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# The World's Most Deprived

## Characteristics and Causes of Extreme Poverty and Hunger

Akhter U. Ahmed, Ruth Vargas Hill,
Lisa C. Smith, Doris M. Wiesmann, and
Tim Frankenberger

With Assistance From
Kajal Gulati, Wahid Quabili, and Yisehac Yohannes

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# EXECUTIVE SUMMARY

At the turn of the millennium seven years ago, the international community made a commitment to halve the proportion of people living in extreme poverty and hunger between 1990 and 2015. Now, at the halfway point between the millennium declaration and the deadline, it is clear the world has achieved considerable progress. However, though poverty and malnutrition rates are declining, it is less clear who is actually being helped. Are development programs reaching those most in need, or are they primarily benefiting those who are easier to reach, leaving the very poorest behind?

## WHO ARE THE POOREST AND WHERE DO THEY LIVE?

One billion people live on less than $1 a day, the threshold defined by the international community as constituting extreme poverty, below which survival is questionable. That number encompasses a multitude of people living in varying degrees of poverty—all of them poor, but some even more desperately poor than others. To better answer the question of whether the very poorest are being reached, we first divided the population living on less than $1 a day into three categories according to the depth of their poverty:

- Subjacent poor: those living on between $0.75 and $1 a day
- Medial poor: those living on between $0.50 and $0.75 a day
- Ultra poor: those living on less than $0.50 a day[1]

This allowed us to look below the dollar-a-day poverty line to determine who the poorest people are, where they live, and how each group has fared over time. We found that ***162 million people live in ultra poverty on less than 50 cents a day.*** This is a significant number of people: if all of the ultra poor were concentrated in a single nation, it would be the world's seventh most populous country after

[1] To be more precise, subjacent poverty is defined as the proportion of the population living on between $0.81 and $1.08 a day; medial poverty as between $0.54 and $0.81 a day; and ultra poverty as below $0.54 a day. All are measured at the 1993 PPP exchange rates.

China, India, the United States, Indonesia, Brazil, and Pakistan.

As it is, the ultra poor are overwhelmingly concentrated in one region—Sub-Saharan Africa is home to more than three-quarters of the world's ultra poor. Sub-Saharan Africa is also the only region in the world in which there are more ultra poor than medial or subjacent poor. In contrast, most of Asia's poor live just below the dollar-a-day line; only a small minority of the population is ultra poor.

By examining the three categories of poverty, we see that while remarkable progress has been made in some regions, progress against poverty and hunger has been slow in regions where poverty and hunger are severe. Between 1990 and 2004, East Asia and the Pacific experienced a substantial reduction in the number of subjacent, medial, and ultra poor. In South Asia, the number of subjacent poor actually increased during that period, but at the same time, there was a significant decrease in the number of medial and ultra poor. Sub-Saharan Africa, in contrast, experienced increases in the number of poor people in each category, particularly in ultra poverty. Sub-Saharan Africa's lack of progress indicates that if current trends continue, improvements over the next seven years may reach people below the poverty line, but will largely exclude a large share of the world's absolute poorest.

The diverging experiences of Asia and Sub-Saharan Africa call into question the assumptions behind economic growth models that predict a convergence between growth and poverty reduction. The severity of poverty in Sub-Saharan Africa and the limited progress in reducing it indicate that the poorest in Sub-Saharan Africa may be trapped in poverty. To better understand this dynamic, we calculated the amount by which poverty would have been reduced in each category if everyone's income had grown by the same amount between 1990 and 2004. We compare this "equal growth scenario" with the amount of poverty reduction that actually took place during this period.

We found that progress against poverty has been slower for people living well below the dollar-a-day line. Had poverty reduction been equal in all three categories, the proportion of people living in ultra poverty would have declined by 3.6 percent. In actuality, the proportion declined by only 1.4 percent, less than half the expected rate. However, there are marked regional differences. In East Asia and the Pacific, rapid economic growth has benefited all groups nearly equally, while in Sub-Saharan Africa those in ultra poverty are being substantially left behind in what little progress against poverty has been achieved in the region.

## PROGRESS AGAINST HUNGER

According to the Global Hunger Index (GHI), the hot spots of hunger are in Sub-Saharan Africa and South Asia. In Sub-Saharan Africa, overall progress in the 1990s was slow. The proportion of people who were food-energy deficient decreased, but there was very little improvement in underweight in children and in the under-five mortality rate. The high under-five mortality rate is consistent with the high prevalence of ultra poverty in this region.

South Asia and Sub-Saharan Africa have similar GHI scores despite the fact that South Asia's poverty rate is about 10 percentage points lower than Sub-Saharan Africa's. South Asia made tremendous strides in combating hunger in the 1990s, but despite remarkable improvement in child nutritional status, the region still has the highest prevalence of underweight in children in the world, which explains its high GHI score. East Asia and the Pacific experienced only a small reduction in its GHI score during the 1990s and early 2000s.

However, the region had a lower GHI score at the outset, suggesting that in the early 1990s, it was more able than Sub-Saharan Africa and South Asia to meet its population's most basic food and nutritional needs.

To obtain a more in-depth look at hunger, we analyzed household survey data in 15 countries. As we did with people living below the poverty line, we also separated the hungry into three categories:

- Subjacent hungry: those who consume between 1,800 and 2,200 calories per day
- Medial hungry: those who consume between 1,600 and 1,800 calories per day
- Ultra hungry: those who consume less than 1,600 calories per day

International experts recommend 2,200 calories as the average energy requirement for adults undertaking light activity. The 1,800 calorie cut-off identifies people who do not consume sufficient dietary energy to meet the minimum requirement for light activity, as established by the Food and Agriculture Organization of the United Nations. Those consuming less than 1,600 calories per day are at risk of dying from extreme hunger or starvation.

We found that in most of the Asian and Latin American countries surveyed (Bangladesh, Guatemala, Laos, India, Pakistan, Sri-Lanka, Tajikistan, and Timor-Leste), there are almost as many or more people facing subjacent hunger than ultra hunger. However, in the African countries surveyed (Burundi, Ethiopia, Kenya, Malawi, Rwanda, Senegal, and Zambia), most of the hungry consume less than 1,600 calories per day. The percentage of the population suffering from ultra hunger in these African countries ranges from 27 percent (Kenya) to an appalling 60 percent (Burundi). *In Sub-Saharan Africa, most of those defined as hungry live in ultra hunger and are at risk of dying from extreme hunger or starvation.*

## CHARACTERISTICS OF THE WORLD'S POOREST AND HUNGRY

The poorest are those from socially excluded groups, those living in remote areas with little education and few assets, and—in Asia—the landless. To better understand the characteristics of the world's poorest and hungry, we summarized the findings from an analysis of household data and from a review of empirical research in 20 countries in developing regions of the world. We found that the poorest are also hungry, although not everyone classified as hungry lives on less than $1 a day. Selected findings include:

1. ***Despite a global trend of poverty shifting toward urban areas, the incidence of poverty is still higher in rural areas.*** And as poverty deepens, the income disparities between rural and urban areas tend to increase. On average, poverty rates are 2.4 times higher for the subjacent poor and 2.7 times higher for the medial poor in rural areas than for their counterparts in urban areas. But the poverty rates for the ultra poor are nearly four times higher in rural areas than in urban areas.

2. ***The poorest and most undernourished households are located furthest from roads, markets, schools, and health services.*** To some extent, an electricity connection indicates the degree to which a household is "connected" in a broader sense to roads, markets, and infrastructure. We find that households living in ultra poverty are on average four times less likely to be connected than households living above the dollar-a-day line.

3. ***The proportion of poor people who are educated varies from country to country. However, there***

*is one consistent pattern in every part of the developing world: adults in ultra poverty are significantly less likely to be educated, be they male or female.* In nearly all study countries, the proportion of adult males without schooling is almost double or more among the ultra poor than the non-poor. In Vietnam and Nicaragua, adult males living in ultra poverty are three times more likely to be unschooled than those living on more than $1 day. In Bangladesh, nearly all women in ultra poor households are unschooled (92 percent), compared to less than half in households living on more than $1 a day (49 percent). The data overwhelmingly show that the poorest are the least educated.

4. *In all study countries, children from poorer families are less likely to go to school.* In India, 48 percent of children living in ultra poverty attend school, compared to 81 percent of children living above the dollar-a-day poverty line, representing a 33 percentage-point gap. In Vietnam, the gap is 30 percentage points, in Ghana it is 28 percentage points, and in Burundi it is 24. Without education, the future of children living in ultra poverty will be a distressing echo of their current experience.

5. *There does not seem to be a uniform pattern of higher landlessness among the poor, though the relationship varies among Sub-Saharan Africa, Latin America, and Asia.* Land is a vital productive asset in rural economies. We would thus expect the association between poverty and landlessness to be high. In all parts of Asia, those who are landless are the poorest. For example, nearly 80 percent of the ultra poor in rural Bangladesh do not own cultivable land. In Sub-Saharan Africa, however, little difference was found between the incidence of landlessness among the poorest and less poor households, and in some cases the reverse pattern was found. This corresponds to the findings of other studies that in Sub-Saharan Africa the poorest often own some land (usually very small plots), but they lack access to markets and other key resources such as credit and agricultural inputs. In Latin America, although the incidence of landlessness is high, it was actually found to be higher among those who live on more than $1 a day than among those living on less than $1 a day.

6. *Each of the 20 countries has minority and other subgroups that have consistently higher prevalences of poverty and hunger, especially in Asia.* In Laos and Vietnam, ethnic minorities in upland areas experience a higher probability of being poor. In Sri Lanka, the incidence of poverty is highest among Tamils, and in India, disadvantaged castes and tribes consistently experience deprivation in a number of dimensions. For example, tribal people in India are 2.5 times more likely to live in ultra poverty than others. In Latin America, indigenous peoples are overrepresented among the poor, and increasingly so further below the dollar-a-day poverty line. There is some evidence that female-headed households and women are overrepresented among the ultra poor, but in general, no large differences were found.

## POVERTY TRAPS AND EXCLUSION

What are some of the reasons these characteristics prevail among the poorest? Why do people in ultra poverty stay poor? In the last few years, much has been learned about the causes of persistent poverty and hunger. This report summarizes the findings of these studies, particularly the empirical studies of the 20 developing countries. Three main observations are:

1. *The location of a household—its country of residence and its location within the country—has a large impact on potential household welfare.*

The disparity in rates of poverty and hunger across countries attests to the importance of locational characteristics in determining poverty and hunger.

2. *The coincidence of severe and persistent poverty and hunger indicates the presence of poverty traps—conditions from which individuals or groups cannot emerge without the help of others.* Three commonly found causes of poverty traps are

- the inability of poor households to invest in the education of their children,
- the limited access to credit for those with few assets, and
- the lack of productive labor of the hungry.

*Within a trap, poverty begets poverty and hunger begets hunger.* A number of studies at the level of individuals and households provide clear evidence that poverty and hunger in combination put into play mechanisms that cause both conditions to persist. Poverty and hunger inherited at birth, or resulting from unfortunate and unexpected events, can persist for years. These conditions or events in the life of a household—particularly serious illness—explain the descent of many households into absolute poverty.

3. *The systematic exclusion of certain groups from access to resources and markets increases their propensity to be poor.* These groups include ethnic minorities, disadvantaged castes and tribes, and those suffering from ill-health and disability. The exclusion of individuals from these groups from institutions and markets that would allow them to improve their welfare results in persistent poverty and hunger.

## THE ROAD AHEAD

The dismally slow progress in reducing ultra poverty and the relative lack of success in reaching the very poorest clearly demonstrate that "business as usual" will not be good enough to reach the poorest within an acceptable timeframe. As the world moves toward the deadline for achieving the Millennium Development Goal of cutting hunger and poverty in half, it cannot be content to focus only on the marginally poor and hungry—the desperate, grinding poverty of the world's absolute poorest must also be assuaged.

A focus on policies and programs that are particularly effective at improving the welfare of the world's poorest and hungry is needed. This report suggests interventions along the following lines that are essential to helping the poorest move out of poverty:

- Improving access to markets and basic services for those in the most remote rural areas
- Providing insurance to help households deal with health crises
- Preventing child malnutrition
- Enabling investment in education and physical capital for those with few assets
- Addressing the exclusion of disadvantaged groups

These findings also highlight the importance of improving our knowledge and understanding of who the world's poorest and hungry are. It is only with carefully collected, context-specific, and time-relevant data that it is possible to correctly design, monitor, and evaluate policies and interventions for improving the welfare of the most deprived.

# 1

# INTRODUCTION

Despite considerable progress in poverty reduction in the past decade, millions of people around the world remain preoccupied solely with survival, and hunger is a reality in their everyday lives. Today, there are about 1 billion extremely poor people in the developing world who subsist on less than $1 a day. Of those, half a billion live on less than 75 cents a day and 162 million live on less than 50 cents. The most unfortunate consequence of widespread poverty is that more than 800 million people cannot afford an adequate diet. Chronically underfed and largely without assets other than their own labor power, they remain highly vulnerable to the crushing blows of illness and natural or man-made calamities. These extreme poor are a group that hovers on the outer limits of human survival.

In September 2000, the Millennium Declaration was adopted by 189 member states of the United Nations, whereby the heads of states confirmed their countries' commitment to achieving the eight Millennium Development Goals (MDGs) by 2015. The first MDG is to halve—between 1990 and 2015—the proportion of people living on less than $1 a day and suffering from hunger. The explicit inclusion of "hunger" in the first goal appropriately focuses attention on the most critical problem of the poorest.

Will the poverty and hunger MDG be met? If it is, at least 800 million people will still be trapped in poverty and hunger in 2015. But who will have moved out of poverty and hunger and who will remain left behind? This report addresses these questions by developing a better understanding of the characteristics of the world's poorest and hungry and by examining whether business as usual is likely to improve their welfare. The analysis—which is based on a detailed, issue-specific, and intertemporal information base representing the regions and countries of the world—suggests it is not.

We find that while remarkable progress has been made in some regions (notably East Asia and the Pacific), progress has been slow in regions where poverty and hunger are severe. As a result, the first MDG goal seems far out of reach for most of Sub-Saharan Africa.

We also find that within regions, poverty just below $1 a day has fallen faster than poverty below 50 cents a day. This suggests it has been

easier to reach those living closer to the dollar-a-day line rather than those living well below it. In fact, the incidence of poverty below 50 cents a day has proven somewhat intractable in many regions of the world. Although there have been some improvements in this group over time, progress against poverty is so slow that business as usual will not be enough to reach these extremely poor people within an acceptable period of time.

Who are the poorest and the hungry? We find that three-quarters of those living on less than 50 cents a day—the world's poorest 162 million—are in Sub-Saharan Africa. An analysis of household data from 20 countries representing all major developing regions of the world shows that those in hunger and poverty often live in remote rural areas, are more likely to be from ethnic minorities, and have less education, assets, and access to markets.

The report is organized into five chapters. Following this introduction, Chapter 2 examines where the poor and hungry live, and includes country rankings and trends in poverty and hunger. Chapter 3 presents the findings of the analysis of household survey data on the incidence and correlates of extreme poverty and hunger. Chapter 4 brings together an understanding of the major causes of persistent poverty and hunger to determine what roles culture, gender, disability, remoteness, and repeated shocks play. Chapter 5 concludes.

# 2

## GLOBAL POVERTY AND HUNGER: LOCATION AND TRENDS

This chapter focuses on two measures of deprivation corresponding to the two components of the first MDG: halving poverty and hunger.

The MDG indicator of extreme poverty—the proportion of people living on less than $1 a day—is used to show where the world's poor live and to indicate trends in poverty from 1990 (the base year for the MDGs) to 2004. This measure of poverty is then disaggregated to examine the location and changes in welfare of those living on much less than $1 a day. By doing this, we capture changes in the severity of poverty. While poverty gap ratios have traditionally been used to indicate the depth and severity of poverty, the approach taken in this report (of disaggregating the dollar-a-day poverty rate into groups) provides a more intuitive picture, and makes it easier to understand trends in the severity of global poverty.

Progress in meeting the hunger MDG is examined by using the Global Hunger Index, an index designed to capture three dimensions of hunger: the lack of economic access to food, shortfalls in the nutritional status of children, and child mortality. The index is calculated for countries and regions to show the concentration of hungry people, hunger trends, and the extent to which poverty trends coincide with those of hunger. Countries are also ranked by the Global Hunger Index.

Although we have considered a lack of consumption (as a proxy for income) as the measure of poverty, we recognize that poverty and deprivation are multidimensional realities. Indeed, the MDGs—each with quantified targets—address many dimensions of deprivation and well-being: poverty and hunger, primary education, gender equality and women's empowerment, child mortality, maternal health, HIV/AIDS and other diseases, environmental sustainability, and global partnership. The MDGs are mutually reinforcing—the goal of halving poverty and hunger is closely linked with the other MDGs since poor and hungry populations tend to have little access to education and health services, high child mortality, and poor maternal health.

The use of the Global Hunger Index broadens our measures of well-being, but this analysis does not include all dimensions of deprivation and much of the analysis focuses on income poverty alone. Recent developments in

measuring subjective well-being have allowed for comparisons of subjective well-being across continents. Income is often associated with both well-being and deprivation and provides a rationale for the predominance of income poverty in the measurement of deprivation. However, consideration of these other measures of well-being is also important and McGillivray (2006) provides an excellent summary of these measures.

## 2.1 LOCATION AND TRENDS IN DOLLAR-A-DAY POVERTY

In 1990, the developing world had a population of 4.36 billion,[1] of which 1.25 billion lived on less than $1 a day.[2] East Asia and the Pacific and South Asia each accounted for almost two-fifths of the world's dollar-a-day poor, and Sub-Saharan Africa accounted for about one-fifth (Figure 2.1). From 1990 to 2004, the number of people in developing countries grew by 1 billion, and the number of people living on less than $1 a day fell. Of the developing world's 5.36 billion people in 2004, 969 million lived on less than $1 a day. The regional composition of the developing world's poor also changed over the 14-year period. East Asia and the Pacific's share of the world's poor decreased by more than half to only 17 percent, South Asia's share increased to almost 50 percent, and Sub-Saharan Africa's share increased to 31 percent.

