

When Do the Poor Benefit From Growth, and Why?

Anders Danielson
Department of Economics,
Lund University, Sweden
anders.danielson@nek.lu.se

Abstract

This paper summarizes and synthesizes some literature that picks up and extends the discussion of Dollar and Kraay (2000). While most of the theory has been known for a long time, the empirical material that has gradually become available in the past decade or so in the form of household budget surveys has made it possible to paint a more detailed and nuanced picture than the one usually available. Here, three major arguments are developed. First, the poverty reduction (PR) impact of a certain rate of growth depends crucially on the pattern of that growth, with rural growth usually being more efficient than urban growth, and agricultural growth more efficient than manufacturing growth. Second, poverty reduction in agriculture is much stronger in the medium run than in the short run. This is because the indirect PR effect – a multiplier effect – is typically much stronger than the direct one. Third, there is much that both governments and donors can do to improve the rate of PR, including appropriate targeting of public expenditure, increased provision of primary education to address growth-hampering income inequality, and better focus on gender issues.

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1. Introduction

The international aid community is now committed to the objective of halving world income poverty – defined as the proportion of people living on less than \$1 a day – by the year 2015 (with 1990 as the starting date). In addition, six non-income objectives are specified; these reflect the fact that poverty is multidimensional and not necessarily alleviated through increases in income alone.¹

The major mechanism through which this massive reduction in poverty – an estimated 600 million people – will take place seems to be economic growth: if there is growth in the economy, so the argument runs, incomes will increase, and thereby income poverty is reduced. The non-income indicators of poverty may be improved as well through economic growth: the amount of resources allocated to schooling, for instance, is likely to depend, at least partially, on government revenue, and this, in turn, is closely related to income levels in the economy. A more general observation on the relation between per capita income and indicators of non-income poverty is the relation between GDP per capita and the UNDP's Human Development Index: the correlation is positive and strong, indicating that life expectancy, access to safe water and other indicators improve with income. Consequently growth of income is a major ingredient in the recent attempt to radically reduce global poverty.

As a parallel to the donors' increased focus on poverty, a research question that has, for various reasons, received a lot of attention in recent years is to what extent economic growth—measured as percentage growth of average incomes—improves the situation of the poor. To answer that, one first has to make a clear distinction between absolute and relative poverty. The former measures income in relation to an absolute line—specified in dollars, caloric requirements, or local currency—the latter relates poverty to other incomes in the economy: the poor may, for instance, be defined as the poorest 20 percent in the economy. Many of the widely quoted studies referred to in the first part of this report deal with relative, rather than absolute, poverty.

A finding that has been around for a long time, but which has gained increasing acceptance with the emergence of new and better data sets on income distribution is this: on average, the distribution of income does not change with economic growth. The implication is clear: the

incomes of poor people increase as much as average incomes when there is growth and therefore, in the words of Dollar and Kraay (2000): “Growth *Is* Good For the Poor.” On average, the rate of growth of poor peoples’ income is as fast as the rate of growth of the non-poor: all income classes participate in growth. The distribution of income may not improve (on average), but incomes, and thus consumption possibilities, increase for the poor.² Consequently, the issue of meeting the international development goals seems to be largely a matter of keeping per capita income growth at a sufficiently high rate.

A growing number of studies, however, point out that the poverty impact of growth differs substantially between countries. In some cases, an increase of the per capita income of one percent may give rise to a reduction of the number of people under the poverty line by 3 or 4 percent; in other cases, poverty is reduced by only a fraction of a percentage point. This, of course, is largely a matter of the pattern of growth and perhaps a useful starting point for defining the elusive “pro-poor growth”.

This report addresses two major questions. First, *when* is growth good for the poor? While the literature suggests the answer “almost always” there are reasons to look more carefully at the question: *which* patterns of growth are more efficient in reducing poverty? Second, *why* is growth good for the poor? This means that we look into the issue of how growth in per capita incomes (which is what is calculated from GDP figures in the national accounts) is translated into increased employment of, or increased consumption possibilities for, the poor. The mechanisms have been in the literature for a long time,³ but for several reasons, donor organizations have in the 1980s and 1990s largely chosen to ignore them. In addition, the main mechanism identified in this report is difficult to pin down empirically as it is afflicted by a substantial time lag.

The structure of the report is as follows. Section 2 provides a brief overview of recent studies of the relation between poverty, income inequality and growth. Section 3 discusses what will be defined as the *direct* and *indirect impacts* of growth on poverty. Section 4 discusses additional findings on how growth affects, and is affected by, the initial distribution of assets, government spending and intra-household distribution of resources. Section 5, finally, offers a few concluding remarks with a view to the implications for donors.

A few caveats are in order. First, the purpose of the paper is to provide an overview over a certain part of the growth-poverty literature that focuses on the role of agriculture and which,

by and large, appears neglected in many recent discussions. This means that the results are by no means comprehensive. For instance, while a major result is that growth in agriculture (or rural sectors) is usually more poverty-reducing than growth in manufacturing (or urban sectors), this should not be taken to imply that manufacturing growth is unimportant. In middle-income countries, and in low-income Asian countries, manufacturing growth has proved to be an important source of poverty reduction. Second, since most of the data come from household budget surveys (HBSs), it is usually impossible to distinguish between formal and informal sector activities. In the typical HBS, households report expenditures, not incomes (and certainly not source of income) so such a distinction is not possible to make. However, the informal sector is an important source for income of many poor households in urban as well as rural areas, and to deepen our understanding of the complex links between national economic growth (as manifested in GDP per capita change) and poverty reduction, more research into sources of income for poor households is warranted. Third, several interesting questions are neglected. Thus, for instance, one possibility is that the poverty reducing impact of agricultural growth is different for, say households producing mainly cash-crops and those producing mainly food-crops. Since the typical HBS focuses on expenditures, in kind or cash, and not on incomes those issues are not pursued in this literature.

Although these caveats weaken the impact of the results discussed below, the literature discussed here is nevertheless worthy of inclusion in the current debate on the relation between economic growth and poverty reduction. It is the present author's personal view that some of the oft-quoted literature provide generalizations which have an academic interest but provide little guidance to policy-makers or aid organizations. It is important to go beyond statistical averages of national data and look at sectoral patterns of growth and poverty reduction. The agricultural-growth-and-poverty-reduction literature is an attempt in that direction and deserves, therefore, explicit consideration in any discussion on the relation between average national growth and poverty reduction.

2. When Do the Poor Benefit?

2.1 Impact on Income Poverty

It should be noted at the outset that this section provides a discussion of material covered in more detail elsewhere, such as in Bigsten and Levin (2000). The section is nevertheless included in order to provide a background for the material covered in the rest of this chapter.

As new data on income distribution have become available, particularly in the 1990s, the analysis of the relations between growth and income distribution has moved beyond Kuznets' inverted U-curve⁴ and into the field where systematic observation of both cross-country and intertemporal differences are possible.

The typical method for analyzing the relation between income distribution (or poverty) and growth of per capita income is to look at how the income share of the poorest quintile changes during growth. A remarkably robust result is that the rate of growth of the incomes of the poorest quintile is approximately equal to the rate of growth of per capita incomes: in growth episodes, the poor increase their incomes on average as much as everybody else; the distribution of income is invariant to growth.⁵

Thus, Roemer and Gugerty (1997) examine national data covering 26 countries spanning 1951-94. One main result is that incomes of the poorest 40 percent increase one-for-one with average incomes; the poorest 20 percent increase their incomes by 0.92 percent for every percentage increase in per capita incomes. So, even if the rich benefit more from growth (because more dollars accrue to them), the poor benefit as well. In addition, Roemer and Gugerty (1997) find few exceptions to this finding: in five growth episodes in the twenty-six countries studied did growth coincide with a significant decline in the income share of the poorest.

Other studies, which use other methods or other data sets – including Timmer (1997), Deininger and Squire (1998), Bruno, Ravallion and Squire (1998), Gallup, Radelet and Warner (1999) and Dollar and Kraay (2000) – confirm this result: on average, the incomes of the poor grow as rapidly as per capita incomes. This means that policies that promote growth are likely also to promote poverty alleviation.⁶

However, the variation around this average is substantial. Demery and Squire (1996) and Demery (1999) show how the pattern of poverty changes *within* countries differs in Africa (cf. also World Bank, 2001, Ch. 1). In some countries – Zambia and Burkina Faso are used in the studies, but outside Africa China and Vietnam may be cases in point – rural and urban poverty have moved in different directions under growth. There is also the distinct possibility that while income poverty moves in one direction, nonincome poverty moves in the other. This is a plausible scenario at least for some African economies, such as Tanzania, where incomes have grown (including incomes for the poorest quintile), while access to primary health and education services have deteriorated, due to increased fiscal discipline under economic reforms (Danielson and Mjema, 2001).

Moreover, as Chen and Ravallion (2000) show, while on average the poorest quintile has enjoyed the fruits of growth to the same extent as any other income group, there are substantial variations between countries: in some growth episodes, the poor increased their incomes three to four times more than the average person; in other cases, the poor gained less than the average person. Consequently, while growth in general is good for the poor (in the sense that it usually increases their purchasing power), some growth is more poverty-focused than other.

