries are also in this part of the chart. But when the situation in 1985 is compared with that in 1999, it is apparent that there was a much greater overlap between LDCs and other low-income countries in 1985. By 1999, many of the other low-income countries had managed to achieve higher levels of HDI and GDP per capita. At the same time, the LDCs are generally stuck in the bottom left-hand corner of the chart with relatively low GDP per capita and low levels of human development.

The low-level equilibrium trap in the LDCs facing generalized poverty, therefore, does not solely imply low levels of savings and investment, which were the focus of the development economists of the 1950s, but also involves inadequate and low-grade public services. These can negatively affect economic efficiency and also human development. In extreme cases this lack of access to resources can undermine the basic mechanisms of governance and lead to political disintegration and open social conflict. Armed conflicts are on the rise worldwide and many are taking place in poor countries (Stewart and Fitzgerald, 2000; Messer and Cohen, 2001; SIPRI, 2000). When they occur there can be a massive destruction of capital stocks. A growing number of LDCs experienced disruptive civil wars and armed conflicts during the 1990s.¹¹

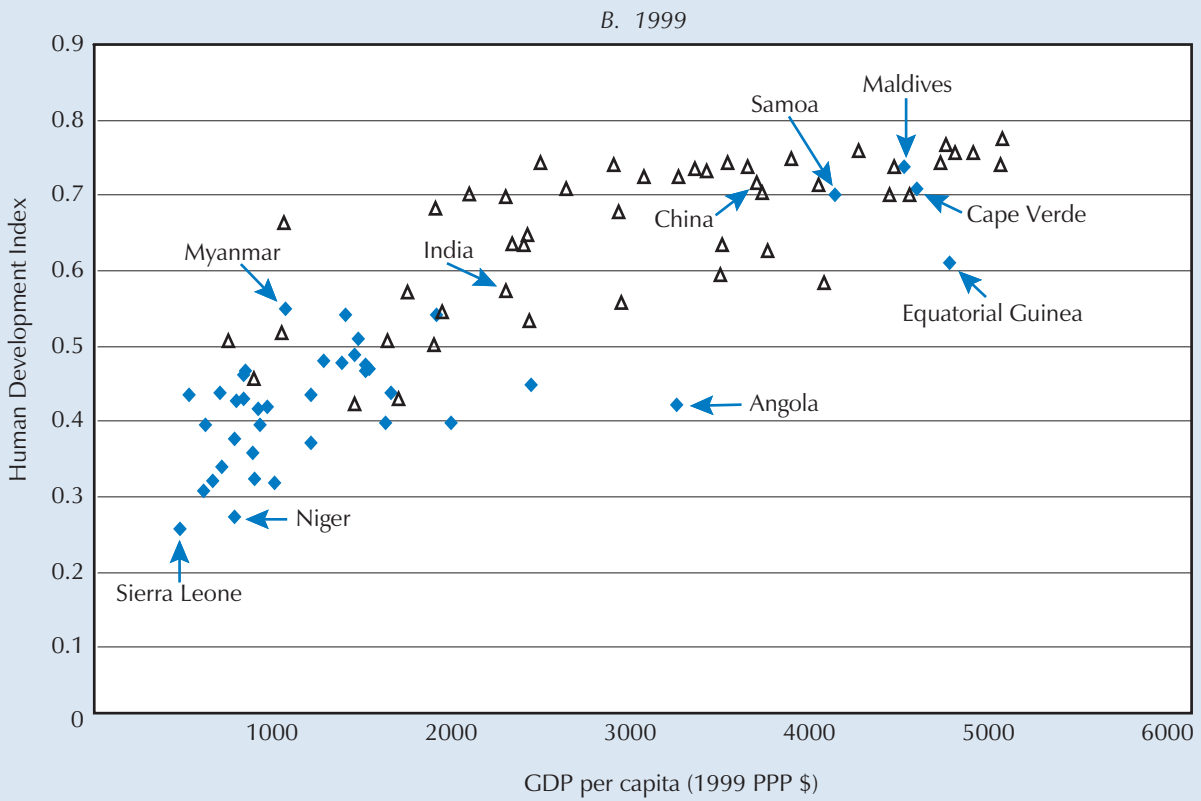
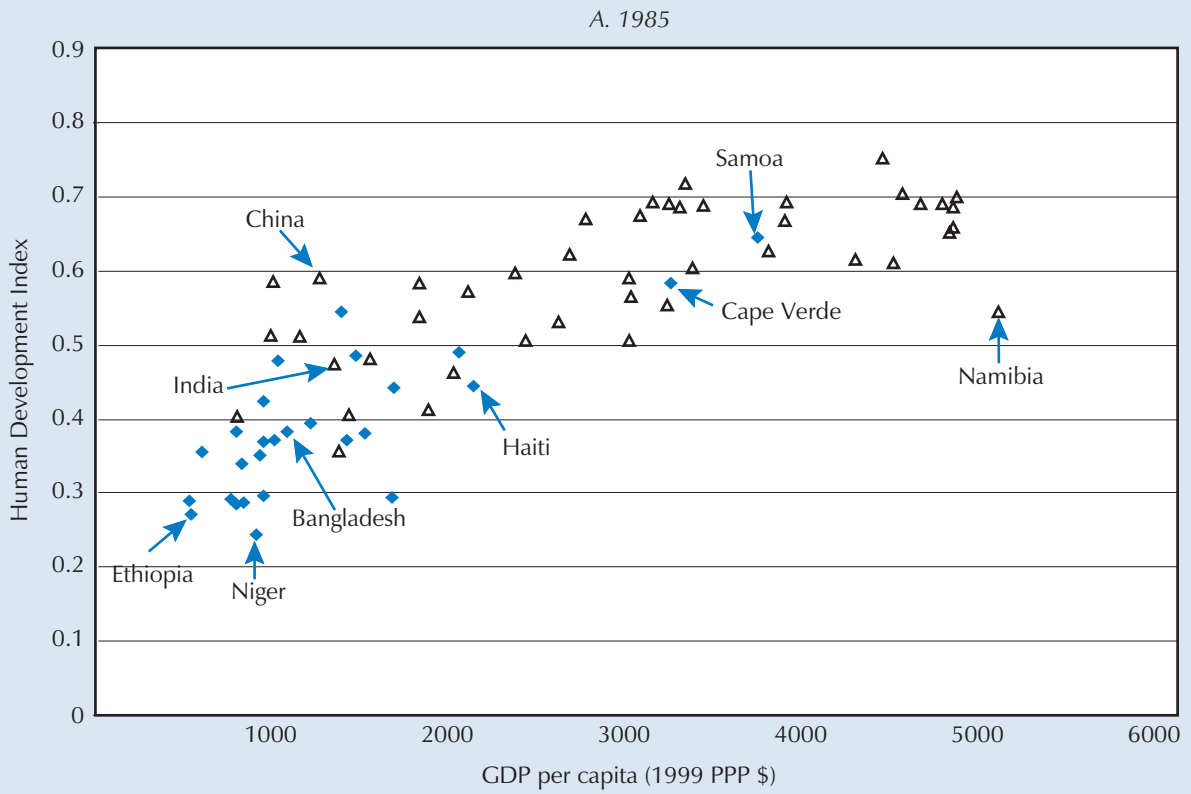
Another implication of the extremely low levels of domestic resources available for finance in the LDCs is that these countries have had to rely on external resources in order to supplement their meagre domestic resources. In the late 1990s, the size of the external resource gap, measured as the net trade balance in goods and services, was equivalent to about 90 per cent of investment in the poorest LDCs on average, and about 50 per cent in the poor LDCs. This contrasts with just over a 10 per cent average for the sample of other developing countries (see chart 22A). Similarly, the external resource gap was equivalent to over 100 per cent government consumption expenditure in the case of the poorest LDCs in contrast to an average of about 17 per cent for the other developing countries (chart 22B). These ratios, which in the case of the LDCs have remained at very high levels since the early 1980s, indicate that external resources have not been adequate to pull the LDCs out of their low-level equilibrium trap.