The trends in numbers of those living in dollar-a-day poverty are also presented in Figure 2.2. It is again clear that the difference between the East and the Pacific region and the South Asia region is remarkable. While both regions had about the same number of poor in 1990, East Asia and the Pacific had 277 million fewer people in poverty than South Asia had in 2004. From this it is also clear that East Asia and the Pacific is the only region that experienced a substantial decline in the numbers of those living on less than $1 a day (from 476 million to 169 million) between 1990 and 2004. The number of poor decreased by a modest 33 million in South Asia, and actually increased by about 58 million in Sub-Saharan Africa. The

**FIGURE 2.1 Where the Poor Live: 1990 and 2004**

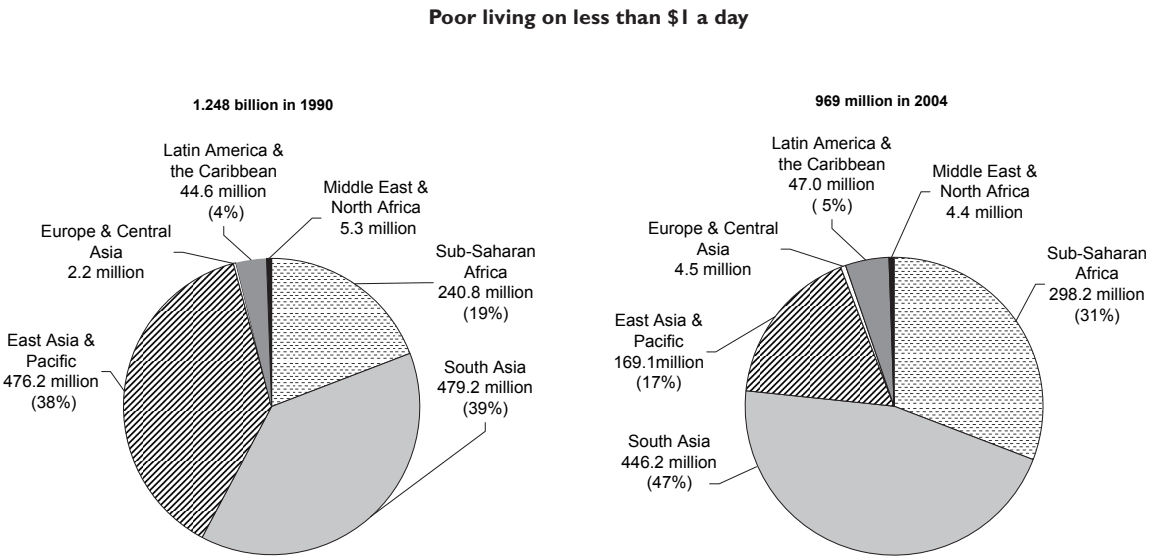
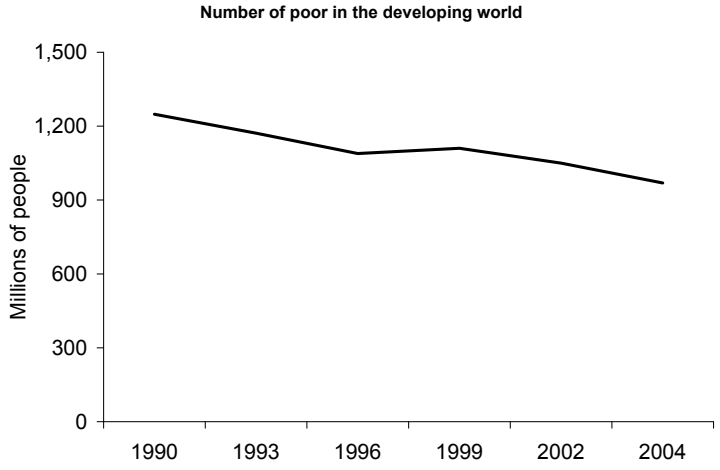
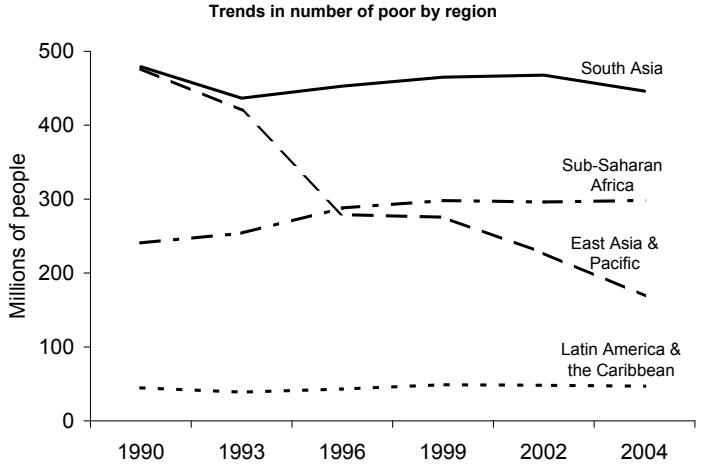


**FIGURE 2.2 Trends in Global Poverty Numbers: Living on Less Than $1 a Day (1990-2004)**



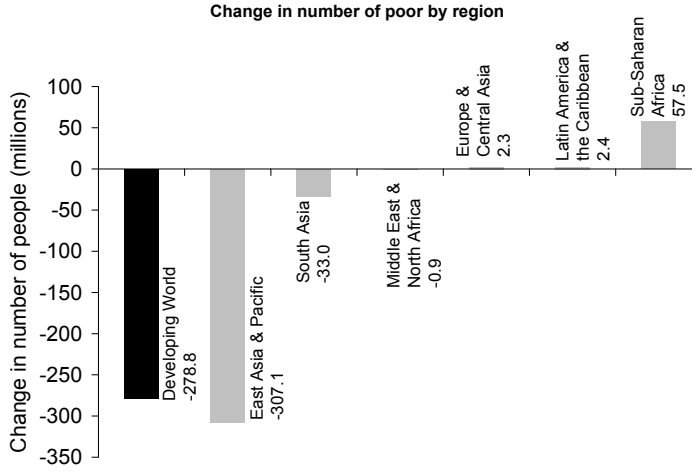
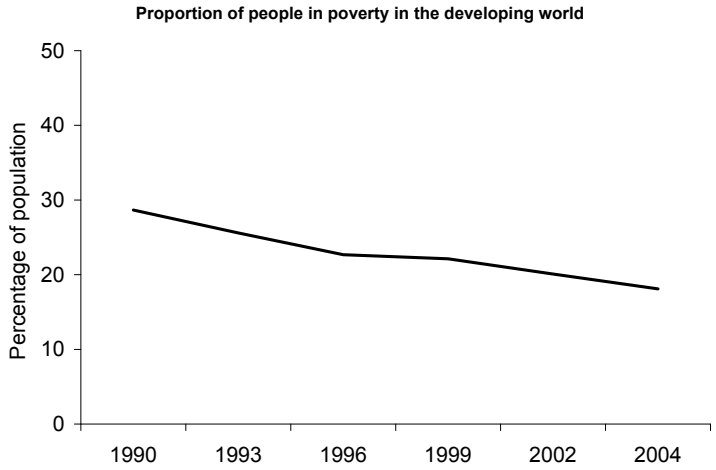
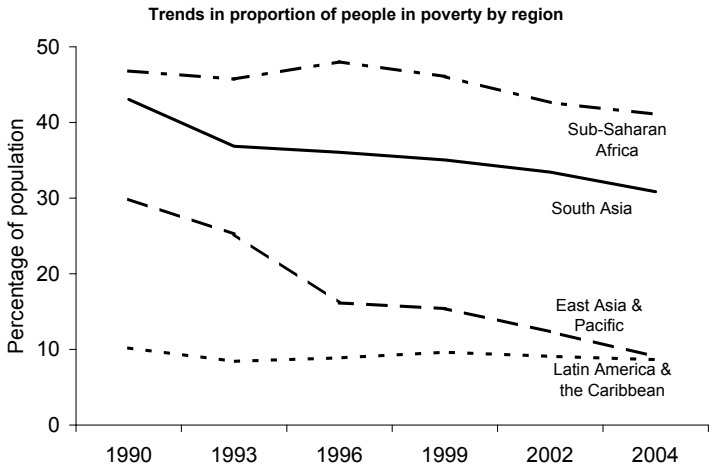
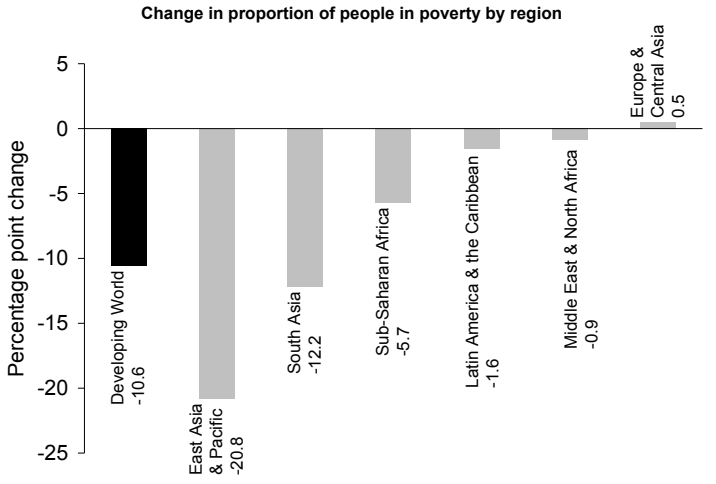



**FIGURE 2.3 Trends in Global Poverty Rates: Living on Less Than $1 a Day (1990-2004)**



total number of poor in Sub-Saharan Africa became larger than that in East Asia and the Pacific during this period.

Figure 2.3 shows trends in the dollar-a-day poverty *rate*—the measure by which the MDG will be assessed. The proportion of the developing world's population living on less than $1 a day fell from 28.7 percent in 1990, the base year for the MDGs, to 18.0 percent in 2004. At this pace of progress, the poverty component of the first MDG will be met in 2015 at the global level. Regional progress, however, has been uneven. The decline in the global poverty rate has been largely driven by East Asia and the Pacific, aided by South Asia. Indeed, East Asia and the Pacific has overachieved the poverty MDG; the dollar-a-day poverty rate in the region fell more than 20 percentage points, from 29.9 percent in 1990 to 9.1 percent in 2004. The dollar-a-day poverty rate also fell substantially in South Asia, from 43.1 percent to 30.9 percent during the same period. Although other regions experienced some decline in the poverty rate from 1990 to 2004 (except Eastern Europe and Central Asia, where the rates increased slightly), the situation can more aptly be characterized as stagnation: poverty rates fell from 46.8 percent to 41.1 percent in Sub-Saharan Africa and from 10.2 percent to 8.6 percent in Latin America and the Caribbean.

## 2.2 LOOKING BENEATH THE DOLLAR-A-DAY LINE: SUBJACENT, MEDIAL, AND ULTRA POVERTY

While the MDGs categorize the extreme poor as those living on less than $1 a day, we disaggregate those living on less than $1 a day into three groups according to their location below the dollar-a-day poverty line:[3]

- Subjacent poor: those living on between $0.75 and $1 a day
- Medial poor: those living on between $0.50 and $0.75 a day
- Ultra poor: those living on less than $0.50 a day[4]

These cut-off points were chosen to split the distribution into meaningfully sized groups and also to be able to use simple, equally spaced units (consistent with the metric of absolute measures of global poverty).

By disaggregating the number of poor in this way, we are able to look below the dollar-a-day line to see where those in each group live and how each group has fared over time. This is first done for major regions in the developing world, then for specific countries.

### Location and Trends in Subjacent, Medial, and Ultra Poverty

Of the 969 million people living on less than $1 a day in 2004, half were subjacent poor, one-third were medial poor, and about 17 percent were ultra poor. Figure 2.4 shows where the subjacent, medial, and ultra poor of the developing world live. While South Asia accounts for most of the developing world's subjacent (53 percent) and medial (51 percent) poor, Sub-Saharan Africa is home to three-quarters (76 percent) of all ultra poor; in 2004, 121 million Sub-Saharan Africans lived on less than a meager $0.50 a day. Although Latin America and the Caribbean has a relatively small share of global dollar-a-day poverty, its share increases with the depth of poverty: it has 4 percent of those in subjacent poverty, 5 percent of those in medial poverty, and 7 percent of those in ultra poverty.

Figure 2.5 and Figure 2.6 show the trends in subjacent, medial, and ultra poverty rates and numbers of people, respectively, in the developing world as a whole and in the four major regions from 1990 to 2004. In the developing world as a whole and in all regions

**FIGURE 2.4 Where Those in Subjacent, Medial, and Ultra Poverty Live: 1990 and 2004**

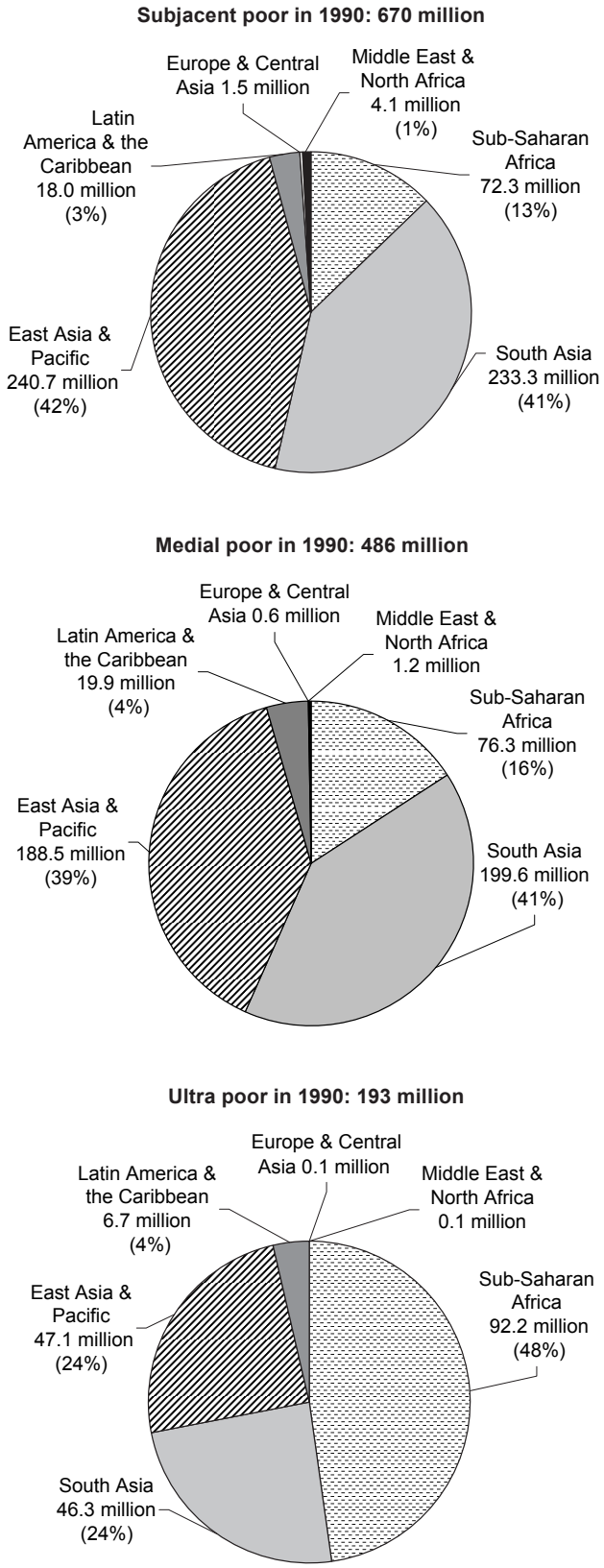
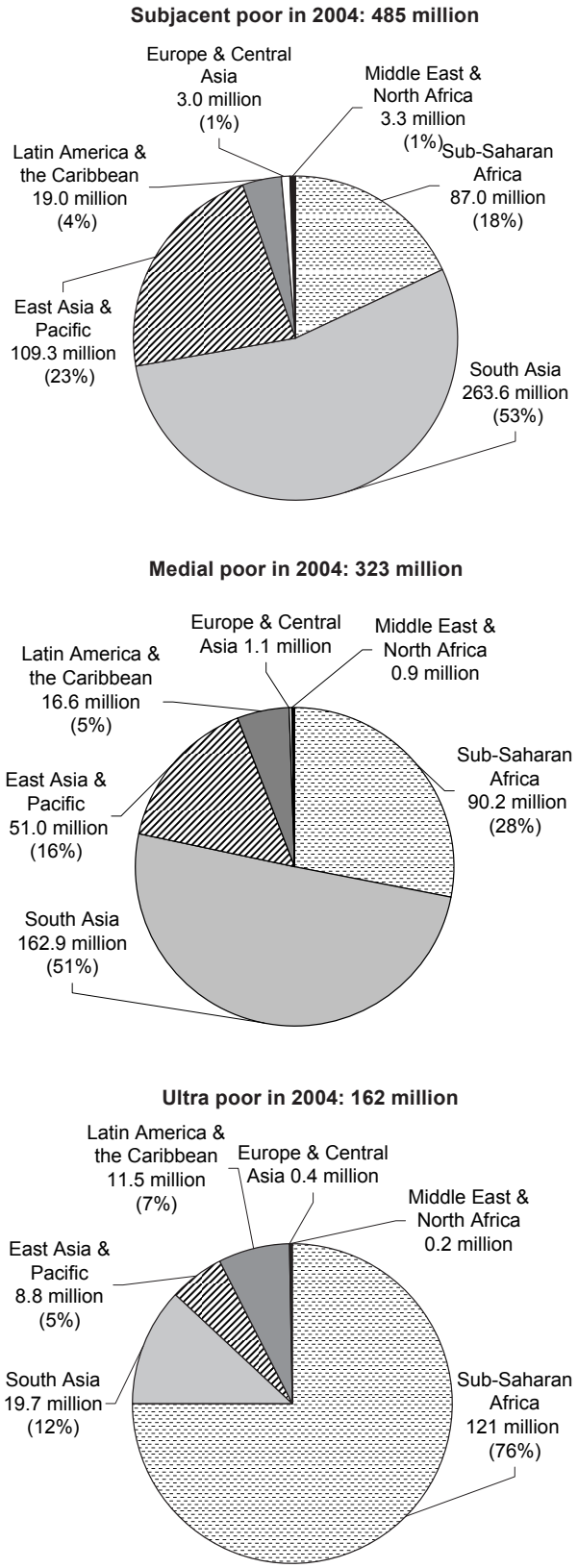


**FIGURE 2.4, continued**




excluding Sub-Saharan Africa, the rates (and numbers) of people in subjacent poverty are higher than those in medial and ultra poverty. The rate and number of those in ultra poverty is the lowest, often accounting for only the bottom 1–2 percent of the region's poor. However, Sub-Saharan Africa is uniquely and alarmingly different. In Sub-Saharan Africa, there are many more people living in ultra poverty than in subjacent and medial poverty, indicating the severity of poverty in this region (a 17 percent ultra poverty rate in 2004 compared to 12 percent subjacent and 12 percent medial poverty rates).