In addition, there appears to be a relation between the initial distribution of income and the rate of poverty reduction for a given rate of growth. Based on a method developed in Ravallion (1997), the World Bank (2001) calculates – using data from Chen and Ravallion (2000) – that the poverty elasticity varies systematically with the initial distribution of income: when the initial distribution of income is equal (Gini coefficient = 0.2), the incidence of poverty is reduced by 3 percent for each percentage increase in per capita incomes and when the initial distribution of income is unequal (Gini coefficient = 0.6), the corresponding reduction is roughly 1.5 percent. The poverty reduction of a given rate of growth is thus twice as large if growth takes place when distribution is equal. As will be noted later on, this finding is reflected in less aggregated studies where the initial distribution of assets (primarily land) influences the impact of growth on poverty. Birdsall and Londoño (1997) and Birdsall and de la Torre (2000) reach similar conclusions. With the low initial Gini of 0.25, the growth elasticity of poverty reduction is 3.33, while it drops to almost half (1.82) if the initial Gini is 0.59. So with low initial inequality, 5 percent growth reduces poverty by over 16 percent per

annum, while the same growth reduces poverty by only 9 percent if the initial distribution is unequal.

Finally, the distribution of poverty within countries appears to follow a geographical pattern: poverty increases with the distance from centers of economic activity, such as coasts and cities. In Peru, over 60 percent of rural households are in the poorest quintile, while less than ten percent are in the coastal region (Lopez and della Maggiora, 2000). In Thailand, poverty incidence in the rural north-east is twice the national average, and almost 60 percent of all the poor live in that region, although it accounts for only one-third of the population (World Bank, 2001). In China, the majority of the poor reside in mountainous regions and townships, and the hinterland has gained less than the coast from the growth in the 1990s (Yao, 1999).

To sum up, some of the results from these studies (and cf. Bigsten and Levin, 2000 for a survey) are the following:

- On average, incomes of the poorest quintile increase one-to-one with per capita incomes so on average the distribution of income does not change with economic growth.
- There is substantial variation around this average: in some cases the income share of the poor increases with economic growth; in other cases it decreases.
- In countries where inequality initially is high, the poor benefit less from growth.

2.2. Growth and Nonincome Poverty

The first remark that needs to be made is that while income poverty is usually measured at the household level, indicators of nonincome poverty are measured at the individual level.⁷ To overcome this problem, some researchers have aggregated indicators of nonincome poverty to the household level, but for studies focusing on the impact of different forms of, say, public expenditure this is not necessarily a warranted approach.⁸

When incomes in the economy grow, indicators of nonincome poverty often improve. There are several plausible reasons: as poor peoples' incomes increase, they spend more on education and health facilities; as tax revenue increases, the government can afford more expenditures on infrastructure, social sectors and other items that contribute to a reduction of poverty. The relation between changes in income and non-income poverty is, however, not general particularly not in countries involved in structural adjustment programs.

In some countries there are indications that income and nonincome poverty have moved in different directions in the 1990s. In Tanzania, per capita incomes increased during the second half of the 1990s with increases also for the poorest decile, but spending on primary education has gone down in real terms and there are also some indications that access to primary health facilities and good infrastructure has deteriorated (Danielson and Mjema, 2001). In Francophone West Africa, per capita incomes have generally increased in the second half of the 1990s and there is no evidence that the poorest quintile has been left out. Yet, in most countries for which data is available⁹ real spending per pupil has fallen—in some case dramatically so: in Senegal, per student spending in the late 1990s was only 50 percent of per student spending in the early 1980s and in Côte d'Ivoire the corresponding number is 45 percent (Danielson, 2001: Table 8).

One reason for the diverging trends in income and nonincome poverty is of course structural adjustment programs that often require the government to cut spending. For several reasons, social sectors have been hit rather hard by the increasing fiscal discipline. Consequently, reform programs can aggravate poverty in the short run, even though their very objective is to improve the situation of the poor in the long run. The asymmetry of costs and benefits of such programs is likely to be a major reason both for the popular resistance and for the half-hearted implementation.

However, the general finding is that nonincome poverty falls when per capita incomes grow and that income growth which benefits the poorest quintile is particularly effective in reducing nonincome poverty. Consequently, the causality runs from increases of income to reduction of nonincome poverty. While there is some evidence of reversed causality, the time lag is usually substantial.¹⁰

The divergence of trends for income and nonincome poverty is the major reason why the attainment of the international development targets (IDTs) for nonincome poverty indicators is unlikely. While the number of people living under one dollar a day was reduced only slowly in the 1990s, the rate is consistent with meeting the IDT of halving the share of people on less than US\$1 a day by 2015. None of the quantifiable IDTs reflecting nonincome poverty are likely to be met on a global level, however.¹¹

But there are significant differences between regions. One reason, for instance, why the income poverty target is likely to be met is because of China's and to some extent India's

recent rapid growth. But Africa is largely left behind: it is the only continent in which the share of the population below the one-dollar-a-day poverty line actually increased in the 1990s—from 47.7 percent in 1990 to 48.8 percent in 1998 (World Bank, 2001*a*; Chen and Ravallion, 2000).

The wide disparities in progress towards the income poverty objective among regions in the world are also reflected in the other objectives: progress on primary school enrolment, the gender gap in primary and secondary education, infant and child mortality, and maternal mortality ratios are not up to the mark when measured as the average progress through all developing regions,¹² but East Asia, Latin America and Europe and Central Asia are progressing according to plan on primary education; the Middle East and North Africa is on track with respect to reducing gender disparities at school, and infant, child and maternal mortality; and Latin America is also expected to achieve the objectives of sharply reduced rates of infant, child and material mortality. Of course, the wide differences in regional performance are a reflection of equally wide disparities in country performance.

Slow progress in the reduction of nonincome poverty is likely to depend on many factors, including reluctance to reprioritize public expenditures, difficulties in generating increasing tax revenue, and falling levels of foreign aid. However, it appears difficult to imagine accelerated improvements of nonincome poverty indicators in the absence of economic growth. Pro-poor redistribution is of course possible, but often very difficult unless growth is simultaneously taking place. The bottom line is that income growth is necessary to improve social indicators. The speed of that improvement is likely to depend on many factors unrelated to income growth, but without income growth, a sustainable decrease of nonincome poverty is not likely.¹³

2.3 Conclusion

While it is possible to find growth episodes in which the poor do not participate, it is very difficult, if not impossible, to find examples of situations characterized by massive poverty reduction without economic growth. Consequently, income growth is essential for poverty reduction, irrespective of whether it is income or nonincome poverty.

Several recent studies have shown that on average incomes of the poorest quintile grow as fast as per capita incomes: all income classes share the fruits of growth. It is important not to make too much of this finding: it certainly shows that the distribution of income on average is

largely invariant to economic growth, but it is characterized by wide variations around that average; and policy-makers in any country are not likely to be content with this. Consequently, one should not expect that a growth episode automatically would lead to a one-for-one increase in the incomes of the poor.

The same observation is valid for the relation between income and nonincome poverty: they are correlated with the likely direction of causality running from increases in income to improvements in social indicators. However, that relation as well is characterized by wide variations around the average. How countries perform on nonincome poverty indicators is likely to depend on government priorities, volume and structure of foreign aid and a host of other factors. However, even though economic growth is not strongly linked to social indicators across countries, a sustainable improvement in social indicators in any given country is likely to require increases in the rate of per capita income growth.

3. Why Do the Poor Benefit?

Why does growth take place? Ignoring new products, one may think of two reasons: because the market has increased or because the availability of scarce inputs has increased. The market may increase because of productivity gains (so that the price can be lowered) or because of liberalization of restrictions.¹⁴ The availability of inputs may increase because of several reasons: better banking, foreign aid, more labor, etc. The point is that growth does not start automatically: it has to be triggered – be it via an IMF reform, a government intervention or an exogenous event in the rest of the world. It is rather useful, however, to think of the poor as the potential beneficiaries of growth, rather than to think of the poor as the initial creators of growth. This means that the impact of growth on the poor can be divided into direct and indirect effects.

3.1 Direct Effects

Economic growth reduces poverty through three major mechanisms: it increases the demand for poor people's output; it increases the demand for poor people's production resources, mainly (unskilled) labor; and it enables the government to spend more on things that the poor consume (such as health, education, and infrastructure). The two former effects together constitute what is often sloppily referred to as "trickling down" in development text books.

In countries where a substantial portion of the population lives below or close to the poverty line, poverty is usually a rural phenomenon. Even though urban poverty may be substantial and increasing, the majority of the poor are usually found in rural areas, eking out a living in agriculture and/or in activities directly dependent on agriculture.¹⁵

Therefore it is not surprising to find that growth in agriculture has a more substantial impact on poverty than growth in other sectors. This knowledge has been available for a long time. Ahluwalia (1978) studied the relations between agricultural growth and rural poverty in India from 1957 to 1977. In seven of the fourteen states, a significant negative relationship was found. Together, these states accounted for 75 percent of the population in poverty (Ahluwalia, 1978: 73). However, only a small number of observations were used – the information came from 12 sample surveys – and the time series revealed that the period was not one of sustained economic growth. Therefore, Ahluwalia's study met the criticism that it looked into how rural poverty responded to fluctuations in agricultural activity, rather than long-term growth. However, Ahluwalia (1985) was able to add another year to the original sample and this confirmed the earlier conclusions.