Another important feature of the LDCs is that the external resources that cover their domestic resource gap are entirely composed of foreign aid and grants. Most LDCs do not have access to private capital markets, and the extent of foreign direct investment in those economies during the past two decades has been very limited (UNCTAD, 2000: 81–100). The budgetary and accumulation

Under conditions of generalized poverty, poverty reduction strategies thus need to go beyond simple reallocation of public expenditure.

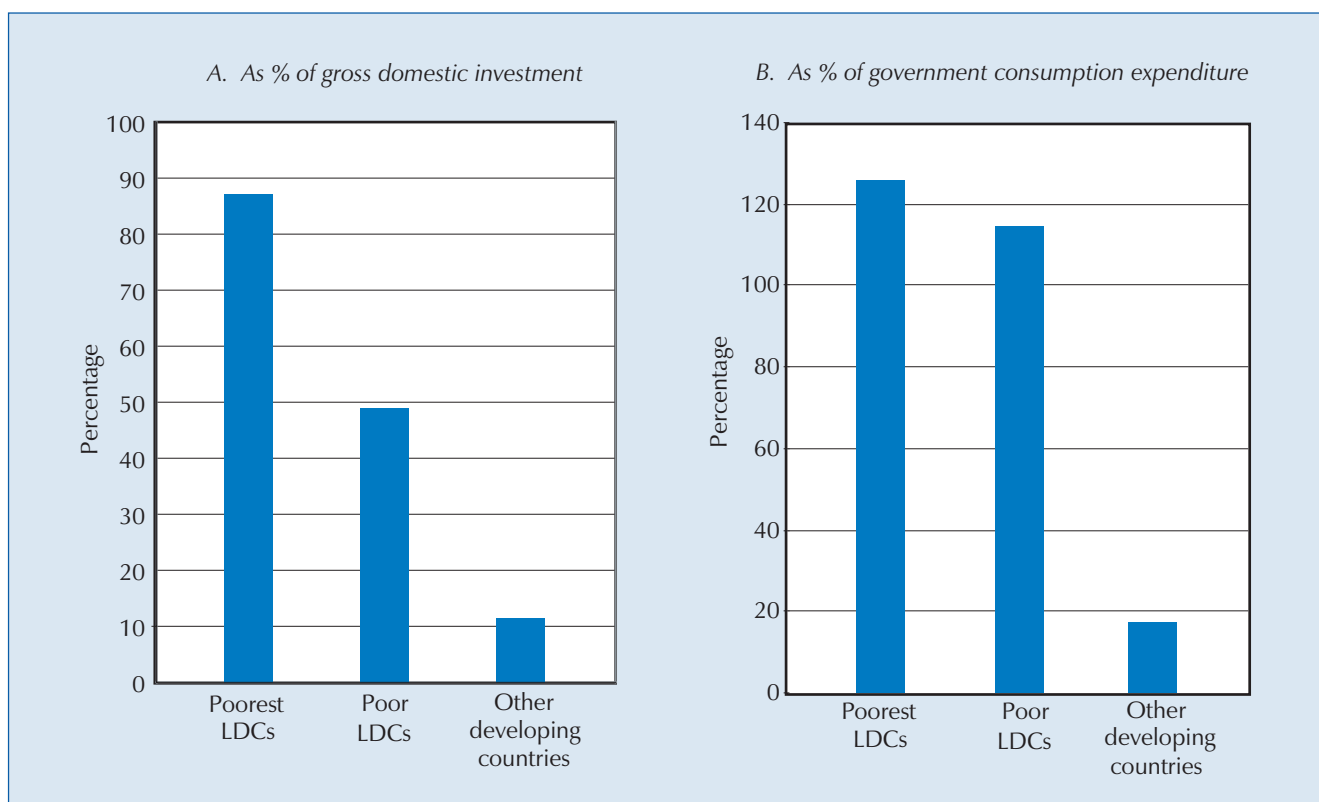
In the late 1990s, the size of the external resource gap, measured as the net trade balance in goods and services, was equivalent to about 90 per cent of investment in the poorest LDCs on average, and about 50 per cent in the poor LDCs.

CHART 21. HUMAN DEVELOPMENT INDEX AND GDP PER CAPITA IN LDCs AND OTHER LOW-INCOME AND MIDDLE-INCOME COUNTRIES, 1985 AND 1999



Source: UNDP Human Development Office.

CHART 22. EXTERNAL RESOURCE GAP IN LDCs AND OTHER DEVELOPING COUNTRIES, 1995–1999



Source: Same as for chart 15.

Notes: The country groups are the same as for chart 15. The figures are simple averages. No data are available for Liberia, Myanmar, Solomon Islands, Sudan and Vanuatu.

processes in the LDCs over the past two decades have therefore been dominated by foreign aid. The nature of foreign aid and the aid delivery system has hence played a critical role in economic management and development possibilities in the LDCs facing generalized poverty.

D. Generalized poverty, population growth and environmental degradation

The problems facing many LDCs also go beyond those perceived in traditional low-level equilibrium trap models because a large number of the LDC economies have experienced not only economic stagnation, but also a long-term sustained downward spiral. This is evident in the poverty trends discussed in the previous chapter. In order to examine the underlying mechanisms that give rise to downward spiral processes, one needs to go beyond the conventional low-level equilibrium trap theories. In these conventional theories, population growth is taken as an exogenous factor and environmental resources are ignored or treated as unlimited free gifts of nature. In generalized poverty, however, important interactions can take place between growth, environment and demographic factors, which lead to complex dynamic processes not envisaged in the low-level equilibrium models.

A large number of the LDC economies have experienced not only economic stagnation, but also a long-term sustained downward spiral.