Although in 1990 there were more people living in each type of poverty than in 2004, this was particularly true for medial and subjacent poverty. The geographic distribution of poverty was also somewhat different in 1990, as Asia rather than Sub-Saharan Africa was home to many more of those living in ultra poverty (see Figure 2.4). As with the dollar-a-day poverty trends discussed in the previous section, the four major regions in the developing world have experienced quite different trends among these three groups since 1990. Figure 2.7 and Figure 2.8 summarize these trends by depicting the changes in the total number of people living in subjacent, medial, and ultra poverty from 1990 to 2004.

South Asia and East Asia and the Pacific were very similar in 1990 in that the number of the world's poor living in each of the two regions was virtually the same for each type

**FIGURE 2.5 Trends in Subjacent, Medial, and Ultra Poverty Rates: 1990-2004**

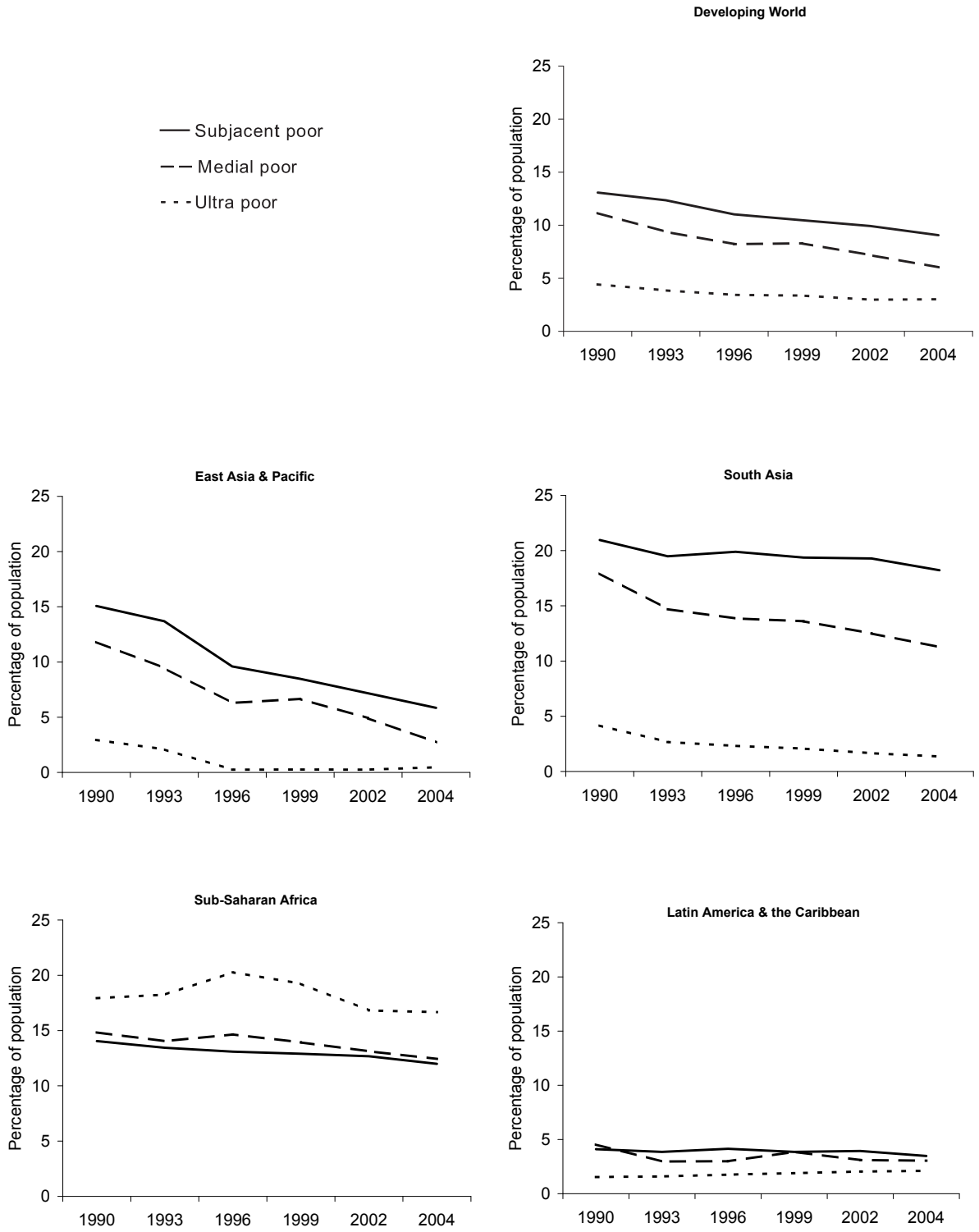


**FIGURE 2.6 Trends in the Number of Subjacent, Medial, and Ultra Poor: 1990-2004**

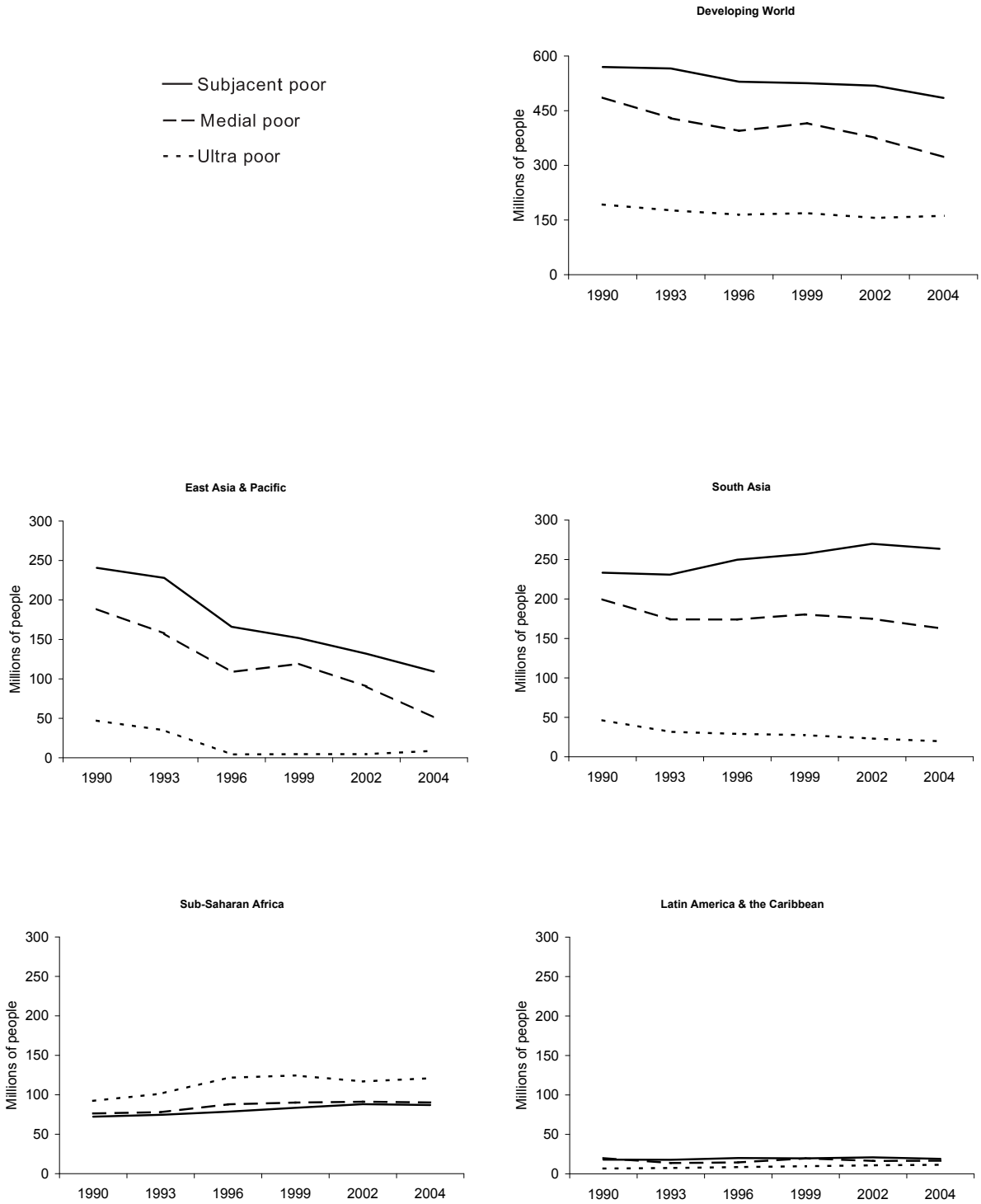


**FIGURE 2.7 Change in the Number of Poor in the Developing World from 1990 to 2004**

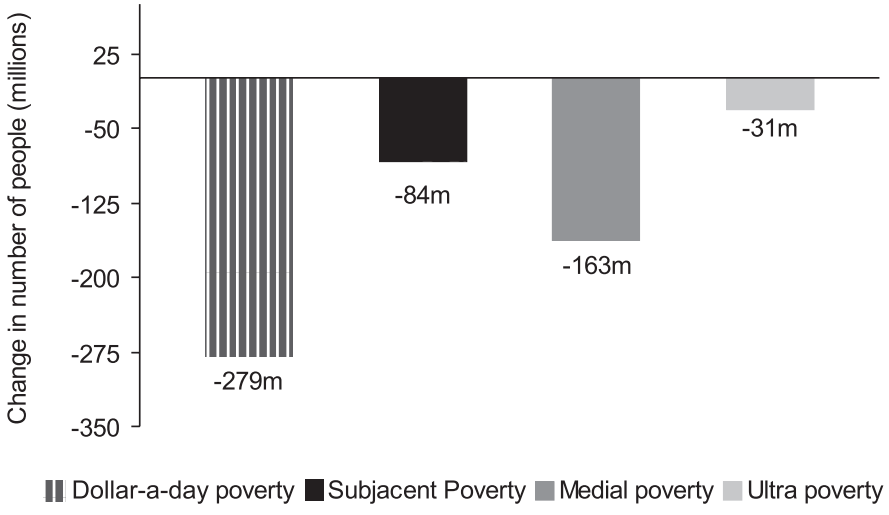
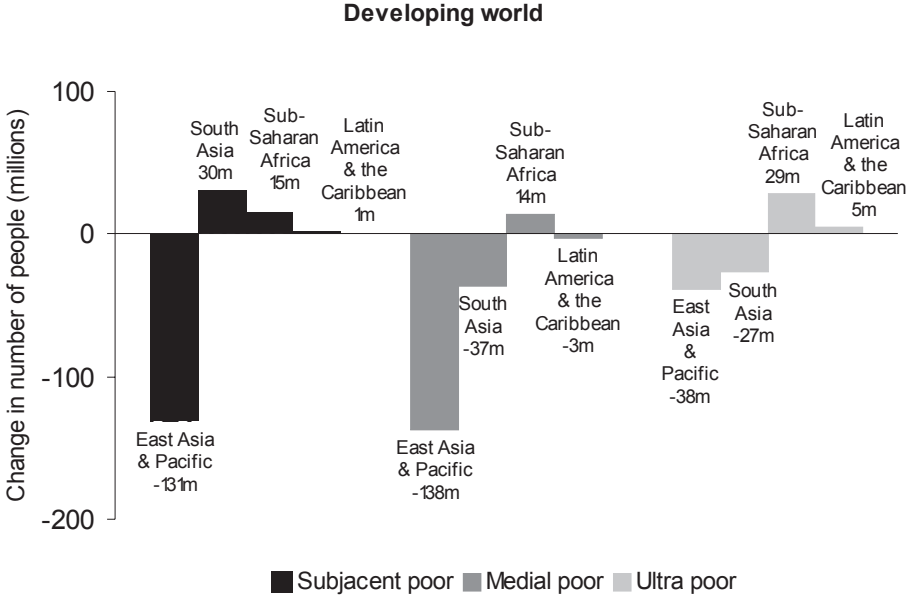



**FIGURE 2.8 Regional Changes in the Number of Poor from 1990 to 2004**



of poverty. They were each home to about 40 percent of the world's subjacent poor, 40 percent of the world's medial poor, and a quarter of the world's ultra poor. However, as Figure 2.6 shows, they have experienced very different development paths since then. East Asia and the Pacific experienced a substantial reduction in numbers of all three types of poverty. In contrast, South Asia found itself with increasing numbers of people in subjacent poverty and significant but smaller reductions in the number of medial and ultra poor. East Asia and the Pacific experienced substantial growth of about 8 percent annually during this period and also had initial conditions such that the growth benefited many people living in subjacent, medial, and ultra poverty (the region's growth elasticity of poverty reduction was very high). South Asia also achieved remarkable growth rates during the 1990s (about 5 percent), but was less able to convert this growth to reductions in poverty. Factors that contributed to these differences in impact of growth on poverty reduction are considered in Chapter 4.

Latin America and the Caribbean has seen very small changes in the number of people living in each type of poverty, but experienced increases in the number of both subjacent and ultra poor. As a result of limited growth and poverty reduction, Sub-Saharan Africa has experienced increases in the number of poor in each group, particularly in ultra poverty.

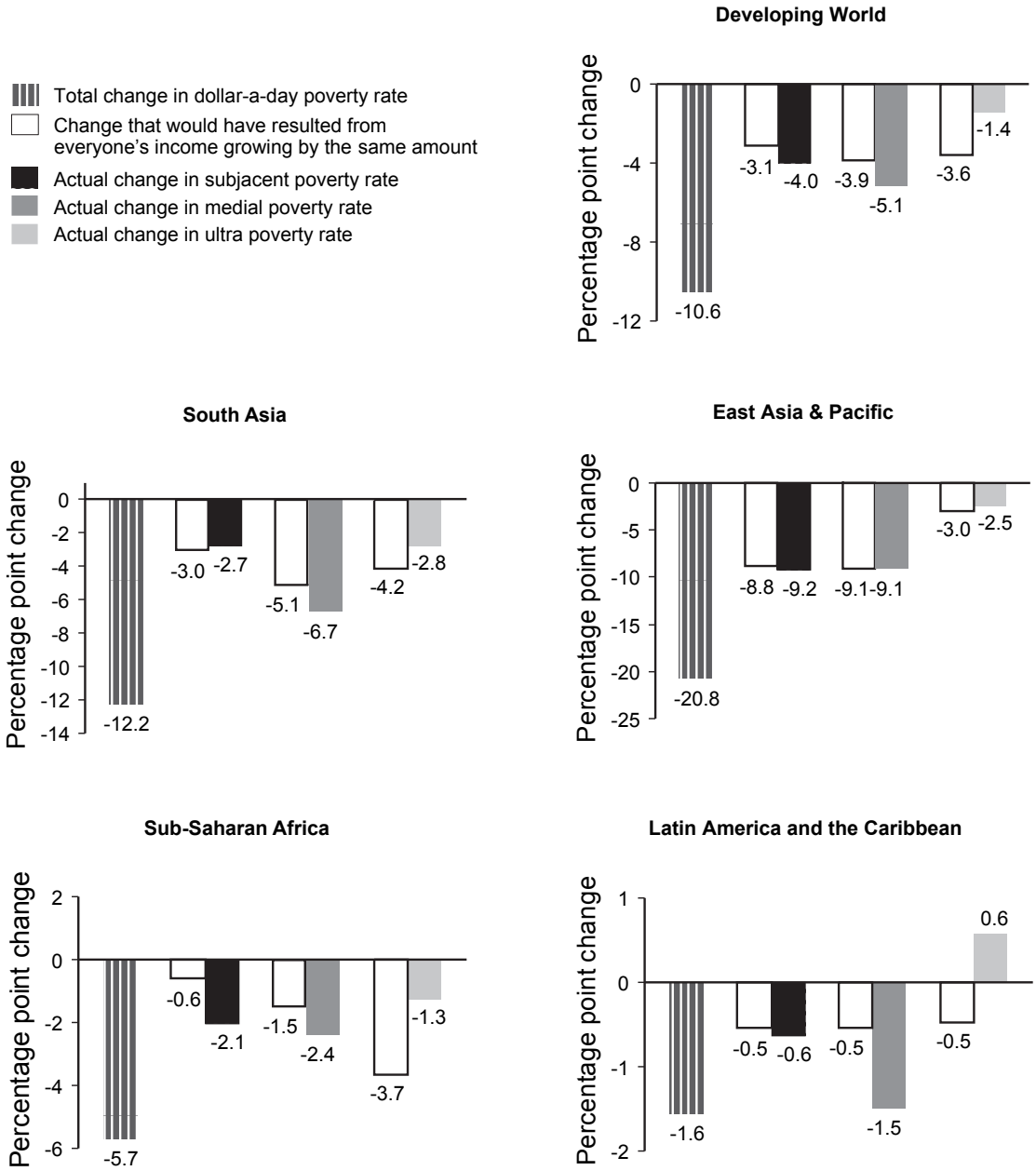
Sub-Saharan Africa's high poverty rates in 1990 and its limited growth and progress in reducing poverty since then indicates that business as usual will not lead to improvements in well-being in a timely manner for a large share of the world's absolute poorest. Indeed, the continued prevalence and severity of poverty in Sub-Saharan Africa is one of today's major ethical challenges.[5] The diverging experiences of Asia and Sub-Saharan Africa call into question standard economic growth models that predict convergence. Theories of poverty traps link severe poverty with slow improvements in welfare. The severity of poverty and the limited progress in reducing it indicate that the poorest in Sub-Saharan Africa may be trapped in poverty, as some recent literature suggests (Collier 2007, Sachs 2005, Azariadis and Stachurski 2005). Micro-level evidence of poverty traps has been found for a number of countries in Sub-Saharan Africa, while little evidence has been found for countries in regions of the world where the severity of poverty is lower (such as Russia, China, and Mexico).[6] We consider this further in the next section.