Ravallion and Datt (1996) are also concerned with rural poverty in India and recent enough to include periods usually classified as ones with sustained growth. They looked at 33 household surveys covering the period 1951 to 1991. Their main results are (i) growth in agriculture had a major impact on poverty; (ii) growth in the rural tertiary sector has also a major impact on poverty; (iii) manufacturing growth does not affect rural poverty; (iv) manufacturing growth leads to a deterioration of the urban distribution of income; and (v) rural growth reduces both urban and rural poverty while manufacturing growth has no impact on rural poverty and only a minor impact on urban poverty.

The last point is important, although not surprising. It is important because it suggests that substantial reductions in poverty rates can hardly be accomplished if agriculture does not grow relatively fast. And it is not surprising because, as the work on rural-urban migration by Todaro (1971) and Harris and Todaro (1969) suggest, the rate of migration out of agriculture depends on several factors, including the rural-urban wage differential and the probability of getting a job in the urban sector. Consequently, manufacturing growth (assuming that manufacturing industries are located in urban areas) will either increase the probability of employment in that sector or increase the wage paid in manufacturing, or both. In all cases,

rural-urban migration is stimulated. Since the manufacturing sector is relatively small – in terms of employment – its growth is likely to have a negligible impact on the number of poor people in rural areas, even though some migrate. In urban areas, employment will increase, but so will the number of prospective job seekers, so the impact on urban poverty is limited as well. Rural growth, on the other hand, decreases rural poverty directly through higher incomes or more jobs, and also urban poverty through a decreased rate of rural-urban migration. In the Ravallion and Datt (1996) study, approximately 85 percent of all poverty reduction during the period was due to growth in agriculture.

Another important conclusion by Ravallion and Datt (1996) is that rural-urban migration per se does very little to reduce poverty rates. Instead the most important factor appears to be changes in productivity, i.e., land yields. Poverty reduction is thus the result of growth within sectors, not of the transfer of resources from low-productivity to high-productivity sectors *à la* Lewis (1954). The intuitive explanation for this is, again, that urban sectors are not sufficiently large to be able to absorb the number of migrants that would be required to have a lasting and significant impact on rural poverty. Consequently, the poverty problem in low-income countries is largely rural and has to be addressed through actions in that sector.

Timmer (1997) largely corroborates the conclusions by Ravallion and Datt (1996) with a cross-country study that includes data for 27 countries and spanning a period of 1960 to 1992. Timmer is able to separate country effects from general effects and the data allows for a distinction between agricultural and manufacturing growth.¹⁶ The major finding is that a one-percent increase in agricultural production leads to a 1.61- percent increase of incomes in the bottom quintile of the population. However, contrary to Ravallion and Datt (1996), Timmer finds that manufacturing growth of one percent leads to an increase of 1.16 percent in incomes of the bottom quintile. While Timmer's results show that manufacturing growth may contribute to poverty alleviation, the poverty elasticity emanating from agricultural growth is almost 40 percent larger than the corresponding elasticity for the manufacturing sector.

Timmer's (1997) sample of countries is large enough to include two-thirds of the population of countries classified as low- and middle income. In that sample, output per capita is about three times as high in nonagriculture as in agriculture. This means that agricultural growth has much more impact on employment (and thus direct poverty reduction). Increasing productivity in agriculture seems crucial.

Datt and Ravallion (1999) examine the relations between agricultural employment and poverty reduction in Indian states. They do not find that the elasticity of employment with respect to agricultural output has declined over time. The conclusion is that the current slowing down in poverty reduction is due to a slowing down of agricultural growth, something that Cornia (1999) documents.

When agricultural productivity increases, the poor can benefit in two distinct ways. First, the demand for labor increases, so wage earnings increase. Huppi and Ravallion (1990) show that in Java in the 1980s wage incomes grew faster than other sources of incomes for the poor. Since wage rates did not change much, this was a result of expanding employment opportunities. Much of this employment growth came from a booming service sector that was stimulated by increases in agricultural productivity (and incomes). Second, food prices are likely to fall, which is likely to benefit the poor as well.¹⁷ It deserves, however, to be noted that Ravallion (1989) shows that while increased food prices may hurt the poor in the short run they may benefit from it in the longer run. The reason is that increased food prices work very much like improvements in productivity and thus stimulates the demand for labor. Since this effect is likely to take some time, the negative side of higher prices – reduced purchasing power – predates the positive side – increased employment opportunities.

Agriculture is crucial for growth, both because of its sheer size in terms of output and employment, and because large parts of it use resources which other sectors are not competing for. Agricultural growth therefore tends to be additive to, rather than competing with, growth in other sectors. In particular, agricultural growth appears central as a stimulant of the large sector producing non-tradeables in agriculture (Mellor, 1976).

The evidence is thus consistent with the following interpretation of the direct relations between growth and poverty reduction. Agricultural growth reduces poverty for several reasons, including the fact that it directly increases incomes or and employment opportunities for the majority of the poor that live in that sector. Manufacturing growth, on the other hand, has a marginal impact on urban poverty, mainly because growth in that sector stimulates migration, so the urban pool of unemployed is not much affected, and the manufacturing sector is so small that realistic growth rates are not enough to affect the amount of poverty in rural areas substantially. In addition, parts of the agricultural sector are characterized by underutilization of resources that are not in demand in other sectors. Consequently, when

agriculture grows, these resources are used so agricultural growth is additive to growth in other sectors.

3.2 Indirect Mechanisms

When incomes increase there will be multiplier effects, because the increased incomes that are generated by growth are spent by those than benefit directly from growth. Consequently, the indirect impact depends on the spending pattern of those that enjoy increasing incomes. This observation is central to the indirect mechanisms of poverty alleviation.

When poor people experience increases in income, that increment is often spent on local goods and services. This means that if growth occurs in rural areas and the poor benefit, there will be additional effects. The poor are likely to spend their increased income on food and local services – products that are largely non-traded and therefore unaffected by export promotion and trade liberalization. This, in turn, increases demand for underutilized resources in the agricultural sector, which will further serve to reduce poverty. Consequently, rural growth may generate a virtuous circle through multiplier effects. Most of the underutilized resources, which are brought into employment through secondary effects, are labor, which reinforces poverty reduction.

How large are these multipliers, and how long time does it take for them to give full impact? Ravallion and Datt (1998) estimate that the full impact of increased agricultural output on the welfare of the poor occurred within three years of the initial gain in farm productivity. They also find that that the wage effect – increases in agricultural wages following increased demand for agricultural labor – is about eight times as large in the long run as in the short.

Block and Timmer (1994) shows that in Kenya the multipliers in agriculture are about three times as large as in nonagriculture. The reason is that incomes generated through agricultural growth are to a larger extent spent on locally produced goods and services. The multiplier effects had worked out within four years; the size of the agricultural multiplier is 1.64 and for nonagriculture 1.23. This means that a dollar increase in agriculture's income generated a further 64 cents in the next four years; and the corresponding figure for nonagriculture was 23 cents. Note, however, that the percentage impact of growth on non-traded sectors will be much larger as they constitute a smaller share of the economy.¹⁸

Hazell and Roell (1990) find agricultural multipliers of 1.8 for Malaysia and 1.5 for Nigeria and Sierra Leone. In sub-Saharan Africa, Haggblade, et al. (1989) calculated the multiplier as roughly 1.6 and Rangrajan (1982), using the same model as Block and Timmer (1994) used for Kenya, calculated the Indian multiplier to be 1.7 for agriculture and 1.5 for nonagriculture.

Delgado, et al. (1998), in a careful analysis of seven African economies, calculate specific multipliers from agriculture to non-tradeables in rural areas. Their results range from 1.96 for Niger to 2.88 in Burkina Faso. If these results are reliable, the impact of agricultural expansion is two to three times as large as the initial growth.

3.3 Agricultural Growth and Poverty Reduction

The evidence suggests that poverty reduction take place through two channels: increased employment in agriculture, and expansion of the non-farm sector. As far as the first channel is concerned, there are three possible mechanisms: increases in yield, increases in land area, and changes in the composition of output.

In land scarce countries, an increase in land productivity is virtually the only way of increasing incomes for farmers and many studies have looked into its effects (Hayami and Ruttan, 1985). Rao (1975) finds for India that employment increases between 3 and 6 percent if agricultural output increases by 10 percent. However, as the full multiplier effects will work under at least three years, it is doubtful to what extent this may actually reduce poverty: the rate of increase in employment will usually be less than the rate of population growth. Consequently, it is hard to believe that the association between agricultural growth and poverty reduction goes through increases in yields; the estimated relation is hardly sufficient to deal with the increase of population.

In general, it is likely that expansion of the land area generates a poverty elasticity that is around unity. In Asia, the scope for expansion has been very limited at least since the 1950s¹⁹, and even in Africa the scope for expanding land use is limited – the land that is available is often of lower fertility than the land already under cultivation, and it is sometimes disease-prone which adds to low productivity. It follows from the last point that control of, say, malaria can have a major impact on poverty reduction in poor, land abundant regions but the evidence also suggests that simple expansion of existing production patterns is not an efficient way of fighting poverty (Mellor, 2000).