A growing body of empirical evidence over the past two decades has highlighted the importance of interactions between poverty, environment and population growth for economic development. The evidence suggests that in poor countries, poverty, environmental degradation and population growth are

interlinked. As a result, rather than being caught in a low-level equilibrium trap, the economy can fall into a downward spiral where higher population growth, greater environmental degradation and increasing poverty reinforce one another. Before the relevance of this for the LDC economies is examined, it would be helpful to highlight some of the stylized facts about the relationship between poverty and demographic and environmental factors in the LDCs at an aggregate level.

By the late 1990s on average more than 75 per cent of the LDC labour force were engaged in the agricultural sector as compared with less than 35 per cent in other developing countries. Over 70 per cent of the LDC population live in rural areas.

1. PATTERNS OF POVERTY, POPULATION GROWTH AND ENVIRONMENTAL RESOURCE USE

The first set of issues that need to be clarified are the nature of the environmental resource dependence of the LDC economies, the type of environmental resources on which they are most dependent, and the nature of the activities in which the bulk of the population are engaged. The LDC economies are dependent on ecological and natural resources, particularly of the agricultural type, to a much larger extent than other developing countries and, a fortiori, industrialized countries. One indicator of this is the much larger share of the LDC population living in rural areas and engaged in agricultural activities compared with other developing countries. By the late 1990s on average more than 75 per cent of the LDC labour force were engaged in the agricultural sector as compared with less than 35 per cent in other developing countries. Over 70 per cent of the LDC population live in rural areas as compared with under 44 per cent for other developing countries on average (table 22). A further indicator of this phenomenon is the LDC economies' reliance on wood and charcoal as the main sources of energy. In the late 1990s, wood fuel and charcoal constituted over 75 per cent of the total energy consumption in the LDCs as compared with just over 10 per cent in other developing countries.

Wood fuel and charcoal constituted over 75 per cent of the total energy consumption in the LDCs as compared with just over 10 per cent in other developing countries.

Another related indicator is the much greater share of primary commodities in LDC merchandise exports as compared with other developing countries. As will be discussed in the next chapter, there are a number of LDCs that have managed to diversify their exports away from unprocessed primary commodities towards manufactures and services. But on average close to 70 per cent of overall LDC merchandise exports consist of primary commodities as compared with an average of about 30 per cent for other developing countries. Even in LDCs that are not mainly specialized as primary commodity exporters, services and manufacturing exports such as tourism and textiles have close links with ecological and natural resources. In general, economic activity in the LDCs seems to be much more immediately dependent on natural resources, particularly agriculture-based ones, than in other developing countries. This has important implications for the type of linkages between poverty, environment and population growth that matter most in these countries.

Birth rates are falling much more slowly in the LDCs, particularly in African LDCs, than in other developing countries.

Table 23 shows demographic indicators for the LDCs over the period 1970–1999. It is clear that birth rates are falling much more slowly in the LDCs, particularly in African LDCs, than in other developing countries. Moreover, the age dependency ratio, which measures the ratio of dependants (people younger than 15 and older than 64) to the working age population, is more than 45 per cent higher in the LDCs than in other developing countries. While many other developing countries are completing their population transition phase and on average have shown rapidly declining population growth and dependency rates over the past few decades, the LDCs have in fact witnessed an acceleration in the rate of population growth with increasing dependency rates. This, amongst

TABLE 22. POPULATION GROWTH AND SHARE OF RURAL POPULATION
IN LDCs AND OTHER DEVELOPING COUNTRIES, 1970–1999
(Percentage per annum)

	Population growth (total)		Population growth (urban)		Population growth (rural)		Share of rural population (%)	
	1970–1979	1990–1999	1970–1979	1990–1999	1970–1979	1990–1999	1970	1999
All LDCs	2.5	2.4	6.1	4.6	2.1	1.8	88.1	76.0
African LDCs	2.7	2.7	5.7	4.9	2.2	1.9	87.0	74.2
Asian LDCs	2.4	2.1	6.6	4.1	1.9	1.6	89.7	78.5
Island LDCs	2.0	2.5	4.2	4.5	1.5	1.4	84.0	68.2
Other DCs	2.2	1.6	3.6	3.2	1.6	0.6	61.4	44.0

Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2001*, CD-ROM.

Note: Group averages are weighted by population. The sample includes all LDCs except Tuvalu, for which no data are available, and 79 other developing countries. Haiti is included with African LDCs.

TABLE 23. DEMOGRAPHIC INDICATORS IN LDCs AND OTHER DEVELOPING COUNTRIES, 1970–1999

	Crude birth rate (per 1000 people)		Crude death rate (per 1000 people)		Birth minus death rate (per 1000 people)		Age dependency ratio (percentage)	
	1970	1999	1970	1999	1970	1999	1970	1999
All LDCs	47.5	38.0	21.4	14.6	26.1	23.4	0.90	0.86
African LDCs	48.3	42.6	21.9	17.2	26.4	25.3	0.91	0.95
Asian LDCs	46.4	31.2	20.8	10.8	25.6	20.4	0.89	0.74
Island LDCs	40.3	32.8	13.5	6.6	26.8	26.2	1.00	0.84
Other DCs	37.8	22.3	12.4	8.0	25.3	14.3	0.83	0.59

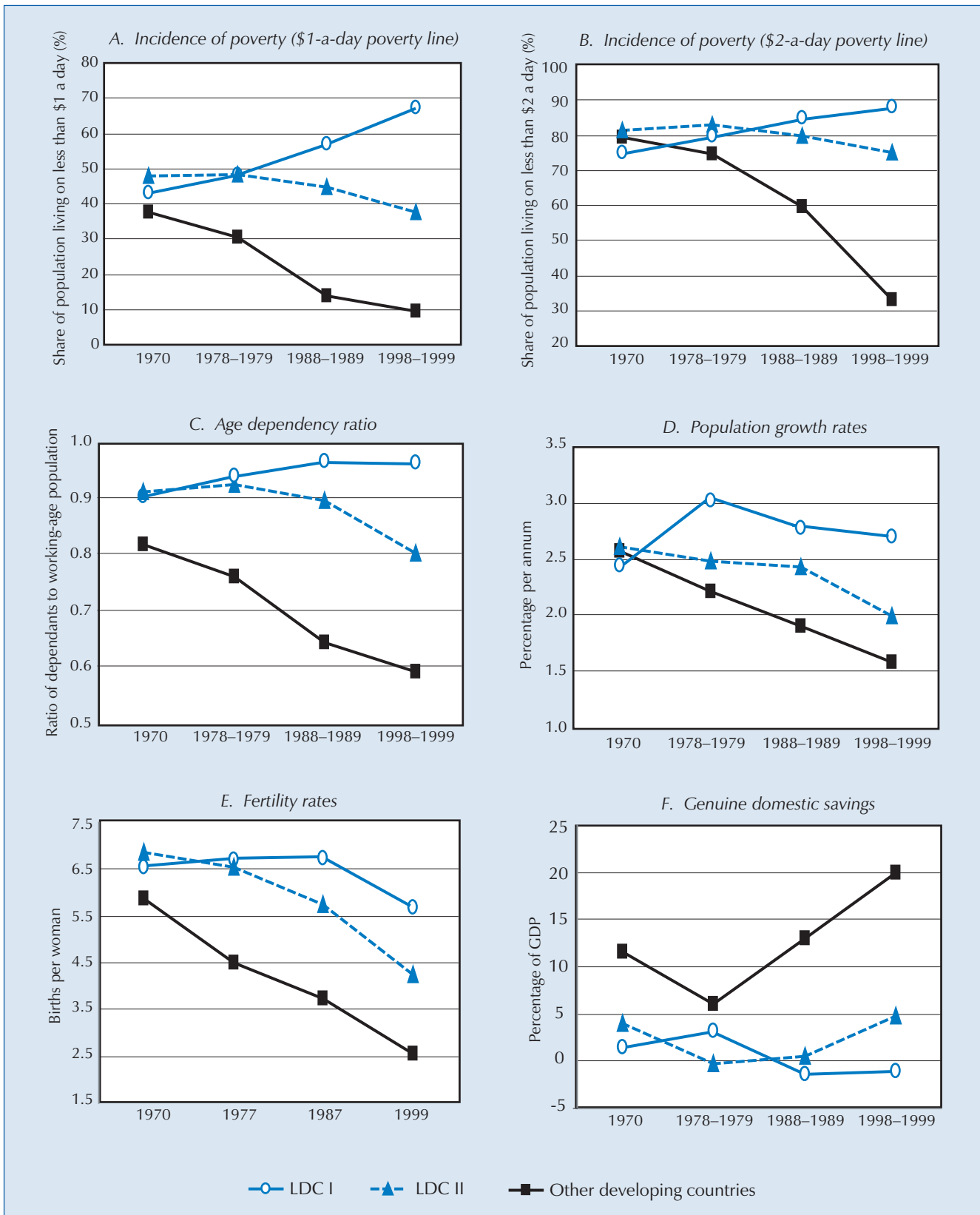
Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2001*, CD-ROM.