### Analysis of Changes in Subjacent, Medial, and Ultra Poverty

According to mainstream theories of economic growth, the convergence hypothesis implies that gains should come most quickly to those living in ultra poverty. However, if poverty traps exist, those in ultra poverty may be so poor that optimal behavioral choices cause them to move out of poverty much more slowly than those who are less poor. Some reasons for this are suggested in Chapter 4.

How can we tell whether those in ultra poverty have fared better or worse than those closer to the line? While panel data is needed to answer this question, it is possible to get an indication from national poverty data by calculating the amount that subjacent, medial, and ultra poverty would have decreased (or increased in some cases) if poverty reduction had come from everyone's income growing by the same amount, with the underlying income distribution remaining unchanged. We compare this "equal growth scenario" poverty reduction with the amount of poverty reduction that actually took place. The "equal growth scenario" poverty reduction is shown as a white bar next to the actual change in each poverty rate in Figure 2.9 (Appendix 1 gives details on how this was calculated). For

**FIGURE 2.9 Percentage-Point Change in Poverty from Changes in Subjacent, Medial, and Ultra Poverty: 1990-2004**



example, if the 10.6 percentage-point decrease in global poverty had come from the income of everyone in the world growing by the same amount, there would have been a fall in subjacent poverty of 3.1 percentage points, a fall in medial poverty of 3.9 percentage points, and a fall in ultra poverty of 3.6 percentage points.

We find that the incidence of poverty among those just below the dollar-a-day poverty line fell more than it would have had all incomes grown equally, whereas the incidence of ultra poverty fell less than it would have had incomes grown equally. Subjacent poverty fell by more than 3.1 percentage points and ultra poverty fell by much less than 3.6 percentage points. This finding suggests the well-being of those just below $1 a day improved more than the well-being of those well below the line. It points to a theory of poverty traps holding true for those in ultra poverty.

Disaggregating further, we see that in all major regions ultra poverty rates decreased less than they would have had everyone's income grown equally, suggesting reductions in poverty benefited those closer to the line than those further away from it.

However, there are differences across regions. In East Asia and the Pacific, growth benefited all groups nearly equally (the differences observed are probably not greater than the error with which they were measured). In this region, then, there seems to be little evidence of poverty traps, although there is little evidence of convergence, either.

In South Asia, those experiencing ultra poverty benefited the least, although those in subjacent poverty benefited almost as expected and those in medial poverty benefited the most. Such a pattern would be consistent with poverty traps being present for some groups in ultra poverty, but convergence applying to those in subjacent and medial poverty.

The pattern observed in Latin America and the Caribbean is not dissimilar to South Asia, although it is starker and consequently is worrisome. Again in Latin America, those in medial poverty benefited the most and those in ultra poverty benefited the least. However, unlike in other regions, the incidence of ultra poverty rose in Latin America and the Caribbean during 1990 to 2004. There were more people falling into this type of poverty than moving out of it.

Not only is the number of people living in ultra poverty highest in Sub-Saharan Africa, but trends suggest these people are also being substantially left behind in what little progress against poverty is being achieved in the region. The subjacent poor in Sub-Saharan Africa benefited much more than they would have had all incomes grown equally, as did those living in medial poverty, although to a lesser extent. The pattern of poverty reduction found in Sub-Saharan Africa is consistent with the presence of poverty traps in this region, as found in micro-level studies on Kenya, Madagascar, South Africa, and Côte d'Ivoire. The slow reduction in ultra-poverty rates in this region suggests that the majority of those living in ultra poverty will continue to be in Sub-Saharan Africa in the future.

In summary, the data are consistent with the premise that it is the poorest who benefit the least, and that poverty traps may exist in some regions. While the evidence is consistent with this interpretation, panel data is needed to further test these hypotheses.

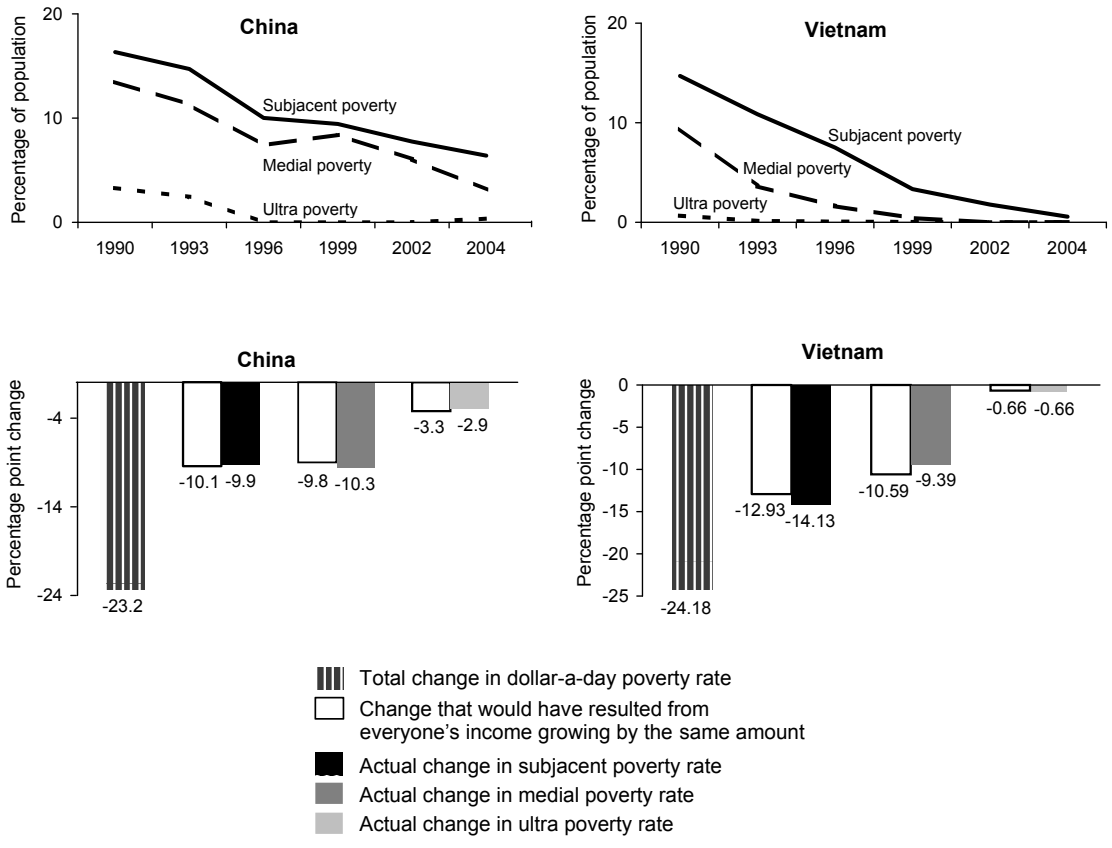
### 2.3 COUNTRY TRENDS IN SUBJACENT, MEDIAL, AND ULTRA POVERTY

In this part of the report we consider the extent to which the regional trends are also observed at the country level for some key sample countries in each region.

### East Asia and the Pacific

China's experience dominates the poverty trends observed in East Asia and the Pacific since it accounts for about 70 percent of the population in the region. This is indeed what is shown in the graphs in Figure 2.9 for East Asia and the Pacific and Figure 2.10 for China: trends observed within China almost match regional-level trends. However, there have been other fast-growing economies in the region that have experienced similar successes in reducing poverty, as the case of Vietnam suggests (Figure 2.10). Changes in poverty rates in Vietnam occurred almost as if everyone had benefited equally. However, in China, those closest to the poverty line benefited less than they would have had all incomes grown equally.[7]

**FIGURE 2.10 Trends in Subjacent, Medial, and Ultra Poverty in China and Vietnam, 1990-2004**

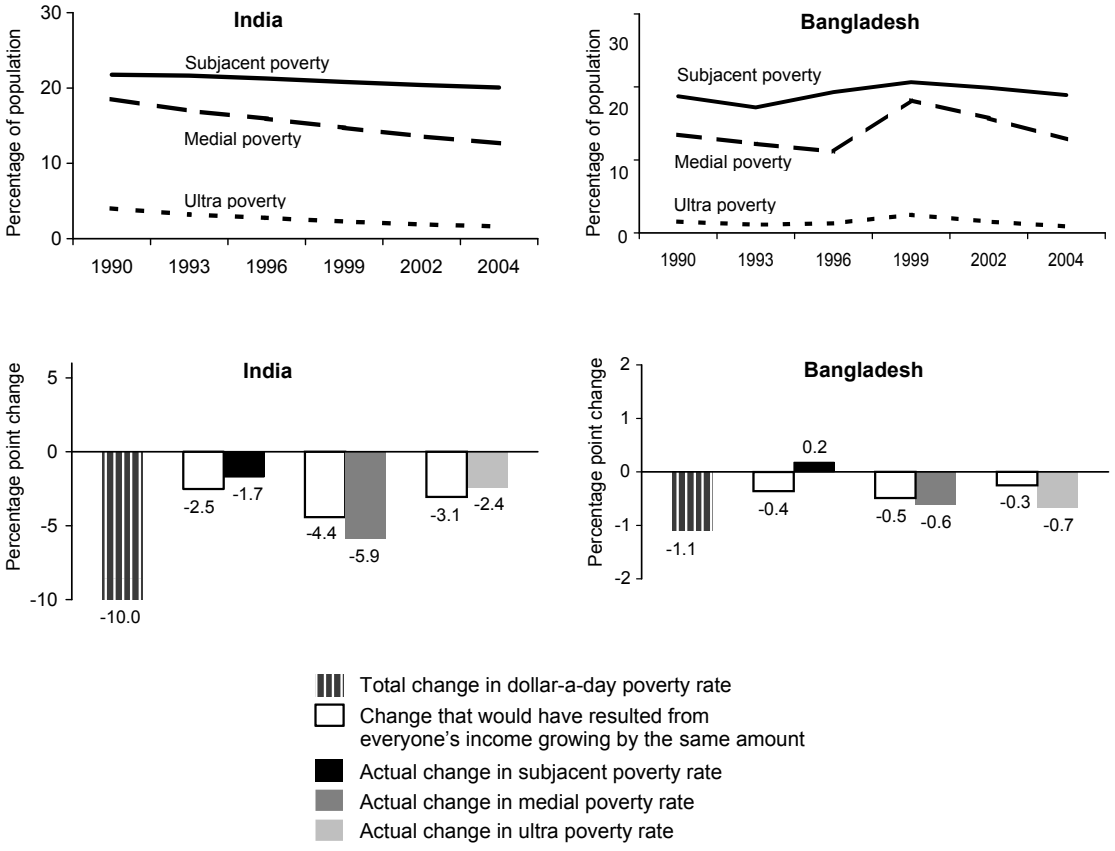


### South Asia

In the same way that population trends in East Asia and the Pacific largely reflect changes in China, trends in South Asia's population reflect changes in India. However, other countries in South Asia are quite large; two in particular (Pakistan and Bangladesh) each comprise one-tenth of South Asia's population. Figure 2.11 examines trends in subjacent, medial, and ultra poverty in India and Bangladesh. In Bangladesh, the initial reductions in poverty at the beginning of the 1990s were offset by increases in all three types of poverty during the middle of the 1990s. However, all poverty rates have fallen since the end of the 1990s.

In India, the medial poor fared better than the subjacent poor and the ultra poor (marginally). Although Bangladesh achieved minimal poverty reduction from 1990 to 2004, it is remarkable that the ultra poor fared better than they would have had all those below the line fared equally, suggesting that the severity of poverty lessened in the country.[8]

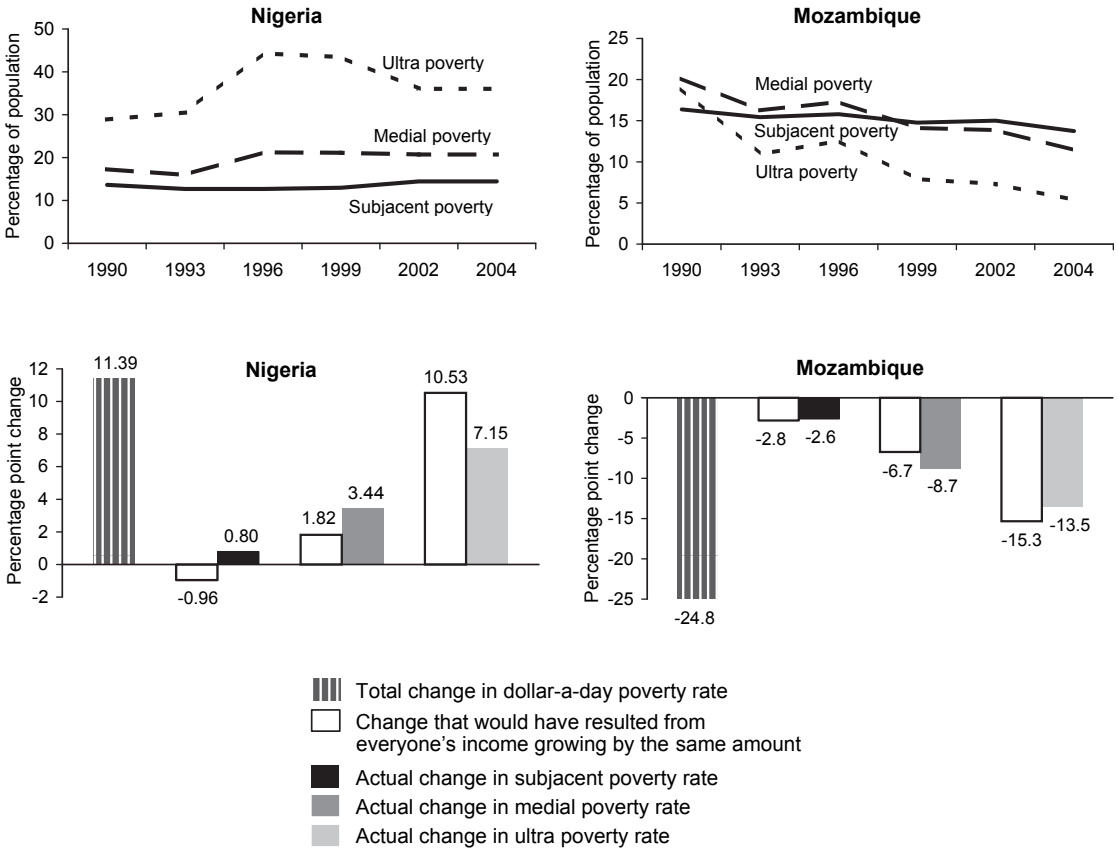
**FIGURE 2.11 Trends in Subjacent, Medial, and Ultra Poverty in India and Bangladesh, 1990-2004**



**Sub-Saharan Africa**

Nigeria is the single largest country in Sub-Saharan Africa, accounting for between 21 percent and 30 percent of the number of ultra, medial, and subjacent poor people living in the subcontinent. Nigeria experienced increases in the incidence of subjacent, medial, and ultra poverty between 1990 and 2004 and has therefore contributed to limited progress against poverty in the region, despite better performances in a number of countries that are home to between 5 and 10 percent of the continent's poorest, such as Ethiopia, Tanzania, Uganda, Zambia, and Mozambique. Figure 2.12 shows the changes in subjacent, medial, and ultra poverty in Nigeria, Zambia, and Mozambique.[9] Neither Zambia nor Mozambique suffered the increases in poverty that Nigeria experienced during the 1990–2004 period. Zambia is similar to Nigeria in that it also has a higher number of ultra poor than other groups. In Zambia, there was little overall change in the dollar-a-day poverty rate. By contrast, poverty rates fell substantially in

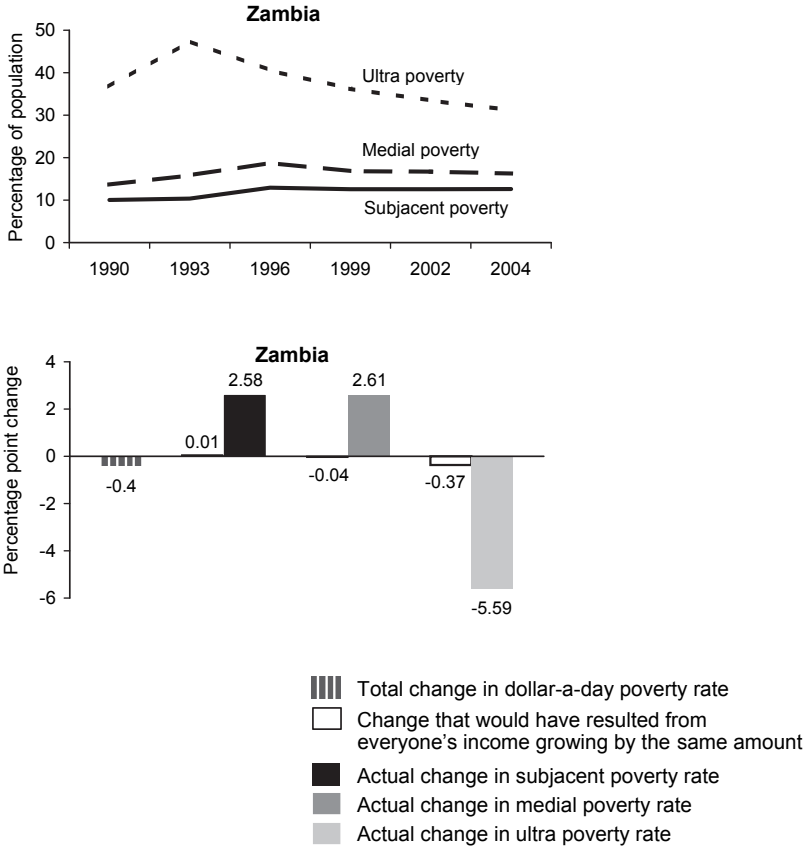
**FIGURE 2.12 Trends in Subjacent, Medial, and Ultra Poverty in Nigeria, Mozambique, and Zambia, 1990-2004**



Mozambique because it underwent considerable recovery after the civil war that had ravaged the country for more than 15 years ended in 1992 (Simler et al. 2004).