A change in the composition of output has been more successful for generating increased employment in agriculture. The change from traditional production patterns to an increased share of high-value commodities – such as livestock and horticulture – has generated much employment; Mellor (2000) suggests employment elasticities in the range of unity, even though the changing pattern of production takes place without significant increases in productivity. In addition, the major market for such high-value output is usually rich countries, so intensified trade liberalization – in both poor and rich countries – have further enabled expansion of this sector.

However, one weakness in this strategy is that rich countries continue, through a variety of means, to protect domestic agricultural sectors: tariffs, quotas and export subsidies limit the possibilities for low-income countries to access rich markets. High-income countries' tariffs on agricultural imports are about five times as high as tariffs on manufactures (Hertel and Martin, 1999); the EU's tariffs on meat products reach a high at 826 percent (World Bank, 2000); and in Canada, tariffs on fully processed food products are about 12 times the tariffs on unprocessed food (World Bank, 2001). While global trade has been significantly liberalized in the past decade, labor intensive sectors in which low-income countries have comparative advantage – sectors which could provided much needed employment – continue to be protected: Anderson et al. (1999) estimate that the welfare losses to rich countries of the distortions in the agricultural sectors amount to US\$ 63 billion annually.

And current trends are clearly insufficient. The data reveal that low-income countries that achieve rapid growth in agriculture increase agricultural output by 4 to 6 percent annually. With an average employment elasticity of 0.675 (Mellor, 2000a), a country that grows at 4 percent, will increase agricultural employment by 2.7 percent per annum – barely sufficient to absorb additions to the labor force through population growth. As one important mechanism for poverty alleviation through increased employment in agriculture runs through a tightening of the labor market and thus rising wages, the data suggest that expansion of output is not sufficient. In some countries a combination of increases in land productivity and a shift to high-value products may expand employment significantly to tighten labor markets, but it does not seem reasonable to rely on this as the major strategy for poverty alleviation.

The second mechanism – expansion of the non-farm sector – offers a more promising outlook. Since agriculture accounts for 25-30 percent of GDP in low-income countries and

employs roughly half of the labor force, agricultural growth implies large increases in purchasing power. Since per capita incomes in agriculture generally are below those in nonagriculture, agricultural growth adds income to poor people; this is the direct mechanism of poverty reduction. More importantly, perhaps, is the fact that poor people tend to spend increments in income on locally produced goods and services. Consequently, as agriculture grows, it also stimulates growth of the agricultural non-farm sector. Evidence suggests that roughly 40 percent of incremental income is spent by farmers on non-farm goods and services in middle-income countries (Hazell and Roell, 1983; Haggblade et al., 1989); the proportion is likely to be lower in low-income countries since there a higher proportion of incremental income is spent on food.

The increased emphasis on micro-credit and micro enterprises in development strategies and foreign aid programs reflect a growing recognition of the importance of the rural nonfarm sector in the economy. However, what seems often ignored is the fact that demand for products from this sector is not likely to come forward in the absence of growth of farm output: growth in farmers' incomes pave the way for an expansion of the non-farm sector. In addition, much of what is produced in the farm sector cannot find markets internationally. Delgado et al. (1998) show that products that are usually classified as tradeables – livestock, and fruits and vegetables – for all practical purposes are nontradeable, both on quality grounds and because lack of proper infrastructure prevent cost-efficient distribution outside the local areas.

Agriculture has in general lower productivity than nonagriculture. This means that growth of nonagriculture will have a larger impact on GDP growth, while agricultural growth has a larger impact on employment growth. In Mellor and Gavian's (1999) high-growth scenario for Egypt, agriculture and the agriculture-driven non-farm sector account for 70 percent of employment growth, but only 30 percent of GDP growth. Delgado et al. (1998) find similar figures for six countries in sub-Saharan Africa, and Datt and Ravallion (1998), and Ravallion and Datt (1999) show in addition that the poverty elasticity – through the mechanism whereby increasing agricultural incomes stimulate nonfarm production – varies considerably between Indian states, with much of the difference being explained by the quality of infra-structure and the level of public expenditure. The employment elasticity from agricultural growth can thus be increased through proper action from the government.

The implication of these findings is that the demand for much of what is produced in the agricultural sector has to be found locally. While liberalization of trade has done much to improve the situation of farmers, it does not seem reasonable to assume that the lion's share of demand for what is produced on and off the farm should come from abroad.²⁰ Consequently, growth of farm incomes – through higher wages, or higher land productivity – stimulates demand for nontradeables and provides the necessary impetus for sustained growth in the agricultural sector. In addition, as will be argued below, the pattern and volume of public expenditure plays an important role in the strategy to reduce poverty.

3.4 Conclusion

So, growth is usually good for the poor, because growth increases demand for what the poor produce, and for their labor. However, growth in agriculture or in related activities produces a stronger impact on poverty, mainly because most of the poor live and work in those sectors. In addition, there is evidence of strong linkages between different rural activities. In particular, growth in demand for farm output stimulates demand for non-farm output and in this sense, rurally based growth can be self-sustaining: when farm incomes grow, demand for non-farm output increases, which increases non-farm output and incomes which leads to further demand for farm output. These linkages are strong, because people that live close to poverty lines spend much of their incremental income on locally produced goods. The policy implication is that this process cannot get started until small-scale agriculture starts to grow. It is likely that foreign aid potentially has an important role to play.

The negative side, of course, is that trade liberalization cannot be expected to provide a major impetus for growth—at least not in the short run. Exporting what is produced in the small-scale farm and nonfarm sectors is usually not an option, for several reasons: low quality, high costs of transportation, or simply the fact that many things (services) are nontradeable. Trade liberalization has brought many good things to agriculture, but before the small-scale farm sector will be able to compete internationally, quality will have to be increased, and infrastructure improved to facilitate quick and inexpensive transportation. Given the fiscal constraints under which many governments operate, and the lack of viable private alternatives, this is not likely to occur, at least not in large parts of Africa, in the short or medium term.

4. Growth and Poverty Reduction: Additional Aspects

4.1 Initial Inequality

As for section 2.1, this section contains a brief summary of a literature which is discussed in more detail by Bigsten and Levin (2000). However, since a redistribution of assets, notably land, often figures in the discussion as the general solution to the poverty problem, some results are included here so as to qualify that statement.

While agricultural growth is probably the most efficient means for sustainable poverty reduction, initial conditions matter, and make the outcome very different for different countries. One such factor is the initial distribution of assets. Timmer (1997) finds in his large-scale study that on average countries with a small initial Gini coefficient will grow faster—particularly in lower income segments than countries with a high initial Gini. One reason for this is that in many countries, high income inequality emanates from a very skewed distribution of land, which makes the relatively well-off benefit more from growth; another is that in high inequality-countries, capital markets may not be accessible to poor people thus making it difficult to reap the fruits of economic growth.

These findings are corroborated by Ravallion and Datt (1999) and Datt and Ravallion (1998a), who find that the ability in India of the poor rural population to respond to incentives (such as opportunities in urban areas) varied significantly with education, public spending and rural-urban income disparities. The reason for the latter is that the larger the rural-urban disparities, the higher the costs for moving from rural to urban areas. Consequently, in countries with significant urban-rural inequalities unskilled labor is less mobile, mainly because of the costs associated to moving to different activities. In addition, in states with higher farm yield, smaller rural-urban consumption disparities, and higher rural female literacy rates the poverty elasticity was higher than in other states. This implies that (a) the pattern of public expenditure matters for growth, not only directly but also indirectly through for instance female literacy, and (b) that inequality per se may retard growth by increasing the cost of inter-sectoral movement for labor. In short, Datt and Ravallion found that the poverty elasticity was higher in Indian states with better initial conditions in rural areas. Countries characterized by a high initial degree of inequality may experience lower growth for the additional reason that public spending is usually biased towards the non-poor, which tends to reinforce initial inequalities arising from asset ownership (Addison and Cornia, 1999).

Other studies corroborate these results. Psarchopoulos et al. (1995) find that educational attainment has the largest correlation with both income inequality and the probability of being poor. Londoño and Székely (1997), in a study of Latin America, find that changes in inequality since 1980 are largely reflected in changes in educational attainment. More importantly, the evidence presented by Lipton and Ravallion (1995) indicate that the relation between education and inequality is non-linear. Agénor (2000: 411; emphasis in original) summarizes the finding from several Latin American studies:

The first phases of growth in education are associated with *increased inequality*; for example, an increase from 1 to 2 years of education in the labor force is typically associated with a 3-point increase in the Gini coefficient. An increase from 4 to 5 years is associated with a 1-point increase. The turning point arises when the work force attains between 5 and 6 years of education. From that point on, the inequality decreases; on going from 6 to 7 years, the inequality *falls* by half a point. On passing from 9 to 10 years, it falls by 2 points.

Since initial inequality in asset ownership is likely to carry over into inequality in other dimensions (such as education), it is very difficult to separate the effects arising from different types of inequality. It is also important to keep in mind the inherent difficulty in reconciling income data (which typically come from household budget surveys) and education data (which are linked to individuals).