Note: Same as for table 22.

other things, has important implications for savings generation, and for the provision of education, health and other basic needs.

At the aggregate level, different patterns can be observed in poverty trends, the behaviour of demographic variables and environmental resource depletion in the LDCs and other developing countries, and also within sub-groups of the LDCs, if they are grouped according to whether the incidence of poverty was higher during late 1990s than during the late 1970s, or lower. Average trends in poverty, a number of demographic indicators and genuine savings are shown in chart 23 for 23 LDCs where the incidence of poverty has increased since the late 1970s (the LDC I group), for 14 LDCs where the incidence of poverty has decreased somewhat (the LDC II group),¹² and also for a sample of other developing countries. Both groups of LDCs can be characterized as countries with generalized poverty. But while countries in the LDC II group are in a low-level equilibrium, with the incidence of poverty falling either slowly or during certain periods over the last 30 years in most cases, countries in the LDC I group seem to be caught in a downward spiral as attested by their high and increasing poverty rates (see chart 23A and B). The poverty trends in both LDC groups are, it should be noted, in sharp contrast to those in the sample of other developing countries.

CHART 23. POVERTY TRENDS, DEMOGRAPHIC INDICATORS AND GENUINE DOMESTIC SAVINGS
IN LDCs AND OTHER DEVELOPING COUNTRIES



Source: Same as for chart 15.

Note: The "LDC I" group consists of the following 23 LDCs: Angola, Benin, Burundi, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Gambia, Guinea-Bissau, Haiti, Lesotho, Liberia, Madagascar, Mali, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, Somalia, United Republic of Tanzania and Zambia.

The "LDC II" group consists of the following 14 LDCs: Bangladesh, Bhutan, Burkina Faso, Cape Verde, Ethiopia, Guinea, Lao People's Democratic Republic, Malawi, Mauritania, Myanmar, Nepal, Sudan, Togo and Uganda.

The other developing countries are the same as for chart 15.

There is a remarkable correspondence between demographic trends and poverty trends in the two LDC groups and other developing countries. Population growth rates were on average similar in the three country groups in the early 1970s, as were the average poverty levels. By the late 1990s, however, poverty in the LDC I group had increased substantially, and correspondingly the population growth rates and age dependency ratio in this group of countries had on average increased. The annual population growth rate increased from an average of 2.4 per cent in 1970 to 2.7 per cent by the late 1990s in this group of LDCs, and the age dependency ratio increased from 0.90 to 0.96 over the same period. This was because fertility rates remained high while the death rates were declining in this group of LDCs. Fertility rates fell moderately from 6.5 in 1970 to 5.7 in 1999. This is in sharp contrast to the experience of other developing countries, where along with declining poverty the demographic trends also showed considerable improvements. Population growth declined from 2.6 per cent in 1970 to 1.6 per cent in the late 1990s in other developing countries, and dependency ratios fell from an average of 0.8 to 0.6 during the same period. In other developing countries, fertility rates also followed a steep downward trend. They fell from 5.9 in 1970 to 2.5 in 1999. As shown in chart 23, the demographic trends in the LDC II group, where poverty declined, fall between the trends in the LDC I group and those in other developing countries.

There is a remarkable correspondence between demographic trends and poverty trends in the two LDC groups and other developing countries.