In Nigeria, all three poverty rates increased between 1990 and 2004; although there was a substantial increase in ultra poverty, the data suggest the incidence of ultra poverty did not increase as much as it would have had all incomes fallen equally. In Zambia, while there was little change in the overall dollar-a-day rate, this masked shifts in subjacent, medial, and ultra poverty during this time: ultra poverty fell remarkably while subjacent and medial poverty became more prevalent. Thus, in Zambia there was a lessening of the severity of poverty experienced by many people, with more people in 2004 living on just under $1 a day and less living on under 50 cents a day than in 1990. Although Mozambique saw substantial reductions in ultra poverty between 1990 and 2004, ultra poverty would have fallen more had all incomes grown equally.

**FIGURE 2.12, continued**

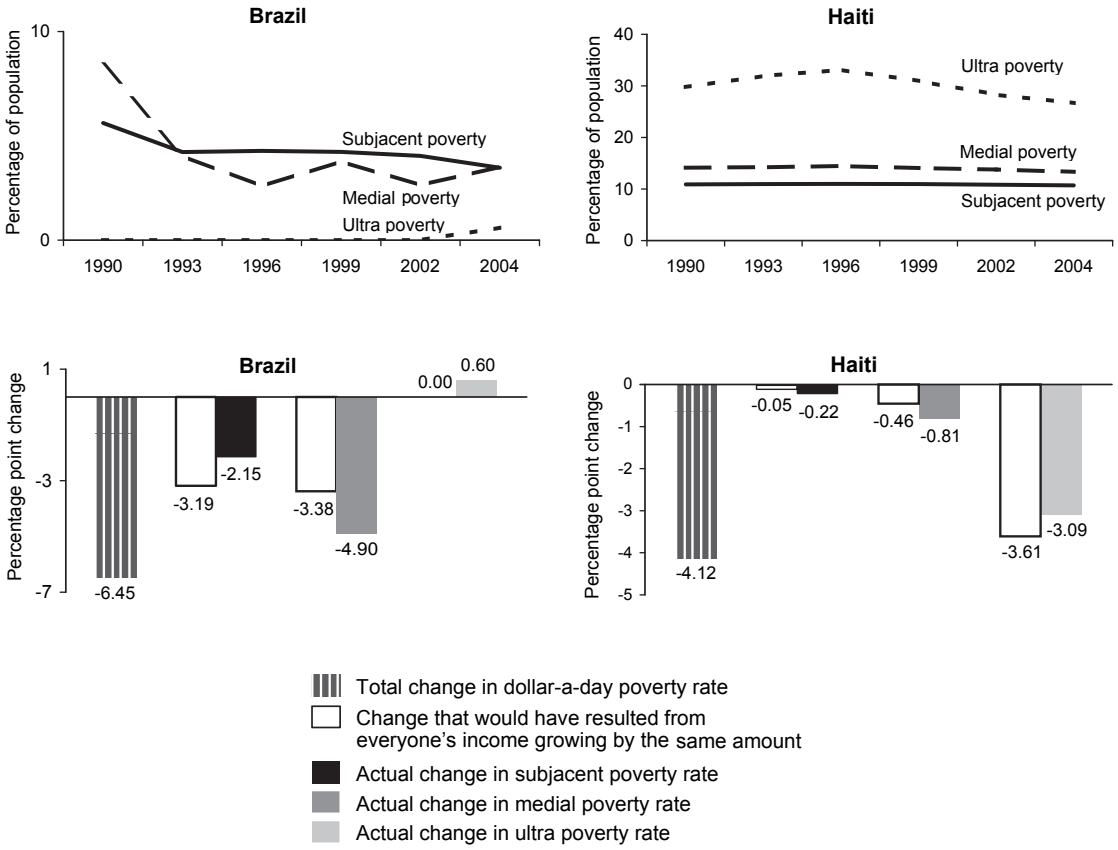


**Latin America and the Caribbean**

Brazil and Mexico are the largest countries in Latin America and the Caribbean and are home to the largest number of people living on less than $1 a day in the region. Peru, Colombia, and Argentina are also home to a large number of poor. However, most of these countries have very few people living in ultra poverty.

Despite its small population, Haiti is home to the highest number of ultra poor in the region (2.24 million) on account of its high ultra-poverty rate (27 percent). Its patterns of subjacent, medial, and ultra poverty resemble that of many Sub-Saharan countries: a higher rate of ultra poverty than of the other two types of poverty. Haiti is the poorest country in the Western Hemisphere and has a long history of political crises, violence, and bad governance (IMF 1999, Gibbons 1999). High population density, extreme poverty, and inadequate farming practices led to large-scale deforestation and soil erosion, and

**FIGURE 2.13 Trends in Subjacent, Medial, and Ultra Poverty in Brazil, Haiti, and Venezuela, 1990-2004**

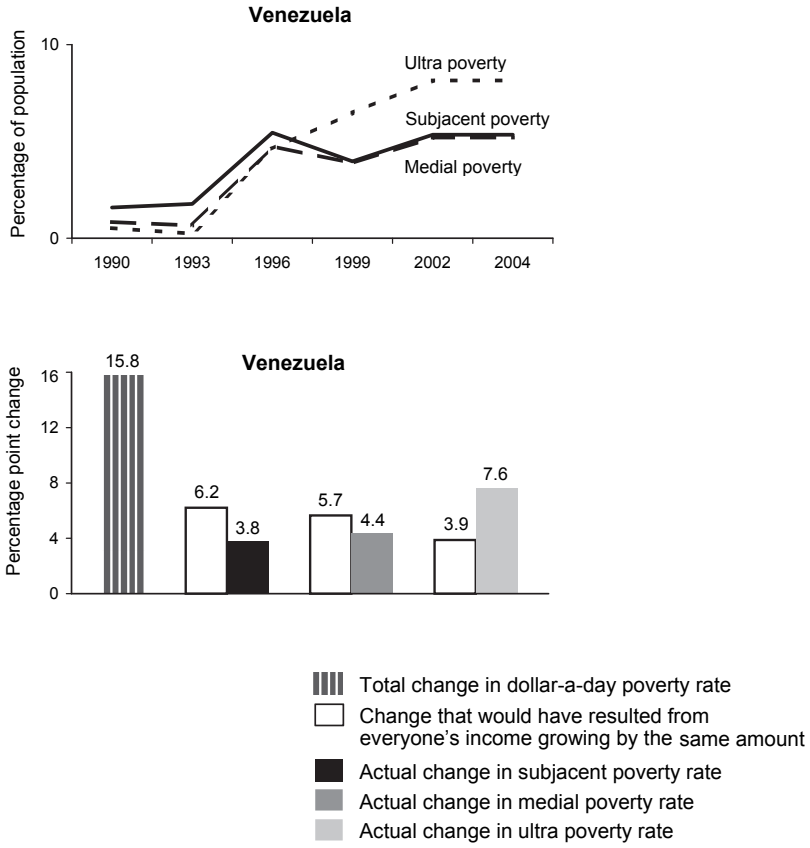


together with the government's inadequate pricing policies, these factors have depressed agricultural production and food availability (Icart and Trapp 1999). Although it lags behind other countries in the region, the poverty situation has been improving since 1990.

From 1990 to 2004, the number of ultra poor in Venezuela increased dramatically, from close to 0 to more than 2 million, contributing substantially to the regional trend of increased ultra poverty.

In general, Brazil, Haiti, and Venezuela experienced quite different poverty trends from 1990 to 2004 (Figure 2.13). In Brazil and Venezuela, the ultra poor fared worst. And despite a decrease in the severity of poverty in Haiti during this time, the ultra poor did not benefit quite as much compared to the counterfactual of all incomes growing equally (although the difference is small).[10]

**FIGURE 2.13, continued**



## 2.4 GLOBAL HUNGER: RANKING AND TRENDS

This section focuses on hunger—the second component of the first MDG. Hunger has many faces: loss of energy, apathy, increased susceptibility to disease, shortfalls in nutritional status, disability, and premature death. The Global Hunger Index (GHI) was designed to capture three dimensions of hunger: lack of economic access to food, shortfalls in the nutritional status of children, and child mortality, which is to a large extent attributable to malnutrition (Wiesmann 2006). Accordingly, the Index includes the following three equally weighted indicators: the proportion of people who are food-energy deficient as estimated by the Food and Agriculture Organization of the United Nations (FAO), the prevalence of underweight in children under the age of five as estimated by the World Health Organization, and the under-five mortality rate as estimated by UNICEF (see Appendix 2 for details on the measurement and construction of the GHI). Note that all three components of the GHI were selected to monitor progress toward the Millennium Development Goals (United Nations 2001).

The Index ranks countries on a 100-point scale, with 0 being the best score (no hunger) and 100 being the worst, though neither of these extremes is found in practice. In general, a value greater than 10 indicates a serious problem, greater than 20 is alarming, and greater than 30 is extremely alarming. The Global Hunger Index is restricted to developing countries and countries in transition. Developed countries are excluded because they have for the most part overcome hunger, and overconsumption is now a greater problem than is a lack of food.

As compared to using a group of single indicators, a composite index such as the GHI has several advantages. It integrates different aspects of multifaceted phenomena like hunger, it reduces the impact of random measurement errors, and it facilitates the use of statistics by policymakers and the public by condensing information. The Index thus goes beyond measuring hunger as food-energy deficiency, which is the focus of the FAO measure of hunger (FAO 1996a).

However there are also problems in using an index. Three dissimilar measures are arbitrarily weighted equally, assuming substitutability between various measures that have intrinsic value and information as separate indicators. Additionally, the quality of the data used in all three measures of the Index varies widely across countries, and aggregating may compound this or hide underlying data problems (see Appendix 2 for a fuller discussion of the problems). Ideally, an index should be used to summarize, not replace, its component measures and should be seen merely as an entry point from which to explore many dimensions of a single concept. In the following section, we present the Global Hunger Index and its components to examine where the hungry live and how the prevalence of hunger has changed over time.

### Where Are the Hungry?

The Global Hunger Index 2003 ranking for 119 countries is shown in Table 2.1, with the best performers at the top of the list. The world map in Figure 2.14 shows that according to the GHI, the hot spots of hunger are in Sub-Saharan Africa and South Asia. Sub-Saharan Africa had a GHI score of 25.4 in 2003, closely followed by South Asia (see Figure 2.15) despite the fact that poverty is about 10 percentage points lower in South Asia. East Asia and the Pacific, the Middle East and North Africa, and Latin America and the Caribbean follow. The GHI is lowest in Europe and Central Asia, at 5.6. There are a few exceptions to this regional pattern: countries with GHI scores higher than 20 are Haiti in the Caribbean; Yemen in the Near East; Tajikistan in Central Asia; Laos, Cambodia, Timor-Leste

(East Timor) in Southeast Asia; and the Democratic Republic of Korea in East Asia.

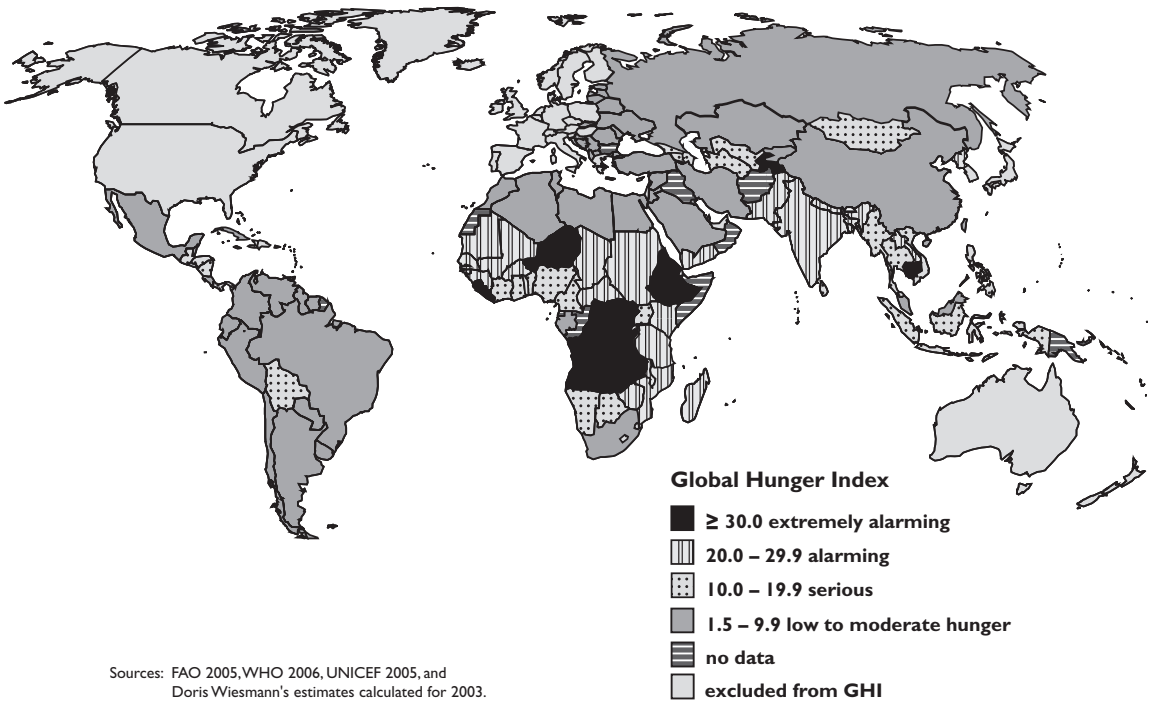
Belarus occupies the top rank with a GHI of 1.6 (the child malnutrition data for this country are based on the author's preliminary estimates, however), which is closely followed by Argentina, Chile, Ukraine, and Romania (Table 2.1). Countries that experienced long-lasting violent conflicts affecting the infrastructure, the productive base of the economy, and the population's livelihoods have very high GHI scores, indicating grave outcomes in terms of hunger. Nine of the 12 countries at the very bottom of the list—Burundi, the Democratic Republic of Congo, Eritrea, Ethiopia, Sierra Leone, Angola, Liberia, Cambodia, and Tajikistan—were affected by war in the GHI reference period from 1999–2003 or are still recovering from severe conflicts (UCDP 2006).

### Trends in Hunger

In Sub-Saharan Africa, overall progress from 1992 to 2003 was relatively small compared to that in other regions (Figure 2.15 and Figure 2.16). The proportion of people who are food-energy deficient fell by about 4 percentage points, but there was very little improvement in the prevalence of underweight in children and in the under-five mortality rate (a decline of less than 1 percentage point).

South Asia made large strides in combating hunger in the 1990s. In 1992, South Asia's GHI score was five points higher than Sub-Saharan Africa's, but by 2003, South Asia's regional score had caught up with Sub-Saharan Africa. The GHI decreased by seven points, with a reduction in the prevalence of underweight in children from 58 percent to 44 percent contrib-

**FIGURE 2.14 Global Hunger Index 2003: Mapping of Countries**




Sources: FAO 2005, WHO 2006, UNICEF 2005, and Doris Wiesmann's estimates calculated for 2003.