4.2 Government Spending

It is easy to conceive of mechanisms through which government spending could accelerate poverty reduction. One might be an allocation of spending biased to social sectors, or at least a sectoral/regional allocation which is neutral: in many countries government spending is biased in favor of urban areas and non-poor people.²¹ This would diminish nonincome poverty immediately.

Another would be to increase investments in sectors and geographical areas in which the majority of the poor work and reside: rural areas far from commercial centers; small-scale agriculture; and sectors which are dependent on the income and spending patterns of poor farmers. According to the mechanism laid out in Section 3.2, investments in the agricultural sector may increase the productivity of farmers, which may be a trigger of growth, or

investments in infra-structure may improve access to markets and thus make some commodities less nontradeable.

A study by Fan et al. (1998) tries to estimate such multipliers for rural India. They find that increased government expenditures have a significant impact on poverty in several cases. To be able to compare the impact of different activities, Fan et al. compute the marginal returns. Assuming an increase of government expenditure of Rs 100 billion (in 1993 prices; about US\$ 2 billion), the reduction of poverty (in percentage of the number of poor) are the following: agricultural research and extension (0.48), roads (0.87), education (0.17), soil and water improvement (0.035) and rural development (0.15). Other activities – such as irrigation, power or health – had no statistically significant impact on poverty. Investment in extension and roads has a much larger impact on poverty. While the elasticities may seem rather small one should keep in mind that India is large: a Rs 100 billion investment in roads would, according to Fan et al.'s calculations lift 3.5 million people over the poverty line, and the expenditure per person so lifted would be approximately US\$ 570. The elasticities, of course, are likely to taper off with size of investments—something which Fan et al. do not pay much attention to.

It is important to note, however, that the chains from government expenditure to poverty alleviation are many, and their importance differs substantially between forms of expenditure. All chains go in the Fan et al. model through productivity, but then there are several effects, such as: (i) productivity changes affects poverty directly by increasing farmers' incomes; (ii) productivity changes affect prices, which in turn affect the purchasing power of the poor; (iii) productivity changes affect wages, which impact on poor people's income; and (iv) productivity increases affect land holdings, through the mechanism that increased productivity increases the price of land, so the number of landless people tend to increase, which has a negative impact on poverty. The last chain thus tends to neutralize the other effects from increased productivity.

But non-farm employment – an important factor in the multiplier model discussed above – is only affected when the government increases spending on roads or education. The conclusion is that if one accepts the idea that increased employment is the best way out of poverty (Edgren, 2001) and if the employment numbers that Mellor and Gavian (1999) calculate for Egypt can be generalized, roads and education are the two factors that, in the longer run, will

do most to reduce rural poverty. These are also sectors in which many bilateral donors have much experience, interest and expertise.

4.3 Gender and Intra-Household Distribution

Income distribution data are derived from household budget surveys. Information is usually extracted from one person in each household, and typically the household is treated in the analysis as a homogenous unit. The theoretical rationale for this is the work by Becker (1981) and others on family economics. This class of models assumes (implicitly or explicitly) that all family members agree on how to allocate time and other resources. This assumption has been given different names – the benevolent dictator model, the unitary model, the common preferences model – but from casual empiricism, it is clear that its realism may be questioned: interests and bargaining power in the household often differ between individuals, so the actual outcome is not necessarily optimal from the point of view of the household. Indeed, if household members' preferences differ, it may be very difficult (as social choice theory shows) to talk of “household welfare” altogether.²²

Consequently, if individuals in the household have different bargaining power, or different resources, or do not maximize household utility, the information extracted from household budget surveys may miss something. Thus for instance, if men and women have different marginal propensities to spend on education, and education is important for poverty alleviation, then the poverty impact will be different if transfers to cover school fees accrue to men or women. Consequently, the analysis of how growth affects poverty is incomplete without an analysis of how resources in the household are controlled and distributed.²³ Here, we briefly summarize some empirical results relating to two areas: gender and poverty and the intra-household division of labor; and gender differences in productivity and the adoption of new technology.

Quisumbing, et al. (1995) find in a study covering ten low-income countries weak evidence that women were over-represented among the income-poor. In two countries – Bangladesh and Ghana – women were consistently poorer; in the other, the evidence was mixed. However, the study focused on income only, and it is possible that another pattern would have emerged if other factors – such as education – had been taken into account. The implication is that even if there are no consistent income differences between men and women, policy-

makers should continue to consider gender aspects when formulating policy, since there is clear evidence of less education and fewer assets among women.

Quisumbing and Maluccio (2000) recognize the shortcomings of the unitary model of the household and try to measure intra-household bargaining power by considering the amount of assets that the man and woman brought to the marriage. From this, they study gender differences in spending patterns in four countries. There were considerable differences in results between countries. Thus, for instance while in Bangladesh fathers' schooling and fathers' assets had a negative impact on girls' schooling, the opposite was found for South Africa. In general however women allocated a larger share of resources to education than did men. While one possible explanation of this would be to simply say that women are more altruistic than men, Quisumbing and Maluccio point out that since women are younger at marriage and live longer, their investment in children's education may be an insurance. Moreover, in most low-income countries men control most of the assets which can be used to smooth consumption over the life cycle (land, for instance, or pension funds, when women's participation in the labor market is limited), women's investment in education is an instrument to ensure old-age support.

Moreover, there are clear results that more assets in the hands of women increase the expenditure share on education, although the results fail to show which children that benefit (Quisumbing and Maluccio, 2000). While this together with the observation of education being closely related to the possibilities of escaping poverty might suggest clear pro-poor policy action, Quisumbing and Maluccio caution that increased transfers to women may have negative effects, and thus have to be carefully designed. First, there is a need to know whether increased education is benefiting all children or only some. In particular, the need for old-age support from investment in human capital differs between countries, and the share of resources allocated to girls differs also (the more need for such old-age support, the larger the share allocated to boys). Second, it is important to note that some assets have a value over and above the monetary value (such as paddy land in Sumatra), so transfers may alter the bargaining balance and thus produce compensatory or retaliatory behavior from the non-recipient. Finally, it is important to consider the possibility that resources are not used as intended: Dey Abbas (1997) describe the Gambian irrigation project which was designed to retain women's control of rice production, but which was taken over by men; Kabeer (1997) shows how Bangladeshi women borrow for their men from programs targeted to increase

women's access to credit; and Schuler et al. (1997) warns of the possibility of increasing violence in the household if the program radically alters the balance of power.

Are there gender differences in agricultural productivity? If there are, this has strong implications for policy. Alderman et al. (1995) find that in Burkina Faso, productivity on men's plots were higher than on women's plots. However, there are several reasons for this, including that men's plots have higher labor input from both men and children, that almost all manure was applied on men's plots and that exchange labor (unpaid labor) was exclusively used on men's plots. In particular the unequal allocation of manure made yields on women's fall significantly behind yields on men's plots: about 20 percent for vegetables and 40 percent for sorghum, and simulations reveal that this allocation was strongly inefficient: household output would be increased by an average of 10 percent if manure was reallocated from men's to women's plots.

In Quisumbing's (1995) survey of gender and agricultural productivity, however, the Burkina Faso study quoted above was the only one in which women were less efficient than men: in the other studies reviewed, men and women were equally productive, once input levels and individual characteristics, such as education, was controlled for. It also found very large returns to education: one year of primary education in Thailand and Korea would raise women's yields by up to 25 percent, and in sub-Saharan Africa, yields on women's plots could increase by over 20 percent if women were given the human capital and input levels of men. Quisumbing also make the important, but often neglected, point that measured levels of productivity understate women's true productivity as they also often have the major responsibility for most household chores and thus have less time to tend to the plot.

As for the willingness to adopt new technology, education was by far the most important determinant, for both men and women. However, the copying effect – the willingness to adopt new technology when someone nearby of the same sex had adopted – was much stronger among women. This process was also facilitated by the presence of female extension agents. However, Naved (2000) shows in a study of fish production in Bangladesh that the rate of adoption of new technology among women was much hampered by religious restrictions, in particular *purdah*.²⁴ As a consequence new technologies were not adopted on land owned by the family (because *purdah* does not allow women to grow vegetables on the family's land), but rather in their homesteads where the impact was much smaller.

What is the possibility for women of improving their economic lot through agricultural change? According to Peña et al. (1996) the scope is significant, and thus gender aspects of donor funded programs in agriculture are important. However, donor experience is often that both women-only and women-component programs fail to deliver much. According to Peña et al. this is mainly because donor projects often ignore women's constraints, such as domestic responsibilities, or customary labor requirements, and stress women's domestic roles rather than women's potential as a breadwinner. As noted above, the gain in women's productivity is likely to be significant if they are given the same resources as men have. However, unless pro-female agricultural projects are integrated into mainstream development plans, and due attention is paid to the differing constraints for men and women, that potential is unlikely to be realized.

4.4 Conclusion

The initial distribution of income is an important determinant of how efficient growth will be in reducing poverty. The distribution of income, in turn, reflects, reinforces and is determined by several factors, including the underlying distribution of land and human capital. In general, the more equal the distribution of assets, the more impact will a given rate of growth have on poverty. It would seem that this observation is particularly acute for women's human capital: additional education is likely to have a strong and positive effect on both productivity, as measured by yields, and the readiness to adopt to new technology.