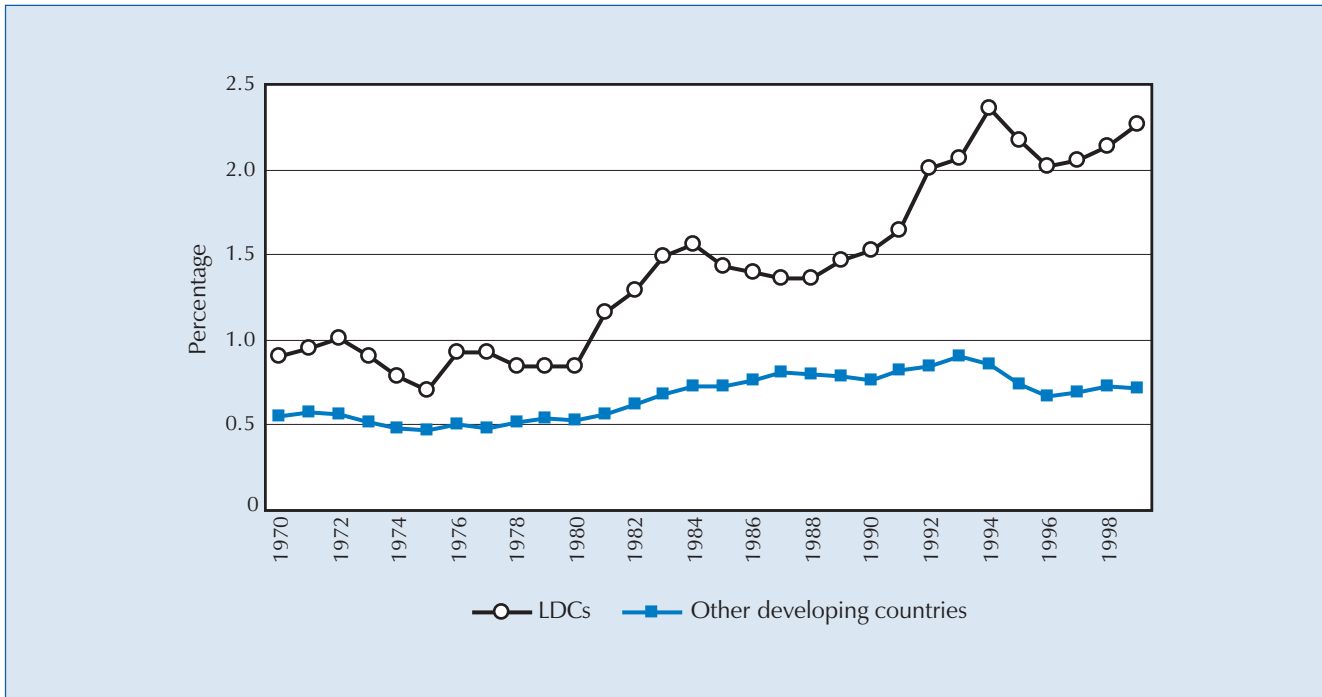
There is also a remarkable correspondence between the average poverty and demographic trends and the average trends in genuine savings among the three groups of countries. Genuine savings are a measure of net domestic savings that in addition to the depreciation of the man-made capital stock takes into account the depreciation of natural capital stock and net additions to human resources (see Kunte et al., 1998; Hamilton and Clemens, 1999). As shown in chart 23F, the other developing countries exhibited a rapid increase in genuine savings during the 1980s and the 1990s along their trajectory of rapidly declining poverty. Genuine savings increased from just over an average of 6 per cent of GDP in the late 1970s for this group of countries to over 20 per cent in the late 1990s. On the other hand, the LDC I group experienced a decline in their genuine savings rates from an average of over 3 per cent to minus 1 per cent during the same period. Throughout the 1980s and the 1990s genuine savings rates in the LDC I group were indeed negative, a fact which indicates that this group of countries were depleting their national wealth or eating up their stock of assets over this period. The LDC II group, on the other hand, exhibited moderate increases in average genuine savings rates during the 1980s and the 1990s. Nevertheless, at about 5 per cent of GDP, the genuine savings rate in the late 1990s in this group of countries was not much more than in the early 1970s.

There is also a remarkable correspondence between the poverty and demographic trends and the trends in genuine savings among the three groups of countries.

Although it is difficult to provide aggregate indicators of environmental degradation at national or regional levels, the low or negative genuine savings rates give some indication of environmental degradation processes in the LDCs. One aggregate indicator which is also suggestive of this phenomenon is the trend in net forest depletion in the LDCs as compared with other developing countries during the past three decades. As shown in chart 24, the average rate of net forest depletion in the LDCs experienced a sharp increase during the 1980s and the 1990s. It is estimated that in the late 1990s it was equivalent to more than 2 per cent of LDCs' GDP. This is over three times the rates of deforestation in other developing countries. Indeed, the average rate of forest depletion as a share of GDP for the LDC group as a whole in the late 1990s was more than 90 per cent of their average rate of genuine savings.

The average rate of net forest depletion in the LDCs experienced a sharp increase during the 1980s and the 1990s, and in the late 1990s it was equivalent to more than 2 per cent of LDCs' GDP.

CHART 24. NET FOREST DEPLETION AS A SHARE OF GDP IN LDCs AND OTHER DEVELOPING COUNTRIES, 1970–1999
(Percentage)



Source: Same as for chart 15.

Note: The sample of other developing countries is the same as for chart 15. The sample of LDCs includes all countries in the “poorest LDCs” and “poor LDCs” groups in chart 15 except Cape Verde, Comoros, Djibouti, Liberia, Solomon Islands, Somalia and Vanuatu, for which no data are available.

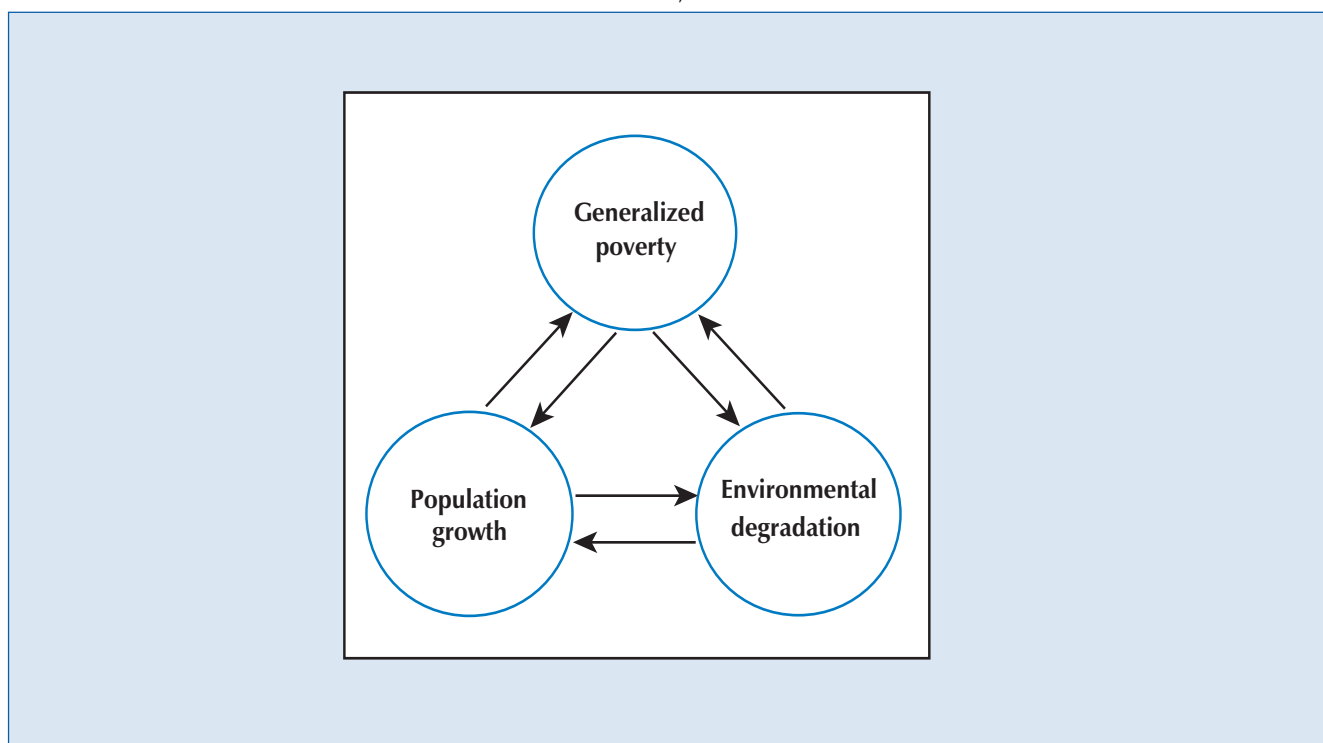
2. THE DOWNWARD SPIRAL OF IMPOVERISHMENT AND ENVIRONMENTAL DEGRADATION

Cross-country research shows that fertility rates are particularly closely related to per capita GDP, higher GDP per capita being associated with lower fertility rates and with female education. Historically, it is also clear that fertility rates have declined with increases in female employment and wages.