**TABLE 2.1 Global Hunger Index (GHI)—Ranking of Countries**

| | GHI rank | Countries | Global Hunger Index 1992 | 1997 | 2003 | | GHI rank | countries | Global Hunger Index 1992 | 1997 | 2003 | | GHI rank | countries | Global Hunger Index 1992 | 1997 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | Belarus | .. | 3.71 | **1.59** * | X | **41** | Colombia | 9.70 | 8.13 | **7.27** | | **81** | Mauritania | 27.73 | 17.43 | **20.03** |
| | **2** | Argentina | 1.87 | 2.93 | **1.81** | | **42** | South Africa | 7.46 | 7.32 | **7.66** | x | **82** | Senegal | 19.70 | 19.90 | **20.13** |
| | **3** | Chile | 3.93 | 2.37 | **1.87** | x | **43** | Venezuela | 6.17 | 7.93 | **7.83** | | **83** | Korea, Dem. Rep.[a] | 15.51 | 20.91 | **20.33** |
| | **4** | Ukraine | .. | 3.71 | **1.97** | X | **44** | Peru | 19.73 | 10.80 | **7.83** | x | **84** | Djibouti | 32.09 | 24.45 | **20.90** |
| x | **5** | Romania | 3.89 | 2.36 | **2.07** | | **45** | Kazakhstan | .. | 4.96 | **8.17** | x | **85** | Togo | 23.70 | 21.23 | **21.10** |
| | **6** | Libya | 4.80 | **2.40** | .. | X | **46** | El Salvador | 11.17 | 9.80 | **8.17** | | **86** | Kenya | 23.13 | 22.93 | **21.73** |
| | **7** | Tunisia | 5.03 | 4.43 | **2.47** | | **47** | China | 12.57 | 8.57 | **8.23** | x | **87** | Guinea | 28.67 | 24.64 | **21.73** |
| | **8** | Cuba | 5.83 | 7.62 | **2.57** | | **48** | Kyrgyz Rep. | .. | 10.34 | **8.36** | x | **88** | Pakistan | 25.97 | 23.60 | **21.77** |
| | **9** | Lithuania | .. | 2.47 | **2.64** * | | **49** | Gabon | 13.63 | 10.83 | **9.00** | | **89** | Timor-Leste[b] | .. | .. | **22.29** |
| x | **10** | Croatia | .. | 3.84 | **2.72** | | **50** | Suriname | .. | 9.39 | **9.37** | | **90** | Zimbabwe | 21.87 | 23.50 | **23.20** |
| | **11** | Latvia | .. | 3.46 | **2.74** * | | **51** | Guyana | 15.17 | 12.83 | **9.83** | x | **91** | Lao PDR | 25.83 | 26.73 | **23.83** |
| | **12** | Uruguay | 5.20 | 3.50 | **2.74** | X | **52** | Azerbaijan | .. | 14.89 | **10.27** | X | **92** | Nepal | 27.77 | 27.77 | **24.50** |
| X | **13** | Russian Federat. | .. | 3.80 | **2.93** | | **53** | Turkmenistan | .. | 11.40 | **10.40** | x | **93** | Haiti | 35.03 | 33.23 | **25.33** |
| | **14** | Fiji | 7.14 | 5.97 | **3.07** | | **54** | Dominican Rep. | 14.10 | 12.40 | **11.27** | | **94** | Malawi | 33.40 | 30.47 | **25.40** |
| | **15** | Slovak Republic | .. | 3.87 | **3.22** * | X | **55** | Georgia | .. | 9.17 | **11.53** | X | **95** | Sudan | 27.43 | 22.80 | **25.67** |
| | **16** | Lebanon | 5.10 | 3.23 | **3.28** | | **56** | Bolivia | 17.27 | 14.07 | **11.57** | X | **96** | India | 32.80 | 25.73 | **25.73** |
| | **17** | Costa Rica | 3.30 | **3.50** | .. | x | **57** | Panama | 11.33 | 11.03 | **12.21** | | **97** | Burkina Faso | 21.03 | 22.87 | **25.80** |
| X | **18** | Kuwait | 9.90 | 2.67 | **3.56** | x | **58** | Thailand | 17.83 | 13.80 | **12.36** | X | **98** | Guinea-Bissau | 22.74 | 25.39 | **26.61** |
| | **19** | Estonia | .. | 2.70 | **3.56** * | x | **59** | Indonesia | 18.53 | 15.60 | **12.47** | X | **99** | Rwanda | 31.87 | 32.10 | **27.20** |
| | **20** | Mauritius | 8.47 | 7.73 | **3.80** | x | **60** | Lesotho | 16.13 | 14.57 | **12.80** | X | **100** | Chad | 36.50 | 35.87 | **27.33** |
| | **21** | Syrian Arab Rep. | 7.17 | 6.73 | **4.23** | x | **61** | Armenia | .. | 12.19 | **13.30** | x | **101** | Mali | 25.37 | 31.97 | **28.07** |
| X | **22** | Bosnia & Herzeg. | .. | 5.56 | **4.60** | x | **62** | Nicaragua | 16.44 | 16.97 | **13.47** | x | **102** | Bangladesh | 36.50 | 35.73 | **28.27** |
| | **23** | Jordan | 4.47 | 4.83 | **4.73** | x | **63** | Uzbekistan | .. | 11.74 | **13.60** | x | **103** | Central Afric. Rep. | 33.27 | 30.50 | **28.43** |

| | | | | | |
|---|---|---|---|---|---|
| X | **24** | Serbia & Monten. | .. | 2.29 | **4.77** |
| x | **25** | Mexico | 7.50 | 5.99 | **5.10** |
| x | **26** | Egypt | 6.63 | 7.00 | **5.17** |
| | **27** | Jamaica | 6.67 | 5.43 | **5.27** |
| | **28** | Brazil | 8.50 | 6.70 | **5.43** |
| | **29** | Saudi Arabia | 6.87 | 7.40 | **5.44** |
| X | **30** | Turkey | 7.07 | 4.93 | **5.45** |
| x | **31** | Iran | 9.00 | 5.80 | **5.80** |
| x | **32** | Macedonia, FYR | .. | 6.50 | **5.93** |
| x | **33** | Paraguay | 8.37 | **6.16** | .. |
| x | **34** | Ecuador | 10.13 | 7.73 | **6.22** |
| x | **35** | Moldova | .. | 6.93 | **6.32*** |
| x | **36** | Morocco | 7.20 | 7.40 | **6.42** |
| X | **37** | Algeria | 7.13 | 7.57 | **6.50** |
| | **38** | Trinidad & Tobago | 7.30 | 7.73 | **6.63** |
| | **39** | Albania | 9.18 | 7.62 | **7.23** |
| | **40** | Malaysia | 10.17 | 7.73 | **7.23** |
| | **64** | Honduras | 16.47 | 16.97 | **14.03** |
| | **65** | Swaziland | 11.17 | 14.00 | **14.87** |
| | **66** | Ghana | 27.03 | 18.67 | **14.87** |
| | **67** | Mongolia | 18.10 | 24.68 | **15.83** |
| X | **68** | Myanmar | 19.33 | 15.53 | **16.17** |
| X | **69** | Sri Lanka | 22.40 | 21.87 | **16.63** |
| | **70** | Guatemala | 17.37 | 17.70 | **16.87** |
| | **71** | Namibia | 23.03 | 22.32 | **17.50** |
| X | **72** | Philippines | 21.80 | 19.63 | **17.55** |
| | **73** | Benin | 19.40 | 20.97 | **17.77** |
| x | **74** | Côte d'Ivoire | 14.23 | 17.43 | **18.13** |
| | **75** | Vietnam | 25.93 | 22.37 | **18.37** |
| | **76** | Botswana | 18.53 | 16.37 | **18.57** |
| X | **77** | Uganda | 21.83 | 21.73 | **18.63** |
| | **78** | Gambia | 20.37 | 21.97 | **18.83** |
| x | **79** | Nigeria | 22.47 | 20.90 | **19.17** |
| x | **80** | Cameroon | 19.93 | 21.17 | **19.52** |
| X | **104** | Mozambique | 47.17 | 34.97 | **28.83** |
| X | **105** | Yemen | 27.23 | 30.70 | **29.19** |
| | **106** | Madagascar | 30.90 | 31.93 | **29.92** |
| | **107** | Tanzania | 27.83 | 31.63 | **29.97** |
| X | **108** | Tajikistan | .. | 19.86 | **30.25** |
| X | **109** | Cambodia | 33.03 | 36.03 | **30.73** |
| x | **110** | Comoros | 26.58 | 29.55 | **30.81** |
| | **111** | Zambia | 31.13 | 30.57 | **31.77** |
| X | **112** | Liberia | 25.27 | 30.66 | **32.00** |
| X | **113** | Angola | 40.83 | 38.17 | **32.17** |
| x | **114** | Niger | 38.53 | 41.20 | **33.43** |
| X | **115** | Sierra Leone | 33.20 | 33.70 | **35.20** |
| X | **116** | Ethiopia[c] | 46.44 | 41.72 | **36.70** |
| X | **117** | Eritrea | .. | 41.10 | **40.37** |
| X | **118** | Congo, Dem. Rep. | 28.00 | 38.37 | **40.83** |
| X | **119** | Burundi | 32.30 | 39.71 | **42.70** |

*NOTES*:

*GHI scores contain author's preliminary estimates of the underweight prevalence in children under five years. GHI 1997 was used to rank Costa Rica, Libya, and Paraguay, because GHI 2003 could not be calculated for these countries. Ten countries could not be included due to lack of (recent) data: Afghanistan, Bahrain, Bhutan, Bulgaria, Congo (Republic), Iraq, Oman, Papua New Guinea, Qatar, and Somalia. x = Countries experienced a minor or intermediate armed conflict between 1989 and 2003, but no war. X = Countries waged a full-blown war between 1989 and 2003.

[a] North Korea

[b] East Timor

[c] For years earlier than 1993, when the secession of Eritrea took place, numbers for Ethiopia included the area of Eritrea

**FIGURE 2.15 Regional Trends in the Global Hunger Index and Its Components for the Years 1992, 1997, and 2003**

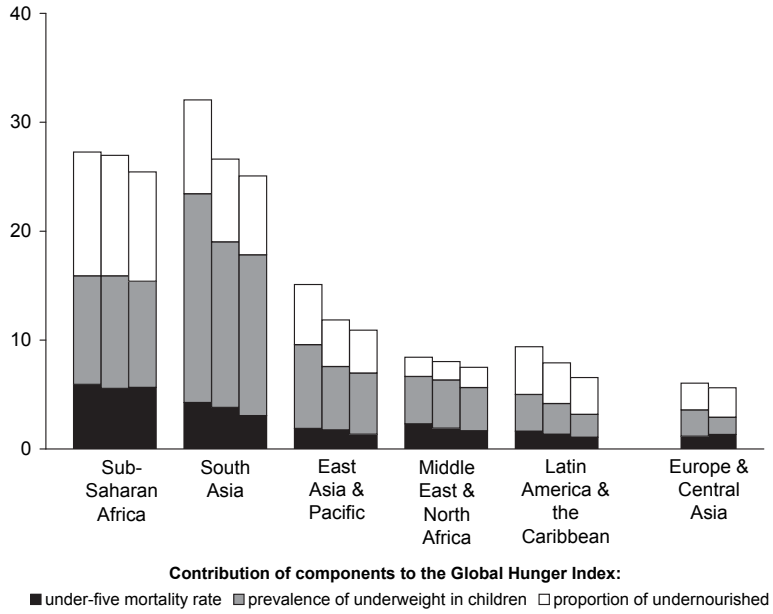
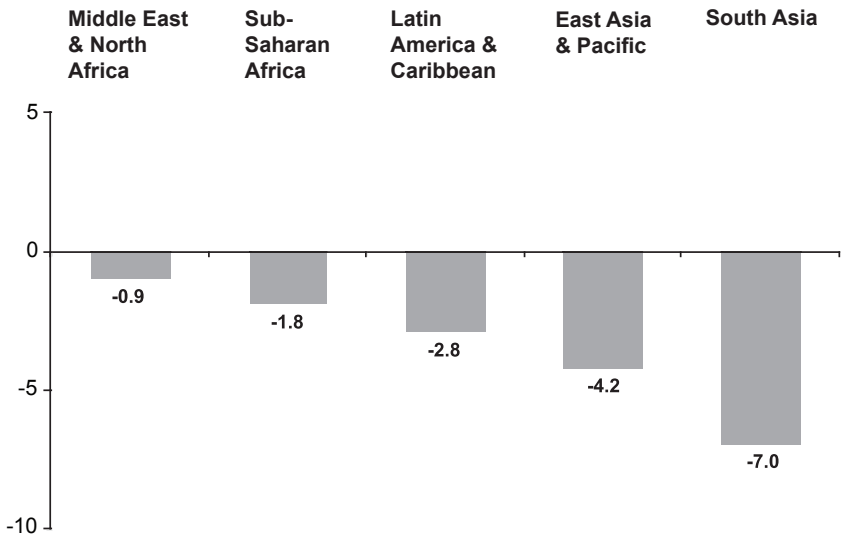



**FIGURE 2.16 Changes in the Global Hunger Index from 1992 to 2003**



uting the largest share to this decline. Despite the remarkable improvement in child nutritional status in South Asia, the region still has the highest prevalence of underweight in children in the world.

Starting from a much lower GHI score of about 15, East Asia and the Pacific experienced a reduction of only 4 points in the GHI from 1992 to 2003. However, the lower level of the GHI at the outset suggests that in the early 1990s, a larger share of the population was already able to meet the most basic food and nutritional needs in this region than in Sub-Saharan Africa and South Asia.

China and India, the world's population giants in South Asia and East Asia and the Pacific, made large contributions to the overall positive development in these two regions. Food-energy deficiency declined in both countries, child malnutrition was reduced by more than 7 percentage points in China and by more than 13 percentage points in India, and the under-five mortality rate was cut by about 30 percent in India from 1992 to 2003. However, the lack of improvement in India's GHI score between 1997 and 2003 despite continued growth is a cause for concern, since India's GHI still indicates alarming levels of hunger.

Notable among countries in South Asia and East Asia and the Pacific, the Democratic Republic of Korea is the only country for which hunger increased, according to the GHI. However, its place in the GHI may be far surpassed by Afghanistan if data had been available to calculate the index for this South Asian country.

In Latin America and the Caribbean, there was sustained progress up to 2003, though not at a great pace: the GHI declined by about three points. A look at the composition of the GHI in 1992 reveals that the proportion of people who were food-energy deficient amounted to 13 percent and exceeded the prevalence of underweight in children and the under-five mortality rate.

For Europe and Central Asia, a lack of data on food security and nutrition for the early 1990s prevents observation of long-term trends. Most of these nation-states came into existence after the dissolution of the Soviet Union or after the Balkan War in the 1990s.

## 2.5 THE RELATIONSHIP BETWEEN POVERTY AND HUNGER

Poverty is a key factor affecting the underlying determinants of household food security, caring capacity, and health environments. Poor households and individuals are unable to achieve food security, have inadequate resources for care, or cannot utilize resources for health on a sustainable basis (Smith and Haddad 2000). Higher rates of child malnutrition and child mortality are found in poor households. Poor families not only struggle to put a sufficient quantity of food on the table, but are also prone to food insecurity with regard to the quality of their diets: even when dietary energy requirements are met, their diets may lack essential micronutrients such as iron, iodine, zinc, and vitamin A.

Because undernourished people are less productive and child malnutrition has severe and permanent consequences for physical and intellectual development, poverty and hunger can become entwined in a vicious cycle. Babies born to severely undernourished and anemic mothers are at higher risk to be underweight and die soon (Smith et al. 2003). If they survive, they will never make up for the nutritional shortfalls at the very beginning of their lives. Adults who were malnourished as children are less physically and intellectually productive, have lower educational attainment and lifetime earnings, and are affected by higher levels of chronic illness and disability (UNICEF 1998;

Behrman, Alderman, and Hoddinott 2004; UNS SCN 2004). Thus, poverty can be transmitted to the next generation via the pathway of child malnutrition.

Given these links between hunger, malnutrition, and poverty, we would expect that trends in these indicators largely coincide. However, in addition to increasing income, reducing child malnutrition and mortality also requires investment in basic health and education services, sanitation and safe water supply, and changes in the behaviors of caretakers (UNICEF 1990). And on a technical note, the relationship between prices for food and nonfood items influences how poverty translates into hunger and malnutrition. All of these factors may weaken the observed relationship between the GHI and measures of dollar-a-day poverty.

A comparison of countries' GHI rankings with a ranking of their dollar-a-day poverty estimates shows that the estimated correlation between the GHI and the poverty ranking is high.[11] The hot spots of poverty outside South Asia and Sub-Saharan Africa are partly the same as for the GHI: Laos, Cambodia, and Haiti have poverty headcount ratios at $1 a day of 27, 34, and 54 percent, respectively, and have alarmingly high levels of hunger according to the GHI. However, the overlap between poverty and GHI estimates is not perfect. For example, the poverty headcount ratio at $1 a day is greater than 15 percent for El Salvador, Ecuador, Venezuela, Bolivia, and Turkmenistan, although these countries fall into the "serious" and not "alarming" category according to the GHI (and for Venezuela, the GHI indicates even low to moderate hunger). And there are some notable outliers, which may speak to data problems as much as anything else.

We examine the empirical relationship of levels and trends in regional poverty and hunger and compare the GHI and its components with dollar-a-day and ultra-poverty rates. Sub-Saharan Africa has both the highest GHI score and the highest proportion of people living on less than $1 a day, amounting to 41 percent (Figure 2.3). Reductions in both dollar-a-day poverty and the GHI were slow during the 1990s and early 2000s (see Figure 2.16 and Figure 2.3). The high proportion of ultra-poor people in this region—both as a share of the population and as a share of the poor—is particularly striking. In addition to the high burden of diseases such as malaria and AIDS in Sub-Saharan Africa, this most likely contributes to the comparatively high child mortality rates found in this region. Food shortages, the high extent of ultra poverty, and a high prevalence of life-threatening infectious diseases are major problems that have to be tackled in Sub-Saharan Africa.

South Asia's GHI score is only marginally below that of Sub-Saharan Africa, even though dollar-a-day poverty is about 10 percentage points lower. A more marked decline in the GHI as discussed above coincides with a fall in the poverty headcount ratio at $1 a day by 12 percentage points.

It has already been noted that despite the remarkable improvement in child malnutrition in South Asia, the region still has the highest prevalence of underweight in children in the world. The main reason proposed to explain a higher child malnutrition rate in South Asia than in poorer, conflict-plagued Sub-Saharan Africa is that South Asian women's nutrition and feeding and caring practices for young children are inadequate, which is related to their status in society and their lower level of education (World Bank 2006a, Smith et al. 2003). South Asia has particularly high rates of underweight women and low birth-weight babies (Smith et al. 2003, UNS SCN 2004). According to a recent study in Bangladesh, intensive nutrition education for mothers improves child nutritional status significantly and sustainably even when no nutritional supplements are provided, and this

effect is attributable to changes in maternal child-feeding and caring practices (Roy et al. 2005).

Smith and Wiesmann (2007) use estimates of food insecurity from household expenditure surveys to show that severe to moderate food-energy deficiency (defined as per capita calorie availability below the average requirements for light activity) is at about the same level in South Asia and Sub-Saharan Africa (51 and 57 percent, respectively). However, severe food-energy deficiency (defined as per capita calorie availability below the minimum requirements for light activity) is much more prevalent in Sub-Saharan Africa: 51 percent as compared to 35 percent in South Asia. And moderate food-energy deficiency is higher in South Asia (16 percent) than in Sub-Saharan Africa (6 percent). This suggests there is not only a higher severity of poverty in Sub-Saharan Africa (as evidenced by the high share of ultra poor) than in South Asia, but also a higher severity of hunger. This is not surprising, given that the conceptual link between poverty and hunger and the estimates for these two indicators come from the same data sources.

East Asia and the Pacific's four-point reduction in the GHI is much lower than its dramatic decline in poverty of 21 percentage points during the 1990s and early 2000s. However, this disparity in poverty and hunger trends should be seen in the light of a lower level of the GHI at the outset.

In Latin America and the Caribbean, slow progress against both poverty and hunger was observed, starting from a lower level for both indicators. The increase in proportion of the ultra poor living on less than 50 cents a day was not matched by increases in any of the components of the GHI.

## 2.6 CHAPTER CONCLUSION

This chapter has presented a global picture of extreme poverty and hunger and the way it has changed over time. It has highlighted regions of the world in which poverty and hunger are highly prevalent and remain persistent. Sub-Saharan Africa continues to experience a high incidence of poverty and even though improvements in poverty have been evident in South Asia, hunger remains persistently high. We have also shown that the world's absolute poorest are overwhelmingly located in Sub-Saharan Africa.