Agricultural growth is often hampered by lack of proper infra structure (in the broad sense: both roads and education), and thus government intervention is warranted. Multipliers from farm incomes to nonfarm output are significant (Delgado et al. 1998), and so are the social rates of return from public investments (Fan et al., 1998): in particular public investments in agricultural extension, and roads. Other studies (Psarchopoulos et al. 1995; Joliffe, 1997) show that education also has high returns and particularly so for women (Fafchamps and Quisumbing, 1999; Quisumbing et al., 1995).

5. Concluding Remarks: What Implications for Aid Donors?

The main point of the poverty reduction chain in Chapter 3 may be summarized as follows (Mellor, 1999):

- Manufacturing growth has no or little effect in reducing poverty
- Urban growth has no effect in reducing rural poverty and very little effect in reducing urban poverty.
- Rural growth reduces rural poverty sharply and has a larger effect on urban poverty than urban growth
- There is a time-lag of up to three years in the effect of rural growth on poverty reduction, so indirect effects are more important
- Further evidence of the importance of the indirect effect is the finding that initial inequality tends to reduce the poverty effect of a given growth rate
- Growth as such does not have much impact on poverty reduction; it is the structure of growth that matters.

The main policy conclusion is thus that donors should consider reallocating part of aid budget to agriculture – through projects, SWAPs, or conditions on program aid. The results suggest that the most efficient way for fighting poverty in a sustainable way would be a two-fold strategy. First, to stimulate growth among the farmers that have land and are actually producing things since this is likely to increase rural employment and thus reduce poverty. Second, by massive investments in rural infrastructure to reduce transaction costs for farmers and to give commodities that are at present in effect nontradeable the possibility of competing internationally. The same policy conclusion applies, of course, to governments, but given fiscal discipline, policy conditions and cash budgets, these often do not have much scope for reallocating – let alone increase – expenditures. In that sense, donors' decisions can matter a lot.

In addition, the results in Chapter 4 suggest that education generate high returns. This is important in rural areas, since education will show up as higher productivity which increases food output and lowers food prices, which is an additional mechanism for poverty reduction. The results further suggest that gender matter. While data indicate that women often have lower productivity than men, statistical studies often find that this is entirely due to women having less input on their land: with the same human capital and the same inputs as men, there

is no significant difference between women's and men's productivity. However, the intra-household distribution of assets and income enters as an important factor for determining the bargaining power of men and women. This means that if women are targeted for, say, inputs or education, the bargaining power is shifted, and there are some studies suggesting retaliatory measures being taken by men. Consequently, while it is important to improve the possibilities for women – for education, for access to land and inputs – it is equally important to design the targeting program in such a way that it does not become self-defeating.

One interesting question that emerges from this review of growth and poverty reduction is of course why many donors have moved away from agriculture despite accumulating evidence of that sector's importance for poverty reduction. In view of the slow progress in reducing poverty particularly in Africa during the past twenty years, one might have expected an increased emphasis on economic growth, particularly in those sectors where the majority of the poor live and work. But instead donor focus has increasingly shifted to other areas. Moreover, an understanding of the paramount importance of agriculture seems to have been lost on the way: the consensus of the 1960s that agricultural growth was necessary for sustained poverty reduction has been replaced, it seems, by the notion that growth is necessary for sustained poverty reduction; 'agricultural' has been dropped. This is unfortunate, since although most growth can reduce poverty, agricultural growth is a more efficient instrument for poverty reduction than other types of growth. Since donor resources constitute a significant share of all development expenditure in many low-income countries, the potential for those resources of making a difference is real and should be exploited.

The two tables in the Appendix show that while donors continue to focus on social sectors (of which education is one), agriculture does not receive the same attention. In addition, it should be kept in mind, when interpreting the data, that the smaller donors – the Nordics, and Switzerland – are more dominant than the larger ones in a large number of countries, particularly in Africa, so that in these countries aid to agriculture may be falling despite the average trend in the data. Note also that while the share of U.S. aid going into agriculture has doubled between 1990/94 and 1995/99, the dollar amount has actually decreased by 15 percent, reflecting a sharp decrease of USAID's budget. A similar observation applies to U.S. aid to education: the share has gone up from 13 to 32 percent, but the dollar amount has fallen.

Endnotes

¹ The non-income poverty indicators relate to schooling; access to health care (reflected in infant mortality, maternal mortality and access to reproductive health facilities); gender equality in education; and environmental consciousness in development strategies. One common indicator of non-income poverty – nutritional deficiency – is lacking, but probably thought to be reflected in some of the other indicators.

² The studies referred to here rely often on household budget surveys. Sometimes these measure income and sometimes—which for the purposes of this report is better—they measure expenditure or consumption. UNDP (2000: Ch 2) is a useful survey of the strengths and weaknesses of different poverty measures, and information which is important, but excluded from typical household budget surveys. The data sets now available cover over three-fourths of the population of low- and middle-income countries. The findings are not representative, in the sense that the countries left out are often in situations – such as war or civil strife – when household budget surveys can not be executed. However, since most of the countries excluded are “special” in one sense or another, it would seem reasonable to assume that the existing data are “representative” for countries lacking these special attributes.

³ Early contributions – which now seem to have largely disappeared from mainstream literature on growth and poverty reduction – include Johnston and Mellor (1961), Mellor and Johnston (1984), Mellor and Lele (1973) and Mellor (1976, 1992). For several reasons – some of which are discussed in Mellor (2000a) – the idea of the 1960s and 1970s that agricultural growth mattered has increasingly been replaced by the idea that growth matters – the ‘agricultural’ has simply been forgotten. This has occurred simultaneously to – and probably not independently of – a shift in aid resources away from agriculture and despite the emergence of data sets which have been used to show the validity of these early propositions.

⁴ Kuznets (1955) used data for a small number of industrialised countries to argue that inequality is higher in middle-income countries than in low-income or high-income countries. Eventually, this hypothesis has been generalised to cover what happens in one economy over time: that income inequality first increases and then decreases as incomes grow. Although this generalisation has no foundation in Kuznets’ writings, it has come to be known as Kuznets’ hypothesis. The intuition is that a low-income country is likely to display a relatively even distribution of income – everybody is poor. As growth is not an equal process, its very existence is likely to make some people benefit more than others. Thus income distribution becomes more unequal. Eventually, however, the benefits of growth will trickle down to those still in poverty – as increased demand for their labour or their products – so after a while growth will improve income distribution again. The idea is powerful and intuitively appealing, and is part of most development economics textbooks. However, most recent studies – and the experience of several countries, including the well-documented case of Taiwan – clearly shows that it does not have global validity: when growth takes place in a low income economy the distribution of income may move either way; there are no general trends.

⁵ The method is usually to compare changes in per capita incomes with average incomes in the poorest 20 or 40 percent of the population. Consequently, national statistics are being used and the data set is limited to countries for which more than one observation on income distribution exists. The invariant income distribution is often interpreted as a general finding, mainly because they pass certain standard statistical test, but the wide variations among individual countries, make it very difficult to use this as a basis for projections, let alone policy prescriptions.

⁶ An often neglected point should be made: when the poor gain little from growth – i.e., when their “elasticity of connection” is low (Timmer, 1997) – they gain less than the average income holder does from growth, but they also lose less from economic recessions (Easterly, 2001).

⁷ There is no consensus on how non-income poverty should be defined, much less measured. Footnote 1 lists the international development targets, but, for instance, the World Development Report, 2000/01 (World Bank, 2001) includes aspects such as powerlessness, fear, voicelessness, and vulnerability which clearly are not reflected in the IDTs. In this report, however, non-income poverty mainly refers to indicators of educational and health accessibility.

⁸ See Joliffe (1997) for a critical review of the literature. It deserves further to be noted that if we can find a close correlation between changes in income poverty and changes in nonincome poverty – where the first is measured

at the household level and the latter at the individual level – it suggests that the standard assumption in economics, that of the household as a homogenous unit, is not making too much violence on reality (but cf. Quisumbing and Maluccio, 2000 for a review of the evidence). The obvious alternative to this approach, of course, is to measure income or consumption at the individual level. More will be said about this in Chapter 4.

⁹ The study referred to covers the eight countries in the West African economic and monetary union. Of these data were available for six: Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal and Togo. In four of these, real per student spending declined, and in the other two, increases were either marginal (Burkina Faso) or related to the 1980s (Niger).

¹⁰ See for instance Wagstaff (1999, 2000) on health and infant mortality, Behrman and Knowles (1997) and Filmer and Pritchett (1999) on schooling, Strauss and Thomas (1998) on nutrition, and Filmer and Pritchett (1998) on gender equality in attendance.

¹¹ See World Bank (2001a). The IDT indicators can be found at www.oecd.org/dac/Indicators and progress towards the goals is tracked at www.developmentgoals.org

¹² I ignore two of the IDTs: accessibility to reproductive health services and the development of national strategies for sustainable development, because of lack of an easily definable quantitative objective.

¹³ The relation between inequality, growth and poverty is discussed in many survey papers. From a pedagogical point of view (i.e., for the non-economist) Ferreira (1999) is probably one of the best; but see also Bigsten and Levin (2000) and White and Anderson (2000).

¹⁴ I refer not only to restrictions traditionally analysed by economists – such as national tariff barriers – but also high transaction costs that emanate from bad infrastructure, such as roads, or lack of finance.