It would be, of course, too simplistic to envision a linear causal chain running from generalized poverty to demographic and environmental factors. The above evidence, however, is in conformity with the assumed interlinkages between poverty, population and environment discussed in the downward spiral theories in which these three factors can reinforce each other in a vicious spiral. Chart 25 can help one to envision the complex feedback loops involved in such a downward spiral. However, it should be noted that in practice the effect of some factors depends on, or is mediated by, the presence of other factors. For example, the impact of demographic factors on economic growth and the environment depends on the nature of poverty in the economy. Alternatively, the implications of poverty for population growth can be strongly influenced by environmental and other factors. The behaviour of complex interacting systems of the type depicted in the chart is hard to predict, and the overall trajectories will always be context-specific rather than general. An examination of some of these channels of interaction, however, would be useful in shedding light on the nature of policy problems facing LDCs that are caught in downward spirals.

We shall start with the population growth circle in the chart and proceed to the other two factors in turn. The determinants and effects of population growth have been subject to debate amongst demographers, economists and other scientists for many decades. Cross-country research shows that fertility rates are particularly closely related to per capita GDP, higher GDP per capita being associated with lower fertility rates and with female education (Barro, 2000).

CHART 25. FEEDBACK LOOPS BETWEEN GENERALIZED POVERTY, ENVIRONMENTAL DEGRADATION AND POPULATION GROWTH



Historically, it is also clear that fertility rates have declined with increases in female employment and wages (Schultz, 2002). When the opportunity costs of women's time is higher, fertility rates tend to be lower. Additionally, improvements in child health technologies have increased children's survival rates, which put downward pressure on high birth rates. The availability of family planning services can also be important. But historically the existence of such services was not a necessary condition for the fertility transition.

In order to go beyond these general associations between fertility and population growth, however, it may be useful to pose the question in terms of the determinants of demand for children by households. Once the question is posed in this fashion it will become clear that, for example, the existence of contraceptives and family planning services can be less effective where there is a high demand by households for children and a desire for larger families. Also, female education, age of marriage and the number of children are likely to be joint decisions rather than the latter being caused by female education. Factors that determine demand for children are likely to also influence the decision about the education of female children. It is within this framework that most of the recent studies draw on the linkages between population, poverty and environmental resources to explain the persistence of high fertility and population growth rates. This type of analysis is mainly relevant to poor agrarian economies of the LDC type where the majority of the population live in the countryside and are engaged in low-productivity agricultural production. The labour intensity of agricultural work under these circumstances is said to lead to a high demand for extra hands in the form of large families. In particular, with the receding of water and wood fuel sources as a result of environmental degradation the demand for children's work increases as more time needs to be spent on fetching water, wood fuel and other materials for domestic energy consumption (see Bledso, 1994; Cleaver and Schreiber, 1994; Filmer and Pritchett, 1996).

Another reason for the high fertility rates in poor agrarian economies is said to be the fact that in the absence of access to capital and insurance markets children may be regarded as insurance for old age and times of hardship (see Cain, 1981; Cox and Jimenez, 1992). For example, in his study of villages in Bangladesh and India, Cain (1981) argues that the diversity of fertility experiences can be explained by the differences in the environment of risk on the one hand, and the adequacy of risk insurance on the other hand. As the poor agrarian economies in increasingly fragile environmental conditions face increasing volatility in income and consumption, he argues, the demand for children, particularly boys, rises as a means of consumption smoothing and old age insurance. Under these conditions, public employment schemes that reduce income volatility are advocated as a possible tool of population policy.

Poverty and environmental fragility are important elements of any explanation of high rates of fertility in low-income agrarian economies.

Under such economic conditions, children's education, particularly that of female children, is likely to be neglected by the households, even in situations where the necessary facilities in rural areas may exist.

The above, of course, should not be regarded as an exhaustive explanation of high fertility rates in the LDCs. Various institutional, sociocultural and historical elements need to be included in the specific country context. Poverty and environmental fragility, however, are evidently important elements of any explanation of high rates of fertility in low-income agrarian economies. Under such economic conditions, children's education, particularly that of female children, is likely to be neglected by the households, even in situations where the necessary facilities in rural areas may exist.

Another important feedback loop relates to the implications of high population growth rates for income growth and poverty. The empirical evidence on this issue is mixed: some have observed a negative correlation between population, economic growth and poverty, while others have observed positive links (see National Research Council, 1986; Mauro, 1995; Eastwood and Lipton, 1999). One reason for this type of contradictory result is that the studies do not differentiate between situations of generalized poverty and residual poverty. Under generalized poverty, where the economy is characterized by low productivity, low levels of capital stock and low savings, it is more likely that high population growth rates will lead to lower per capita income and a higher degree of poverty. As observed above in the context of the LDCs, high fertility rates also lead to high rates of age dependency and that further undercuts the saving capacity of the economy and its potential growth. On the other hand, in a technologically dynamic economy with high labour productivity, well-developed capital markets, use of capital-intensive production techniques and high savings rates, population growth is likely to act as a stimulus to economic growth. Such a result can be, for example, easily derived from the new models of endogenous growth, where higher population growth can be shown to be a stimulus to economic growth by increasing the demand for goods and services. Under conditions of generalized poverty, however, this would be a highly unlikely outcome.

In the context of the LDCs, high fertility rates also lead to high rates of age dependency and that further undercuts the saving capacity of the economy and its potential growth.

The next feedback loop is the impact of population growth on environmental resources. A prominent thesis in the existing literature is that high fertility in low-income countries leads to rapidly growing population pressure on the resource base, which is said to be the main cause of both environmental degradation and marginalization or poverty (see, for example, Repetto and Holmes, 1983, and Perrings, 1991). This is supposed to take place both directly and indirectly. It takes place directly when rapid population growth directly leads to marginalization and environmental degradation as the supply of labour increases faster than demand and population pressure on environmental resources increases. It takes place indirectly when population growth leads to greater demand for food, which in turn leads to the adoption of policies mainly concerned with the maximization of food production to the possible detriment

of the environment. It is important to note, however, that in both versions of this argument the link between population growth on the one hand and environmental degradation and poverty on the other is mediated through broader economic factors. As in the case of economic growth discussed above, the impact is likely to depend on initial economic conditions and in particular on whether the economy is characterized by generalized poverty or not. In a technologically dynamic developing economy, where rapid processes of capital accumulation and structural change lead to rapid rates of employment generation in the non-agricultural sectors and at the same time rapid rates of agricultural productivity growth, population growth need not necessarily have detrimental environmental and poverty implications. On the other hand, in an economy where the conditions of generalized poverty prevail, with low savings, low labour productivity and stagnant technology, population growth is bound to have detrimental environmental consequences. Once again, it is the combination of generalized poverty and population growth that is likely to have serious consequences for environmental degradation.