Improvements in well-being were experienced in all regions from 1990 to 2004, as evidenced by falling measures of poverty and hunger. However, progress has been markedly uneven between regions, and in general, global and regional trends indicate that improvements have been the least for those who need them most: the poorest.

# 3

# WHO ARE THE POOREST AND THE HUNGRY?

In this chapter we take a closer look at who the poor and hungry are, focusing on 20 countries for which household survey data are available. The countries are found in various regions throughout the developing world, including Sub-Saharan Africa, South Asia, East and Central Asia, and Latin America and the Caribbean (LAC). Sub-Saharan Africa is represented by nine countries: Burundi, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Rwanda, Senegal, and Zambia. South Asia is represented by Bangladesh, India, Pakistan, and Sri Lanka, which make up the large majority of the region's population. Laos, Timor-Leste, Vietnam, and Tajikistan represent East and Central Asia. Finally, Peru, Guatemala, and Nicaragua represent LAC. As will be seen below, the poverty and hunger situations in these countries fall along a spectrum from dire to quite low incidences. The countries chosen from the available datasets represent this spectrum within each major developing region.

This chapter begins with a discussion of the indicators of poverty and hunger that are employed, followed by a presentation of the patterns of poverty and hunger across the countries and by rural and urban areas within them. Next, we examine the correlations between national incidences of poverty and hunger to get a sense of how closely poverty and hunger overlap. Finally, the data are used to undertake a descriptive analysis that identifies some key characteristics of the poor.

## 3.1 DATA AND INDICATORS OF POVERTY AND HUNGER

The data employed in this analysis are from nationally representative household expenditure surveys conducted between 1994 and 2003. In the surveys, households are asked to report on all of their expenditures on goods and services, which can then be used to estimate their incomes and calculate poverty rates. As part of this process, they are asked to report on their acquisition of foods from three sources: purchases, home production, and in-kind receipts. These data can then be used to calculate measures of hunger. Appendix 3 describes the datasets and data collection methodology. A list of the countries and years their surveys were conducted is presented in Table A3.1.

**Table 3.1 Selected Countries and Years of Surveys**

| | Year of survey |
|---|---|
| **Sub-Saharan Africa** | |
| Burundi | 1998 |
| Ethiopia | 1999 |
| Ghana | 1998 |
| Kenya | 1997 |
| Malawi | 1997 |
| Mozambique | 1996 |
| Rwanda | 2000 |
| Senegal | 2001 |
| Zambia | 1996 |
| **South Asia** | |
| Bangladesh | 2000 |
| India | 1999 |
| Pakistan | 1998 |
| Sri Lanka | 1999 |
| **East Asia** | |
| Lao PDR | 2002 |
| Timor-Leste | 2001 |
| Vietnam | 1998 |
| **Central Asia** | |
| Tajikistan | 2003 |
| **Latin America and the Caribbean** | |
| Guatemala | 2000 |
| Nicaragua | 2001 |
| Peru | 1994 |

The poverty indicator employed here is the same as that used in Chapter 2. Using the appropriate cut-offs applied to each household's total expenditures per capita, poor households are identified and classified into one of three groups—subjacent poor, medial poor, and ultra poor—from which population group incidences can be calculated.

Two types of hunger indicators are employed, the first representing diet *quantity* and the second diet *quality*.[12] The diet quantity indicators are based on the amount of dietary energy in the foods acquired by households, with cut-offs used to classify those identified as hungry into three groups:

(1) subjacent hungry: acquiring 1,800-2,200 kilocalories (kcals) per person per day;

(2) medial hungry: acquiring 1,600-1,800 kcals per person per day; and

(3) ultra hungry: acquiring less than 1,600 kcals per person per day.

The groups are defined by progressively deeper and more life-threatening hunger associated with a deficiency of dietary energy, which is arguably the most essential nutrient for survival, physical activity, and health. Note that the 2,200 kcal cut-off roughly corresponds to what is known as the "average" energy requirement for light activity (such as sitting and standing) recommended by the Expert Consultation on Human Energy and Protein Requirements (FAO, WHO, and UNU 1985). It represents the average among people in the same age–sex groups regardless of weight. The 1,800 kcal cut-off identifies people who do not consume sufficient dietary energy to meet the "minimum" requirement for light activity as established by FAO (FAO 1996a). People whose energy consumption falls below this requirement cannot even meet the energy needs of the lowest-weight person of their same age and sex group. The 1,600 kcal cut-off was chosen to identify those suffering from very severe, life-threatening hunger.

An indicator of diet quality is included here in recognition of the fact that it is possible for people to meet their energy requirement but not achieve full physical and intellectual potential due to deficiencies of other nutrients, specifically protein and micronutrients such as iron, vitamin A, and iodine (Welch 2004). Indeed, it is increasingly recognized that

inadequate diet quality, rather than insufficient energy consumption, is becoming the main dietary constraint facing poor populations (Ruel et al. 2003; Graham, Welch, and Bouis 2004).

The specific indicator employed here is diet diversity, which denotes how varied the food an individual consumes is. Research to date from both developed and developing countries consistently shows that diet diversity is a good indicator of nutrient adequacy, that is, a diet that meets requirements for energy and all other essential nutrients (Ruel 2002). It is calculated for this report's analysis by simply counting the number (out of seven) of nutritionally important food groups from which food is acquired over the survey reference period. The groups are: (1) cereals, roots, and tubers; (2) pulses and legumes; (3) dairy products; (4) meats, fish and seafood, and eggs; (5) oils and fats; (6) fruits; and (7) vegetables. The first group contains starchy staples that are the main source of dietary energy. Groups 2–4 contain foods that are high in protein. Animal foods are also good sources of micronutrients, including calcium, easily absorbable iron and zinc, and the fat-soluble vitamins A and D. The fifth group contains foods that may be good sources of fat-soluble vitamins, and they assist with their absorption. Finally, fruits and vegetables are good sources of micronutrients and fiber (Latham 1997).

There are currently no international recommendations for optimal food-group diversity and thus, for determining whether people have low-quality diets based only on the knowledge of what foods they eat. Proper cut-offs must be based on further research that relates measures of diet diversity to measures of nutrient adequacy in specific populations (Arimond and Ruel 2004). Meanwhile, this study considers someone to have a low-quality diet if he or she consumes food from fewer than five of the seven food groups.

### 3.2 INCIDENCE OF POVERTY

Table 3.2 reports the incidences of poverty for the countries at the national level as well as for rural and urban areas. They are illustrated in Figure 3.1, in which countries are ranked by the incidence of ultra poverty.[13] As was described in Chapter 2, the highest incidences of ultra

**FIGURE 3.1 National Incidences of Poverty for the Subjacent, Medial, and Ultra Poor**

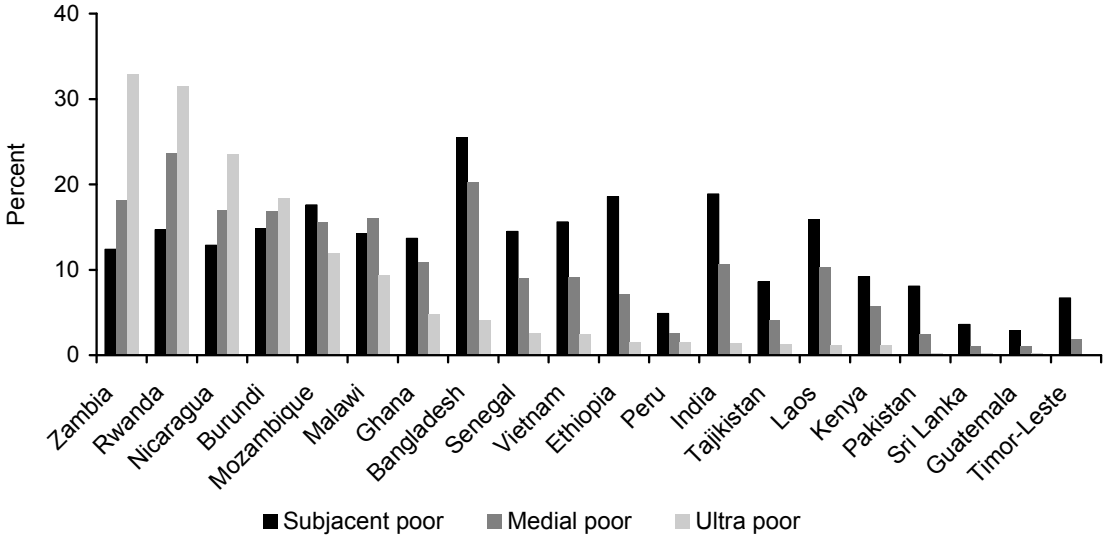


**TABLE 3.2 Incidence of Poverty**

| Countries | All of the poor living on less than $1 a day | | | Subjacent poor | | | Medial poor | | | Ultra poor | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | National | Rural | Urban | National | Rural | Urban | National | Rural | Urban | National | Rural | Urban |
| **Sub-Saharan Africa** | | | | | | | | | | | | |
| Burundi | 50.0 | 52.3 | 14.3 | 14.8 | 15.5 | 5.9 | 16.8 | 17.5 | 4.0 | 18.4 | 19.3 | 4.4 |
| Ethiopia [a] | | | | | | | | | | | | |
| Ghana | 29.4 | 37.0 | 26.4 | 13.7 | 16.5 | 13.3 | 10.9 | 13.9 | 10.2 | 4.8 | 6.7 | 2.9 |
| Kenya | 16.0 | 18.7 | 3.7 | 9.2 | 10.7 | 2.3 | 5.7 | 6.7 | 1.1 | 1.1 | 1.3 | 0.3 |
| Malawi | 39.7 | 44.3 | 7.5 | 14.3 | 15.8 | 4.2 | 16.1 | 18.0 | 2.7 | 9.4 | 10.5 | 0.6 |
| Mozambique | 45.1 | 51.7 | 41.5 | 17.6 | 19.9 | 13.1 | 15.6 | 18.2 | 13.5 | 11.9 | 13.6 | 14.9 |
| Rwanda | 69.8 | 75.6 | 35.1 | 14.7 | 15.5 | 11.3 | 23.6 | 25.4 | 11.6 | 31.5 | 34.7 | 12.2 |
| Senegal | 26.2 | 40.2 | 24.9 | 14.5 | 21.8 | 13.5 | 9.0 | 14.2 | 8.6 | 2.6 | 4.2 | 2.8 |
| Zambia | 63.4 | 77.7 | 58.8 | 12.4 | 11.3 | 15.3 | 18.1 | 20.5 | 20.0 | 32.9 | 45.9 | 23.5 |
| **South Asia** | | | | | | | | | | | | |
| Bangladesh | 50.0 | 55.2 | 46.2 | 25.5 | 27.5 | 19.6 | 20.3 | 22.9 | 21.2 | 4.1 | 4.8 | 5.4 |
| India | 31.0 | 37.1 | 30.8 | 18.9 | 22.1 | 16.6 | 10.6 | 13.2 | 12.0 | 1.4 | 1.8 | 2.2 |
| Pakistan | 10.8 | 12.8 | 9.8 | 8.1 | 9.5 | 7.4 | 2.5 | 3.0 | 2.1 | 0.2 | 0.3 | 0.3 |
| Sri Lanka | 6.2 | 6.8 | 5.3 | 3.6 | 3.8 | 3.7 | 1 | 1.2 | 0.8 | 0.2 | 0.2 | 0.0 |
| **East and Central Asia** | | | | | | | | | | | | |
| Laos [b] | 27.4 | - | - | 15.9 | - | - | 10.3 | - | - | 1.2 | - | - |
| Timor-Leste | 8.7 | 9.6 | 5.6 | 6.7 | 7.5 | 4.3 | 1.9 | 2.1 | 1.3 | 0.0 | 0.0 | 0.0 |
| Vietnam | 27.2 | 35.1 | 19.7 | 15.6 | 19.8 | 10.5 | 9.1 | 12.0 | 7.5 | 2.4 | 3.3 | 1.7 |
| Tajikistan | 20.5 | 21.1 | 19.0 | 8.6 | 9.4 | 7.0 | 4.1 | 4.3 | 3.9 | 1.3 | 0.9 | 1.9 |
| **Latin America and the Caribbean** | | | | | | | | | | | | |
| Peru | 9.0 | 24.5 | 5.4 | 4.9 | 12.2 | 3.5 | 2.6 | 7.7 | 1.6 | 1.5 | 4.6 | 0.3 |
| Nicaragua | 53.4 | 80.6 | 53.1 | 12.9 | 12.2 | 15.0 | 17.0 | 23.8 | 19.7 | 23.5 | 44.6 | 18.4 |
| Guatemala | 4.1 | 6.4 | 0.1 | 2.9 | 4.6 | 0.4 | 1.0 | 1.5 | 0.2 | 0.2 | 0.3 | 0.0 |

[a] The poverty rates estimated for Ethiopia from the expenditures data were not included as they were deemed to be unrealistically low.

[b] Expenditures data are not available for analysis for Laos. The national poverty rates are estimated here using the methodology described in Appendix 1.

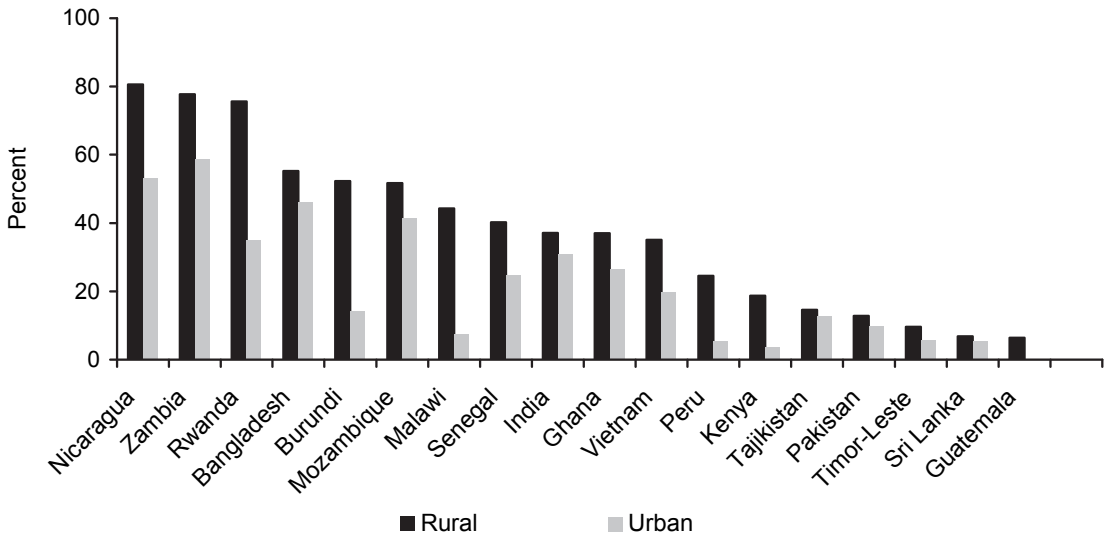
poverty are found in Sub-Saharan Africa. In four countries (three of which are in Sub-Saharan Africa), the incidence of ultra poverty is higher than the incidences of subjacent and medial poverty combined: Zambia, Rwanda, Burundi, and Nicaragua.

The country with the highest overall rate of poverty—an alarming 70 percent when all three groups are combined—is Rwanda. Almost one-third of its population lives in ultra poverty. This extremely high incidence is not surprising: at the time of its survey in 2000, Rwanda was recovering from ethnically motivated civil wars accompanied by violence and displacements that completely devastated people's livelihoods (UNDHA 1996). Zambia also has exceptionally high rates of overall and ultra poverty, at 63 and 33 percent, respectively, which is partly due to the fact that it was recovering from the effect of a severe drought at the time of its survey in 1996 (Frankenberger et a1. 2003). Burundi's overall and ultra poverty rates are also quite high, related to the same set of circumstances as Rwanda.

Outside of Sub-Saharan Africa, Bangladesh—which has the world's highest population density and recurrent natural disasters (FAO 2005)—and Nicaragua are the study countries with the highest overall poverty rates, at 50 and 53 percent, respectively. More than half of the poor in Bangladesh are subjacent poor, and only 4.1 percent are ultra poor. The group with the highest incidence in Nicaragua, in contrast, is the ultra poor, at almost a quarter of the population. At the time of its survey in 2001, Nicaragua was still in the process of reconstruction following its civil war and the economic collapse of the 1980s. It was also recovering from multiple natural disasters in the 1990s (Government of Nicaragua 2000).

Turning next to rural–urban differences, the incidence of poverty is higher in rural areas in all of the study countries for which poverty data are available, despite a global trend toward an increase in the proportion of poor in urban areas (Ravallion, Chen, and Sangraula 2007). This finding is illustrated in Figure 3.2, which

**FIGURE 3.2 Rural and Urban Incidences of Poverty**



shows the incidence when all three poverty groups are combined, that is, the total population living on less than $1 a day. The rural disadvantage is most pronounced in Rwanda, for which the overall poverty rate is 76 percent in rural areas but only 35 percent in urban areas.

The same pattern of rural disadvantage is found for the poverty subgroups with very few exceptions, and in the few instances where urban poverty is greater than rural (for example, in Nicaragua among the subjacent poor), the difference is not large (see Table 3.2). It is interesting to note that there is a tendency toward greater rural–urban differences as poverty deepens, although this is not consistent across countries. The average percent difference between rural and urban poverty incidences is 140 percent for the subjacent poor, 165 percent for the medial poor, and 400 percent for the ultra poor.

### 3.3 INCIDENCE OF HUNGER

The Global Hunger Index data presented in Chapter 2 indicates that Sub-Saharan Africa and South Asia are the regions of the world with the greatest hunger problems. When it comes to hunger associated with a deficiency of food energy, the data in Table 3.3 bear this pattern out. Figure 3.3 illustrates the incidences of food-energy deficiency across the countries for the three hunger groups, with the countries ranked by incidence of ultra hunger.[14]

In Sub-Saharan Africa, the incidences of hunger for all three groups combined are particularly high (greater than 70 percent) for Ethiopia, Burundi, Zambia, and Malawi. All of these countries suffered from aggregate food deficits in the years of their surveys. They experienced adverse climatic shocks or severe conflict-induced instability in the years leading up to their surveys, with long-term consequences for both food supplies and the ability of households to gain access to them (Smith, Alderman, and Aduayom 2006).