¹⁵ Many rural people pursue a range of activities – some related directly to agriculture, some not. For ease of exposition, I prefer to refer to rurally based individuals as if they were either in agriculture or not.

¹⁶ Timmer uses a statistical technique – fixed effects through dummy variables – to separate country and time effects. In no study is the informal sector included. However, unless the informal sector's responsiveness to growth differs sharply between countries or over time, this need not be a major source of worry.

¹⁷ Those who sell food of course are likely to lose unless the sold quantity increases more than the price falls and unless the purchase more food than they sell.

¹⁸ As an example, assume that agricultural output is 100 and that non-traded sectors in rural areas produce an output of 10. If agricultural incomes grow by 10 (so agriculture's output increases to 110) and if this gives rise to a multiplier of 1.64 which is all spent in the rural non-trade sector, that sector's income increases by 6.4, which is equivalent to a growth rate of 64 percent; if that increase is spread over 4 years – the finding of Block and Timmer (1994) – the average annual rate of growth of rural, non-farm output is slightly above 17 percent.

¹⁹ The scope for land reform, of course, is still there.

²⁰ The situation differs of course from country to country and from sector to sector. This remark is meant to emphasise the fact that while trade liberalisation (the implicit assumption of which is that demand is the constraining factor – and that demand has to come from abroad) has had a positive impact in some sectors in some countries, it has not delivered as much in terms of poverty reduction as was expected. One reason for this is probably that many sectors in low-income countries lack the products or the facilities for reaching the international market.

²¹ An interesting, but under-researched, issue in this context is to what extent the geographical allocation of donor funds is pro-poor. To my knowledge, no such study has been conducted, but anecdotal evidence and back-of-the-envelope calculations of bilateral support for Tanzania's primary education sector suggest that the allocation of foreign aid is not biased in favour of poorer regions: the simple correlation coefficient between regional per capita income and spending per student for 1996/97 (in primary education) is 0.34, and there is no evidence that the allocation of donor funds is different: development expenditure, of which most is funded by donors, displays a similar correlation. Interestingly, one of the background studies for Tanzania's PER 2001

suggests that there is need for a “more deliberate focus on disadvantaged locations and disadvantaged groups.” (PER, 2001: 2).

²² Even though Quisumbing and Maluccio (2000) find evidence that preferences differ among household members, there are still reasons to believe that the resulting allocation of resources often is efficient: Fafchamps and Quisumbing (1999), for instance, find that the intra-household allocation of labour is often guided by comparative advantage.

²³ The literature is large and rapidly expanding, so only a few of the issues can be considered here. The interested reader is advised to search the web site of the International Food Policy Research Institute (www.ifpri.org) for links and a large number of empirical papers.

²⁴ *Purdah* refers to the custom, enforced in many Islamic countries, that women are not allowed to mix with men to which they are not related.

References

- Addison, T. and G. A. Cornia (1999): *Income Distribution Policies for Faster Poverty Reduction*, mimeo, Helsinki: WIDER
- Agénor, P.-R. (2000): *The Economics of Adjustment and Growth*, New York, NY: Academic Press
- Ahluwalia, M. (1978) “Rural Poverty and Agricultural Performance in India” *Journal of Development Studies*, Vol. 14
- Ahluwalia, M. (1985) “Rural Poverty, Agricultural Poverty and Prices: A Reexamination” in J. Mellor and G. M. Gunvant (eds.): *Agricultural Change and Rural Poverty*, Baltimore, MD: Johns Hopkins University Press
- Alderman, H., J. Hoddinott, L. Haddad and C. Urdu (1995): *Gender Differentials in Farm Productivity: Implications for Household Efficiency and Agricultural Policy*, Washington DC: International Food Policy Research Institute, FCND Discussion Paper #6
- Anderson, K., B. Hoekman and A. Strutt (1999): *Agriculture and the WTO: Next Steps*, mimeo, Adelaide: Center for International Economic Studies
- Becker, G. (1981): *A Treatise of the Family*, Cambridge, MA: Harvard University Press
- Behrman, J. and J. Knowles (1997): *How Strongly is Child Schooling Associated with Household Income?* Bethesda, MD: Abt Associates
- Bigsten, A. and J. Levin (2000): *Growth, Income Distribution and Poverty*, mimeo, Gothenburg: School of Economics and Commercial Law
- Birdsall, N. and J. L. Londoño (1997) “Asset Inequality Matters: An Assessment of the World Bank’s Approach to Poverty Reduction” *American Economic Review*, Vol. 87
- Birdsall, N. and A. de la Torre (2000): *Economic Reform in Unequal Latin American Societies*, Washington DC: Carnegie Foundation for International Peace
- Block, S. and P. Timmer (1994) “Agriculture and Economic Growth: Conceptual Issues and the Kenyan Experience” mimeo, Cambridge, MA: HIID
- Bruno, M., M. Ravallion and L. Squire (1998) “Equity and Growth in Developing Countries: Old and New Perspectives on the Policy Issues” in V. Tanzi and K-y. Chu (eds.) *Income Distribution and High-Quality Growth*, Cambridge, MA: MIT Press
- Cecchini, S., D. Narayan and P. Pannushy (2001): *Poverty Trends and the Voices of the Poor*, 4th edition, Washington DC: PREM, World Bank
- Chen, S. and M. Ravallion (2000) “How Did the World’s Poorest Fare in the 1990s? *Policy Research Working Paper*, Washington DC: World Bank
- Cornia, G. A. (1999) “Policy Reform and Income Inequality” Helsinki: WIDER
- Danielson, A. (2001): *Economic and Institutional Reforms in French-Speaking West Africa: Impact on Efficiency and Growth*, mimeo, Helsinki: WIDER
- Danielson, A. and G. Mjema (2001): *Tanzania 2000: Growth, Multilateral Debt Relief and Program Aid*, Country Economic Report, Stockholm: Sida
- Datt, G. and M. Ravallion (1998) “Why Have Some Indian States Done Better than Others at Reducing Rural Poverty?” *Economica*, Vol. 65

- Datt, G. and M. Ravallion (1998a) "Farm Productivity and Rural Poverty in India" *Journal of Development Studies*, Vol. 34
- Deininger, K., L. Squire and T. Zhang (1995): *A New Database on International Income Distribution*, Washington DC: World Bank, mimeo (available at <http://www.worldbank.org/growth/deideisqu.htm>)
- Deininger, K and L. Squire (1998) "New Ways of Looking at Old Issues: Asset Inequality and Growth" *Journal of Development Economics*, Vol. 57
- Delgado, C. et al. (1998): *Agricultural Growth Linkages in sub-Saharan Africa*, Research Report #107, Washington DC: International Food Policy Research Institute
- Demery, L. (1999) "Poverty Dynamics in Africa: An Update" mimeo, Washington DC: World Bank, PRSD Unit
- Demery, L. and L. Squire (1996) "Macroeconomic Adjustment and Poverty in Africa: An Emerging Picture" *World Bank Research Observer*, Vol. 11
- Dey Abbas, J. (1997) "Gender Asymmetries in Intra-Household Resource Allocation in sub-Saharan Africa" in L. Haddad, J. Hoddinott and H. Alderman (eds.): *Intrahousehold Resource Allocation in Developing Countries: Models, Methods and Policy*, Baltimore, MD: Johns Hopkins University Press
- Dollar, D. and A. Kraay (2000): *Growth Is Good For the Poor*, Washington DC: World Bank, Development Economics Research Group, mimeo
- Easterly, W. (2001): *The Effects of IMF and World Bank Programs on Poverty*, presented at the conference on Growth and Poverty, WIDER: Helsinki, May 25-26
- Edgren, G. (2001): *More, Better Jobs. Employment Policy for Poverty Reduction*, background report for Sida's Poverty Project, mimeo
- Fafchamps, M. and A. Quisumbing (1999): *Social Roles, Human Capital and the Intrahousehold Division of Labor*, Washington DC: International Food Policy Research Institute, FCND Discussion Paper #73
- Fan, S., P. Hazell and S. Thorat (1998): *Government Spending, Growth and Poverty: An Analysis of Inter-Linkages in Rural India*, Washington DC: International Food Policy Research Institute, EPDT Discussion Paper # 33
- Ferreira, F. (1999) "Inequality and Economic Performance" mimeo, Washington DC: World Bank (available at www.worldbank.org/poverty/inequal/index.htm)
- Filmer, D. and L. Pritchett (1998): *Educational Enrolment and Attainment in India: Household Wealth, Gender, Village and State Effects*, Washington DC: World Bank
- Filmer, D. and L. Pritchett (1999) "The Effect of Household Wealth on Educational Attainment: Evidence from 35 Countries" *Population and Development Review*, Vol. 25
- Gallup, J., S. Radelet and A. Warner (1997) "Income Inequality and the Income of the Poor" *CAER II Discussion Paper #36*, Cambridge, MA: HIID
- Gugerty, M. and Timmer, P. (1999): *Growth, Inequality and Poverty Reduction: Implications for Development Assistance*, mimeo, Cambridge, MA: HIID
- Haggblade, S. et al. (1989) "Farm-Nonfarm Linkages in Rural sub-Saharan Africa" *World Development*, Vol. 17