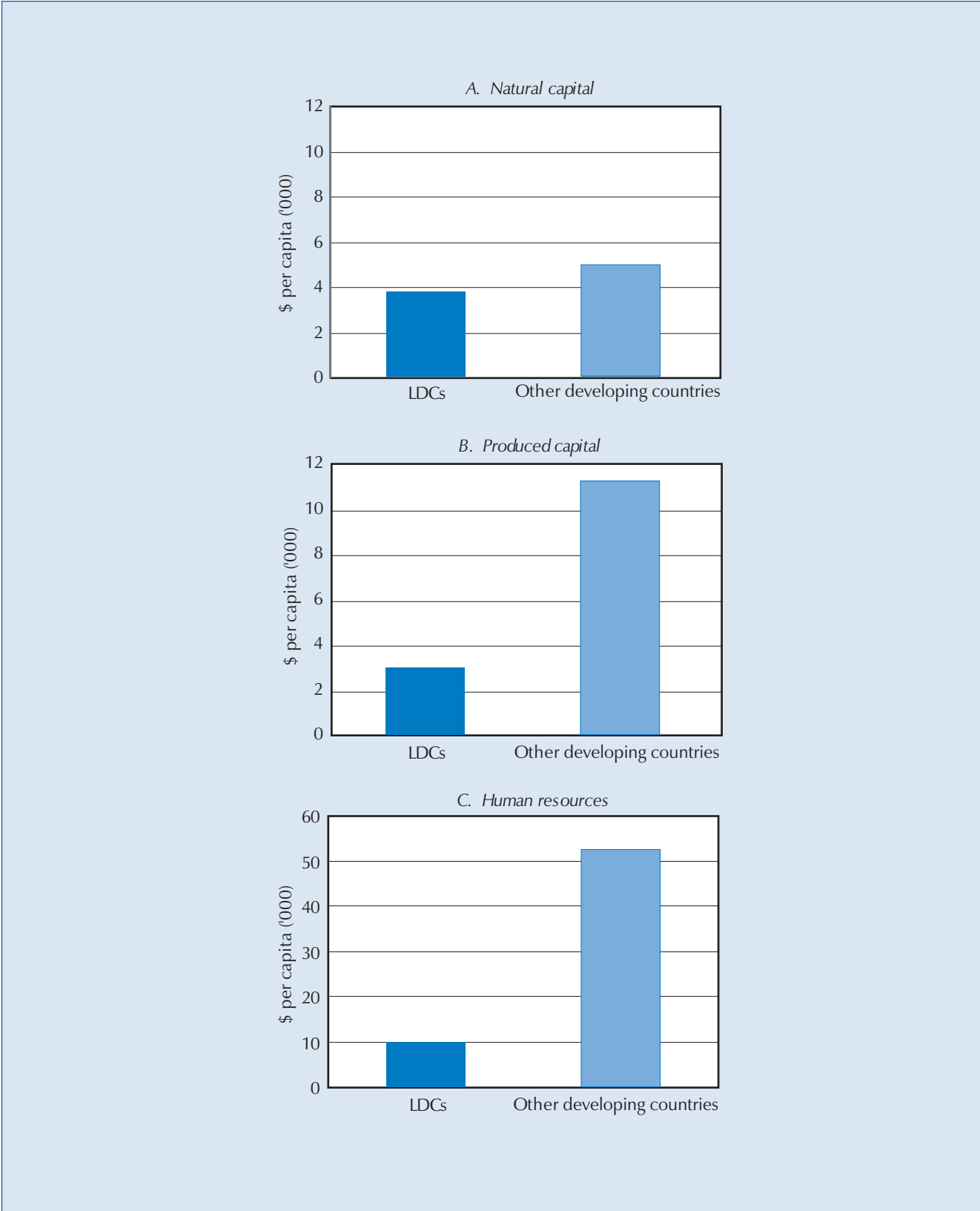
The above point is worth emphasizing, because it is often mistakenly assumed that the environmental problems of the LDCs are due to a paucity of environmental resources relative to the size of the population. For example, in the context of sub-Saharan African LDCs, Pearce and Turner (1990: 47) maintain that “In the Sahel, it is difficult to envisage development without natural resource augmentation”. On the contrary, the existing evidence suggests that developmental problems in the LDCs in general, and in sub-Saharan African LDCs in particular, are less to do with the paucity of environmental resources as such. As shown in chart 26, the main difference between the LDCs and other, more successful developing countries lies not in the low levels of environmental resources per head; rather, it is the extremely low levels of per capita man-made capital and human resources that distinguish the LDCs from other developing countries. This is even more clearly shown in table 24, where arable land per person is compared with investment indicators and land productivity in agriculture in the LDCs and other developing countries in the latter half of the 1990s. As can be seen, in terms of arable land per person, both the LDC I and the LDC II groups of countries are on average better endowed than other developing countries. However, in terms of investment indicators such as fertilizer use, irrigation and tractor use the LDCs, particularly the LDC I group, are well behind other developing countries. Another indicator of the under-investment in LDC agriculture is the very low level of value added per hectare of arable land in LDCs as compared with other developing countries (see table 24).

The environmental problems of the LDCs therefore are not due to their low levels of per capita environmental resources. They are rather the combined result of generalized poverty, manifested in low levels of, and low rates of addition to, man-made capital stock, and high population growth rates, which are in turn both exacerbated by environmental degradation itself. The environmental degradation processes in the LDCs can best be characterized by what in the literature has been referred to as the “forced environmental degradation” process (Karshenas, 1995). Forced environmental degradation is said to take place where “inadequate man-made capital stock, stagnant technology, lack of employment opportunities and the inability to cater for basic human needs, combined with a growing population, force the economy into a state where survival necessitates eating into the natural or environmental capital stock in order to survive” (ibid.: 754). Many instances of environmental degradation in LDC agriculture — for example, deforestation, desertification and soil degradation — are closely associated with this phenomenon.

Forced environmental degradation takes place where inadequate man-made capital stock, stagnant technology, lack of employment opportunities and the inability to cater for basic human needs, combined with a growing population, force the economy into a state where survival necessitates eating into the natural or environmental capital stock in order to survive.

Many instances of environmental degradation in LDC agriculture — for example, deforestation, desertification and soil degradation — are closely associated with this phenomenon.

CHART 26. PER CAPITA WEALTH IN LDCs AND OTHER DEVELOPING COUNTRIES IN 1994



Source: Kunte et al. (1998).

Note: Based on a sample of 24 LDCs and 46 other developing countries for which data are available.

TABLE 24. AGRICULTURAL INVESTMENT AND PRODUCTIVITY INDICATORS
IN LDCs AND OTHER DEVELOPING COUNTRIES, 1995–1998

	Fertilizer consumption ^a	Irrigated land % cropland	Tractors per hectare of arable land	Arable land per person (hectares)	Agricultural value-added per hectare of agricultural land ^b
Total LDCs ^c	115	8.5	0.09	0.24	203.8
LDC I group	57	5.3	0.10	0.24	155.7
LDC II group	206	13.0	0.07	0.23	291.2
Other DCs	1 011	19.4	0.85	0.21	551.8

Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2001*, CD-ROM.

Note: Figures are simple averages. LDC I and LDC II groups are the same as in chart 23. The other developing countries group is the same as for chart 15. No data are available for Bhutan (tractors), Central African Republic (irrigated land), Comoros (tractors and irrigated land), Djibouti (all variables), Ethiopia (agricultural value-added), Lesotho (irrigated land), Liberia (agricultural value-added), Myanmar (agricultural value-added), Somalia (agricultural value-added) and Sudan (agricultural value-added).

a 100 grams per hectare of arable land.

b Data for 1994 (the latest available year) in 1995 constant US dollars.

c 39 LDCs, comprising all countries in LDC I and LDC II groups.

Finally, it must be stressed that not only is generalized poverty implicated in processes of environmental degradation, but also environmental degradation has important consequences for poverty. The poor are more seriously affected by environmental degradation, because owing to lack of assets they are less capable of defending themselves against environmental damage, while being more exposed to environmental pollution. Also, in low-income agrarian economies the poor are more immediately dependent on poor-quality and fragile natural resources. Unfortunately, when poverty is generalized and when the bulk of the population in a country consists of poor peasants and agricultural workers, who lack access to capital and alternative sources of employment, poverty and environmental degradation become the two sides of the same coin.

E. Conclusion

In most LDCs, a major part of the population live at or below income levels sufficient to meet their basic needs, and the available resources in the economy, even when equally distributed, are barely sufficient to cater for the basic needs of the population on a sustainable basis. In societies where poverty is generalized in this way, the causes and effects of poverty need to be understood in a different way from the way they are understood in societies where absolute poverty is not all-pervasive, but rather affects only a minor part of the population. This chapter has identified three key features of the relationship between economic growth and poverty that are characteristic of situations of generalized poverty. Firstly, in societies where there is generalized poverty, economic growth has particularly strong positive effects in reducing poverty, particularly extreme poverty. Secondly, in societies where there is generalized poverty, the relationship between growth and poverty is two-way. Economic growth affects the incidence and depth of poverty; at the same time the incidence and depth of poverty affect economic growth. Thirdly, in societies where there is generalized poverty, poverty acts as a major constraint on economic growth.

In societies where there is generalized poverty, the relationship between growth and poverty is two-way.

Generalized poverty constrains economic growth in diverse ways. These include, but go beyond, those examined by development economists who identified in the 1950s a low-level equilibrium trap which was related to the lack

of domestic resources available for financing investment. Two further important channels of influence are the relationship between generalized poverty and environmental degradation, and the relationship between generalized poverty and the underfunding of public goods and services, including administration, law and order and the whole system of governance.

As a result of these relationships, there has been a tendency for generalized poverty to persist, or to decline very slowly, in most LDCs. In some cases, countries are pushed into a downward spiral of economic regression, social stress and environmental degradation. Political instability and conflict can easily become part of this downward spiral.

Notes

1. There is large literature on the way in which economic growth affects poverty. The recent debate on the subject, including the much-cited paper by Dollar and Kraay (2001), focuses on the relationship between economic growth and selected indicators of poverty in “spells” defined by the periods of time spanning two successive household surveys for a given country. Such work generally examines the short-term relationship between growth and poverty, rather than the long-term relationship which is the concern here. These different foci can give different results (see Ahluwalia, 1976). Also, in the light of the discussion in the last chapter, it should be noted that conclusions from the spell analysis are likely to be questionable if the growth of mean private consumption per capita is estimated from national accounts data and the incidence of poverty from household surveys. For an even-handed review of recent literature of the growth-poverty relationship using spell analysis, see Ravallion (2001).
2. The term “poverty curve” is not in current usage in national and international analysis of poverty. However, Anderson (1964) uses the term to refer to the curve defining the proportion of families in the United States with incomes below \$3,000 as a function of the log of median income for the period 1947–1960. His paper is of interest as it also shows poverty curves for sub-groups of the American population — rural and urban, white and non-white — over this period, indicating how specific sub-groups may not follow the overall trend. See also Smolensky et al. (1994) for a discussion of the relationship between growth and poverty in the United States over the period 1963–1991 in terms of Anderson’s poverty curve.
3. The chart includes all available observations, covering 32 countries in Africa or Asia over three decades. Two clearly outlying countries — South Africa and Zimbabwe — have been omitted. The sample is set out in annex table 1 in the last chapter.
4. This inference is in the same tradition as economic work to identify long-run patterns of development that includes Chenery and Syrquin (1975), Chenery, Robinson and Syrquin (1986), and Syrquin and Chenery (1989). The relationship between income distribution and development was a central issue in these studies, but the long-run relationship between poverty and development, which is defined in this Report using the poverty curve, was not analysed.
5. The sample of other developing countries includes all low- and lower-middle-income countries for which it is possible to make national-accounts-consistent estimates of poverty using the \$1-a-day and \$2-a-day international poverty lines, and for which other data used in this chapter are available. The list of other developing countries is given in chart 15.
6. It should be noted that this classification is for analytical rather than policy purposes. For the list of LDCs in each group, see chart 15. Two Asian LDCs, Myanmar and Nepal, are included in the group of poor LDCs, although their \$2-a-day poverty indicators are higher than those of other members of this group.
7. This is about the same as the average ratio of domestic resources available for finance to GDP over the period 1995–1999 for other developing countries in general. The ratio for 90 developing countries, excluding the LDCs, was 34.9 per cent.
8. Government final consumption expenditure is defined, as in World Bank *World Development Indicators*, to include all government current expenditures for purchases of goods and services (including compensation of employees).
9. These are in official exchange rates appreciably at current prices. Translating these figures into PPP exchange rates does not change the gap between the LDCs and the sample of other developing countries, as the exchange rate deviations between the PPP and the official exchange rates are not very different between the two groups of

countries. The ratio of PPP for services to official exchange rate in the LDCs on average is only 20 to 30 per cent over that of the sample of other developing countries, which is of a totally different order of magnitude compared with their per capita expenditure gaps discussed in the text above.

10. We are grateful to the UNDP Human Development Office in New York for supplying these data.
11. For a recent discussion which deals with this phenomenon, see Nafziger and Auvinen (2002). They identified range of causal factors, but note that “a major factor responsible for the increase in emergencies in the 1990s is the developing world’s stagnation and protracted decline in incomes, primarily in the 1980s, and its contribution to state decay and collapse” (p. 159).
12. The classification into two LDC groups is based on chapter 1, chart 12. The sample excludes the Solomon Islands and Vanuatu, for which no data are available on poverty levels in the late 1970s.

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