- Harris, J. and M. Todaro (1971) "Migration, Unemployment and Development: A Two-Sector Analysis" *American Economic Review*, Vol. 61
- Hayami, Y. and V. W. Ruttan (1985): *Agricultural Development: An International Perspective*, Baltimore MD: Johns Hopkins University Press
- Hazell, P. and A. Roell (1983): *Rural Growth Linkages: Household Expenditure Patterns in Malaysia and Nigeria*, Research Report #41, Washington DC: International Food Policy Research Institute
- Hertel, T and W. Martin (1999) "Developing Country Interest in Liberalizing Manufactures Trade" mimeo, Washington DC: World Bank
- Huppi, M. and M. Ravallion (1991) "The Sectoral Structure of Poverty During an Adjustment Period: Evidence for Indonesia in the mid1980s" *World Development*, Vol. 19
- Johnston, B. and J. Mellor (1961) "The Role of Agriculture in Economic Development" *American Economic Review*, Vol. 51
- Joliffe, D. (1997): *Whose Education Matters in the Determination of Household Income? Evidence from a developing country*, Washington DC: International Food Policy Research Institute, FCND Discussion Paper #39
- Kabeer, N. (1997) "Women, Wages and Intrahousehold Power Relations in Urban Bangladesh" *Development and Change*, Vol. 28
- Kuznets, S. (1955) "Economic Growth and Income Inequality" *American Economic Review*, Vol. 45
- Lewis, W. A. (1954) "Economic Development with Unlimited Supplies of Labor" *The Manchester School*, Vol. 22
- Lipton, M. and M. Ravallion (1995) "Poverty and Policy" in J. Behrman and T. N. Srinivasan (eds.): *Handbook of Development Economics*, Vol. III, Amsterdam: North-Holland
- Londoño, J. L. and M. Székely (1997): *Persistent Poverty and Excess Inequality: Latin America, 1970-1995*, Working Paper #352, Washington DC: Interamerican Development Bank
- Lopez, R. and C. della Maggiora (2001) "Rural Poverty in Peru: Stylized Facts and Analysis for Policy" in R. Lopez and A. Valdez (eds.): *Rural Poverty in Latin America: Analytics, New Empirical Evidence and Policy*, Washington DC: World Bank, in press
- Mellor, J. (1966): *The Economics of Agricultural Development*, Ithaca, NY: Cornell University Press
- Mellor, J. (1976): *The New Economics of Growth*, Ithaca, NY: Cornell University Press
- Mellor, J. (1995): *Agriculture on the Road to Industrialization*, Baltimore, MD: Johns Hopkins University Press
- Mellor, J. (1999): *The Structure of Growth and Poverty Reduction*, paper for the Stiglitz Summer Research Workshop, Washington DC: World Bank
- Mellor, J. (2000): *Faster More Equitable Growth: The Relation Between Growth in Agriculture and Poverty Reduction*, CAER II Discussion Paper #70, Cambridge MA: HIID

- Mellor, J. (2000a): *Agricultural Growth, Rural Employment and Poverty Reduction – Non-Tradeables, Public Expenditure and Balanced Growth*, paper prepared for the World Bank Rural Week, 2000, Bethesda, MD: Abt Associates, mimeo
- Mellor, J. and S. Gavian (1999): *Impact Assessment of Agricultural Policy Reform on Employment and Productivity in Egypt*, Bethesda, MD: Abt Associates
- Mellor, J. and B. Johnston (1984) “The World Food Equation: Interrelations Among Development, Employment and Food Consumption” *Journal of Economic Literature*, Vol. 22
- Mellor, J. and U. Lele (1973) “Growth Linkages of the New Food Grain Technologies” *Indian Journal of Agricultural Economics*, Vol.28
- Peña, C., P., Webb and L. Haddad (1996): *Women’s Economic Advancement Through Agricultural Change: A Review of Donor Experience*, Washington DC: International Food Policy Research Institute, FCND Discussion Paper #10
- PER (2001) “Systemic Issues in Budget Management” *Public Expenditure Review Reviews FY01*, Consultative Meeting, May 7-8th, mimeo, Government of Tanzania
- Psarchopoulos, G. et al. (1995) “Poverty and Income Inequality in Latin America in the 1980s” *Review of Income and Wealth*, Vol. 41
- Quisumbing, A. (1995): *Gender Differences in Agricultural Productivity; A Survey of Empirical Evidence*, Washington DC: International Food Policy Research Institute, FCND Discussion Paper #5
- Quisumbing, A., L. Haddad and C. Peña (1995): *Gender and Poverty: New Evidence from 10 Developing Countries*, Washington DC: International Food Policy Research Institute, FCND Discussion Paper #9
- Quisumbing, A. and J. Maluccio (2000): *Intra-Household Allocation and Gender Relations: New Empirical Evidence from Four Developing Countries*, Washington DC: International Food Policy Research Institute, FCND Discussion Paper #84
- Rangarajan, C. (1982): *Agricultural Growth and Industrial Performance*, Research Report # 33, Washington DC: International Food Policy Research Institute
- Ravallion, M. (1989) “Is Undernutrition Responsive to Changes in Income?” mimeo, Washington DC: World Bank
- Ravallion, M. (1997) “Can High-Inequality Developing Countries Escape Absolute Poverty?” *Economics Letters*, Vol. 56
- Ravallion, M. and G. Datt (1996) “How Important to India’s Poor is the Sectoral Composition of Economic Growth?” *World Bank Economic Review*, Vol. 10
- Ravallion, M. and G. Datt (1999) “When is Growth Pro-Poor? Evidence from the Diverse Experiences of India’s States” *Policy Research Working Paper #2263*, Washington DC: World Bank
- Roemer, M. and M. K. Gugerty (1997) “Does Economic Growth Reduce Poverty?” *CAER II Discussion Paper # 4*, Cambridge, MA: HIID
- Schuler, S., S. Hashemi and A. Riley (1997): *Men’s Violence Against Women in Rural Bangladesh: Undermined or Exacerbated by Micro Credit Programs?* Mimeo, Arlington VA: JSI Research and Training Institute

- Strauss, J. and D. Thomas (1998) "Health, Nutrition and Economic Development" *Journal of Economic Literature*, Vol. 36
- Timmer, P. (1997) "How Well Do the Poor Connect to Growth?" *CAER II Discussion Paper #178*, Cambridge, MA: HIID
- Todaro, M. (1969) "A Model of Labor Migration and Urban Unemployment in Less Developed Countries" *American Economic Review*, Vol. 59
- UNDP (2000): *Choices For the Poor*, New York, NY: United Nations' Development Program
- Wagstaff, A. (1999): *Inequalities in Child Mortality in the Developing World: How Large Are They? Can They Be Reduced?* Washington DC: World Bank
- Wagstaff, A. (2000) "Socioeconomic Inequalities in Child Mortality: Comparisons Across Nine Developing Countries" *Bulletin of the World Health Organization*, Vol. 78
- White, H. and E. Anderson (2000): *Growth Versus Distribution: Does the Pattern of Growth Matter?* mimeo, Brighton UK: IDS, University of Sussex
- World Bank (2000): *Trade, Development and Poverty Reduction*, Issues paper (joint with the IMF) for the annual meeting, Washington DC: World Bank
- World Bank (2001): *Attacking Poverty. World Development Report, 2000/01*, Washington DC: World Bank
- World Bank (2001a): *Poverty Trends and Voices of the Poor, 4th edition*, Washington DC: PREM, World Bank, May
- Yao, S. (1999) "Economic Growth, Income Inequality and Poverty in China Under Economic Reforms" *Journal of Development Studies*, Vol. 35

Appendix: Some Data

Table 1: Aid to Agriculture. Percent of Aid Budget and Millions of USD

	1985/88		1990/94		1995/99	
	Per cent	USD mn	Per cent	USD mn	Per cent	USD mn
Denmark	9	69	5	61	6	112
Japan	7	582	9	1,414	11	2,012
Norway	7	58	3	36	3	31
Sweden	5	92	8	147	2	36
Switzerland	17	110	8	79	4	38
USA	11	1,002	3	471	6	409
Average ^a	9	1,913	6	2,208	5	2,638
Average ^b	9	n.a	6	n.a	9	n.a

Source: DAC peer reviews (most recent). Data are from most recent single year within time span indicated in column heading.

^a Unweighted. The entries in the dollar columns show total amount disbursed to agriculture from the six donors.

^b Weighted by size of aid budget

Table 2: Aid to Education. Percent of Aid Budget and Millions of USD

	1985/88		1990/94		1995/99	
	Per cent	USD mn	Per cent	USD mn	Per cent	USD mn
Denmark	3	23	9	114	6	110
Japan	16	1,272	16	2,430	22	3,951
Norway	8	70	5	52	8	92
Sweden	21	355	32	574	35	570
Switzerland	24	156	18	177	22	213
USA	18	1,611	13	2,381	32	2,215
Average ^a	15	3,487	15	5,728	21	7,151
Average ^b	17	n.a.	15	n.a.	23	n.a.

Source: DAC peer reviews (most recent). Data are from most recent single year within time span indicated in column heading.

^a Unweighted. The entries in the dollar columns show total amount disbursed to education from the six donors.

^b Weighted by size of aid budget