**FIGURE 3.3 National Incidences of Hunger (Food-Energy Deficiency) for the Subjacent, Medial, and Ultra Hungry**

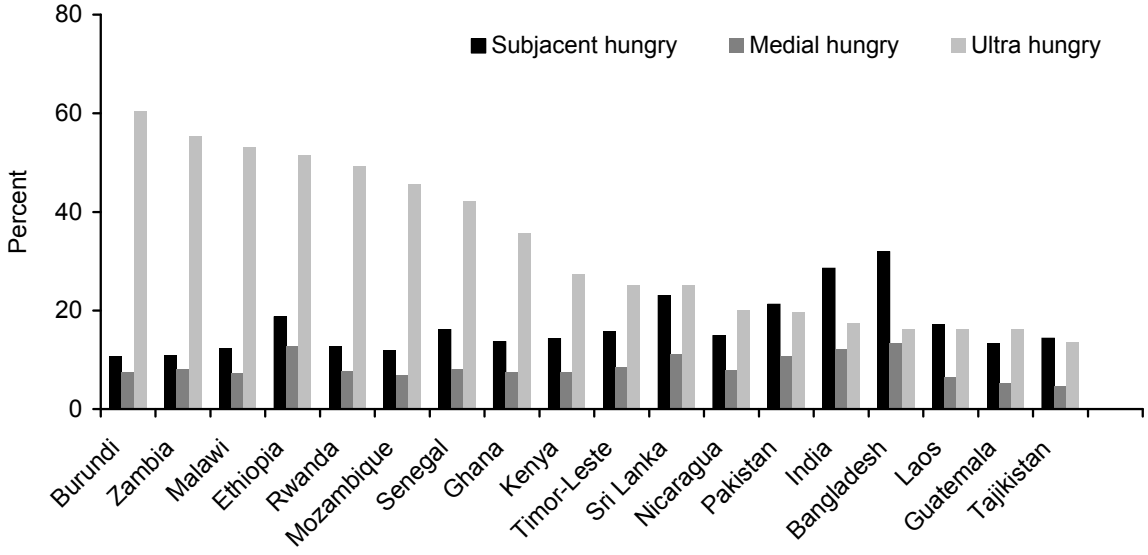


**TABLE 3.3 Incidence of Hunger**

| | Food-energy deficiency | | | | | | | | | | | | Low diet quality | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All of the hungry | | | Subjacent hungry | | | Medial hungry | | | Ultra hungry | | | | | |
| Countries | National | Rural | Urban | National | Rural | Urban | National | Rural | Urban | National | Rural | Urban | National | Rural | Urban |
| **Sub-Saharan Africa** | | | | | | | | | | | | | | | |
| Burundi | 78.5 | 80.3 | 44.5 | 10.7 | 10.6 | 12.0 | 7.4 | 7.5 | 5.2 | 60.4 | 62.2 | 27.2 | 41.6 | 43.6 | 5.7 |
| Ethiopia | 82.8 | 81.4 | 91.7 | 18.7 | 19.7 | 12.4 | 12.6 | 12.9 | 10.7 | 51.4 | 48.7 | 68.5 | 32.8 | 36.2 | 11.6 |
| Ghana | 56.9 | 56.5 | 57.9 | 13.7 | 13.7 | 13.7 | 7.5 | 7.3 | 8.1 | 35.6 | 35.5 | 36.1 | 5.9 | 6.4 | 4.9 |
| Kenya | 49.0 | 51.8 | 34.0 | 14.3 | 14.9 | 11.4 | 7.4 | 7.5 | 6.7 | 27.3 | 29.4 | 15.9 | 22.2 | 24.8 | 7.8 |
| Malawi | 72.5 | 72.0 | 76.4 | 12.2 | 12.5 | 9.5 | 7.3 | 7.3 | 7.4 | 53.0 | 52.2 | 59.5 | 46.6 | 51.1 | 9.9 |
| Mozambique | 64.4 | 67.3 | 53.8 | 12.0 | 12.6 | 9.8 | 6.9 | 7.3 | 5.7 | 45.5 | 47.4 | 38.3 | 59.6 | 68.8 | 25.0 |
| Rwanda | 69.6 | 70.8 | 59.9 | 12.7 | 12.6 | 13.8 | 7.7 | 7.7 | 7.9 | 49.2 | 50.5 | 38.2 | 45.8 | 50.9 | 3.1 |
| Senegal | 66.5 | 61.4 | 73.7 | 16.1 | 14.7 | 18.1 | 8.1 | 7.1 | 9.6 | 42.2 | 39.6 | 45.9 | 5.8 | 8.9 | 1.3 |
| Zambia | 74.3 | 74.1 | 74.6 | 10.9 | 9.5 | 13.2 | 8.1 | 7.5 | 9.2 | 55.3 | 57.1 | 52.2 | 39.5 | 56.9 | 9.9 |
| **South Asia** | | | | | | | | | | | | | | | |
| Bangladesh | 61.3 | 59.6 | 68.6 | 31.9 | 30.9 | 35.9 | 13.3 | 12.8 | 15.6 | 16.1 | 15.9 | 17.1 | 3.0 | 3.7 | 0.3 |
| India | 58.1 | 58.1 | 58.3 | 28.6 | 28.9 | 27.9 | 12.1 | 12.1 | 12.3 | 17.4 | 17.1 | 18.0 | 9.0 | 11.0 | 2.9 |
| Pakistan | 51.4 | 48.2 | 59.7 | 21.3 | 21.8 | 20.1 | 10.6 | 9.9 | 12.1 | 19.5 | 16.5 | 27.5 | 1.3 | 1.5 | 0.7 |
| Sri Lanka | 59.1 | 58.6 | 62.5 | 23.0 | 23.4 | 20.5 | 11.1 | 10.9 | 12.3 | 25.0 | 24.3 | 29.7 | 10.6 | 11.1 | 7.4 |
| **East and Central Asia** | | | | | | | | | | | | | | | |
| Laos | 39.7 | 33.8 | 56.0 | 17.1 | 17.2 | 16.7 | 6.5 | 5.9 | 7.9 | 16.1 | 10.7 | 31.4 | 60.8 | 69.8 | 35.6 |
| Timor-Leste | 49.4 | 48.5 | 52.3 | 15.8 | 14.8 | 19.1 | 8.5 | 8.7 | 7.9 | 25.0 | 25.0 | 25.2 | 33.0 | 37.7 | 17.7 |
| Vietnam [a] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tajikistan | 32.7 | 30.9 | 37.6 | 14.4 | 14.5 | 14.2 | 4.7 | 4.5 | 5.3 | 13.6 | 11.9 | 18.1 | 36.3 | 37.3 | 33.6 |
| **Latin America and the Caribbean** | | | | | | | | | | | | | | | |
| Peru [a] | - | - | - | - | - | - | - | - | - | - | - | - | 12.2 | 25.2 | 6.6 |
| Nicaragua | 42.6 | 47.9 | 38.7 | 14.9 | 14.3 | 15.3 | 7.8 | 8.6 | 7.1 | 19.9 | 25 | 16.3 | 5.8 | 10.4 | 2.5 |
| Guatemala | 34.7 | 36.2 | 32.4 | 13.4 | 13.4 | 13.6 | 5.2 | 5.1 | 5.3 | 16.1 | 17.7 | 13.5 | 6.9 | 8.5 | 4.3 |

[a] Data on quantities of foods consumed are not available in the datasets for these countries.

The highest incidence is for Ethiopia (83 percent), which experienced recurrent and devastating droughts in the decades leading up to its survey, as well as chronic political instability and refugee crises (Sharp, Devereaux, and Amare 2003). Burundi's civil war severely disrupted food production, with obvious adverse consequences for people's food security (UNDHA 1996). Malawi and Zambia were still recovering from a devastating drought in 1992-93 that led to major food shortages (Frankenberger et al. 2003).

In South Asia, the overall prevalence of food-energy deficiency in the four study countries is quite close, ranging from 51 percent in Pakistan to 61 percent in Bangladesh. Given that all of these countries had aggregate food surpluses at the time of their surveys, these high incidences are mainly a problem of the inability of households to access available food. While economic and agricultural growth has fueled an increasing potential to meet the food needs of populations, there have been some setbacks, especially with respect to agricultural productivity growth. As in Sub-Saharan Africa, natural disasters, and conflict in the case of Sri Lanka, have exacerbated the hunger situation (Smith and Wiesmann 2007).

When it comes to the *depth* of hunger, it is in Sub-Saharan Africa that hunger associated with access to insufficient dietary energy is the most severe. For all nine Sub-Saharan African study countries, the incidence of ultra hunger is above 25 percent (the highest among the three hunger groups) and it comprises the majority of the hungry. In four countries—Burundi, Ethiopia, Malawi, and Zambia—more than half of the country's entire population suffers from ultra hunger.

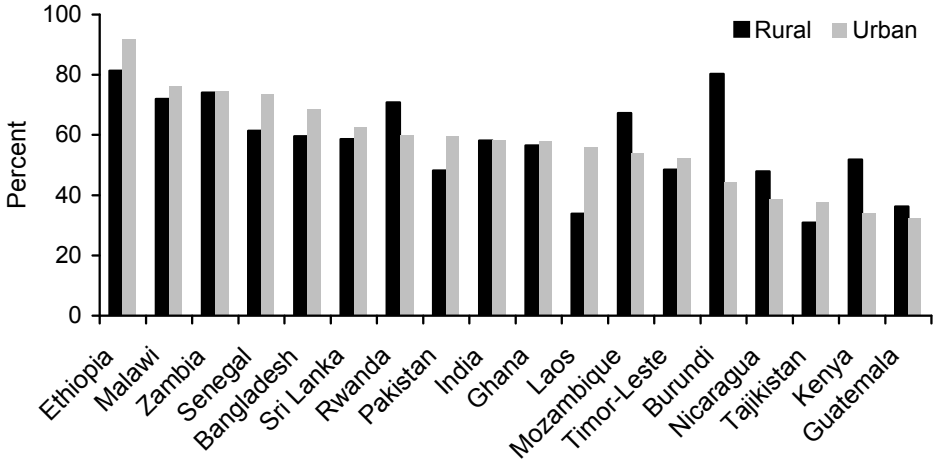
Incidences of medial hunger are uniformly low among the South Asian countries. In Bangladesh and India, the group with the highest incidence is the subjacent hungry, while in Pakistan and Sri Lanka the subjacent and ultra hungry incidences are roughly the same. Among the rest of the study countries, Timor-Leste and Nicaragua stand out as having relatively high concentrations of their hungry in the ultra hungry group.

Given the rural disadvantage when it comes to poverty, we would expect rural rates of food-energy deficiency to be higher than urban rates as well. However, despite higher incomes, urbanites in some instances may face greater challenges in gaining access to sufficient food than rural dwellers do. This is because urban households are dependent on commercial markets and often face sharp trade-offs among competing needs for their incomes (such as housing, health, and transport), which can be very expensive in urban areas.[15] Thus, urban–rural differences in the prevalence of food-energy deficiency could theoretically go either way.

Figure 3.4 shows a mixed picture. Seven of the study countries have a substantially higher food-energy deficiency incidence in urban areas. In most of the Asian study countries, there is a common urban disadvantage when it comes to food-energy deficiency. In five of the countries (all in Sub-Saharan Africa except Nicaragua), however, there is a substantial urban advantage.

The possibility that these findings reflect measurement issues must be considered. For instance, the problems of imputing the monetary value of housing in rural areas plague poverty estimates. In the case of the hunger estimates, food eaten out of the home, which occurs more frequently in urban areas, cannot be reliably measured in household expenditure surveys (see Smith and Subandoro 2007). While these potential data issues prevent us from drawing any strong conclusions from these results, the possibility that hunger may be more prevalent in urban areas in some countries merits further research.

**FIGURE 3.4 Rural and Urban Incidences of Hunger (Food-Energy Deficiency)**




Note: The hunger incidences represent the sum of the incidences for the subjacent, medial, and ultra hungry.

**FIGURE 3.5 National Incidences of Low Diet Quality**

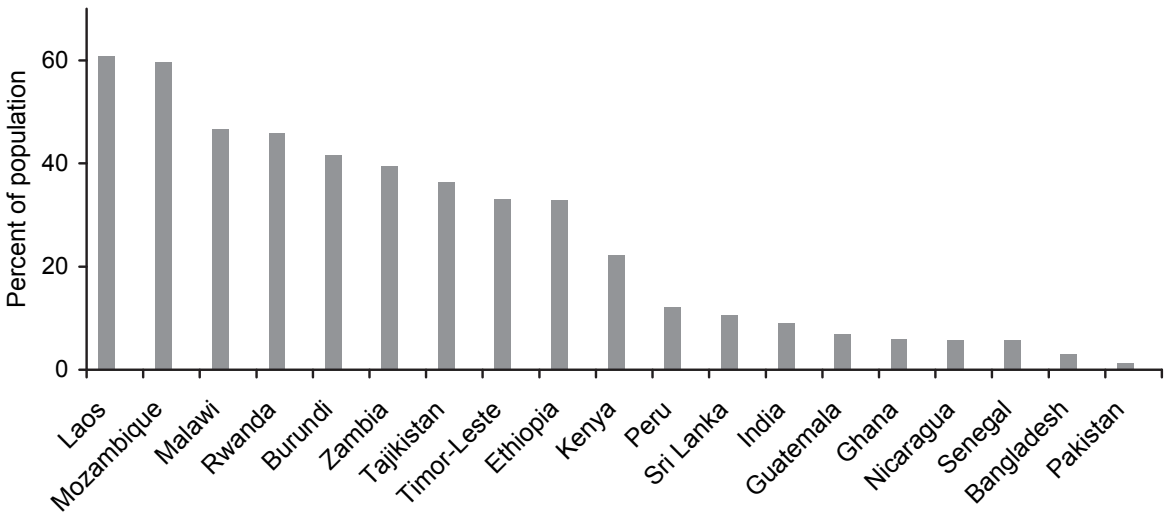
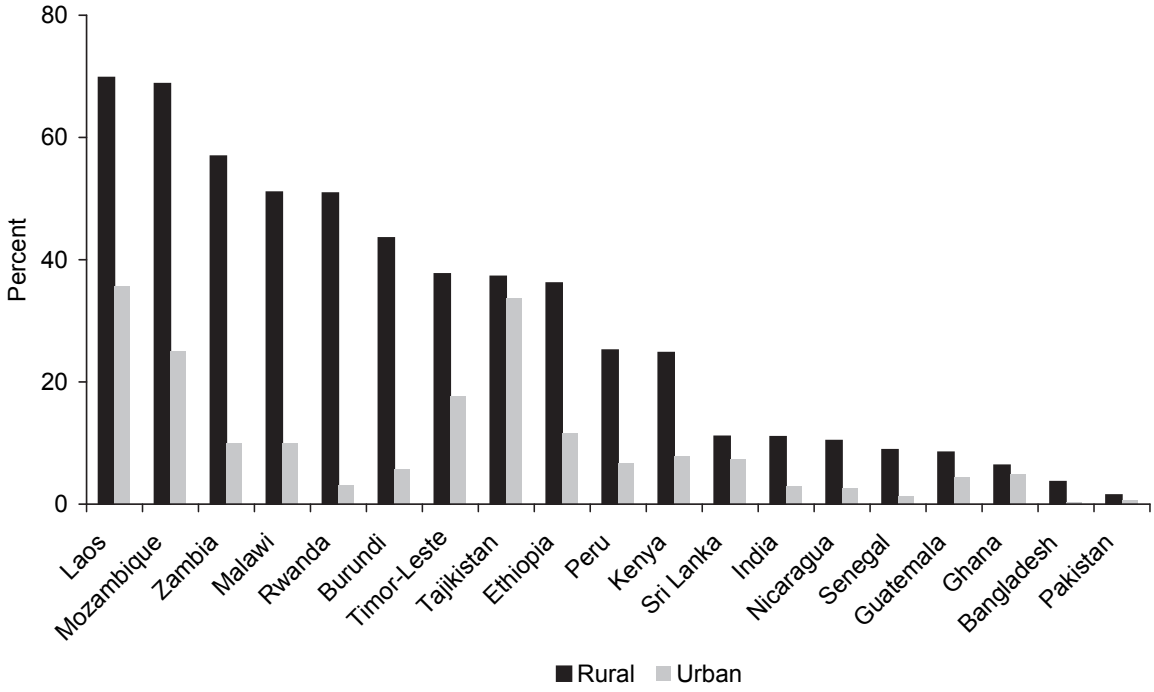


**FIGURE 3.6 Rural and Urban Incidences of Low Diet Quality**




Turning next to hunger associated with low diet quality, Laos in East Asia stands out as having the highest incidence at 61 percent (see Figure 3.5 and Table 3.3), followed closely by Mozambique at 60 percent. Malawi (47 percent), Rwanda (46 percent), and Burundi (42 percent) in Sub-Saharan Africa also have quite high incidences. It is interesting to note that in South Asia, for which food-energy deficiency is a major problem, low diet quality appears to affect very few people. The highest incidence of low diet quality in South Asia is 11 percent in Sri Lanka. The incidences of low diet quality are also quite small for the LAC countries. They are moderately high for Timor-Leste and Tajikistan.

When it comes to rural–urban differences in diet quality, rural households have a clear disadvantage in all of the study countries (see Figure 3.6). The rural disadvantage is strongest in Rwanda, where the rural incidence of low diet quality is 51 percent but the urban incidence is a slight 3 percent. In addition to lower urban poverty in most countries, the rural disadvantage can be explained by the fact that urban areas have better access to a wider variety of foods in close proximity. Rural households are more likely to rely on their own production or to live farther away from markets where a variety of foods can be purchased (Smith, Alderman, and Aduayom 2006).

### 3.4 CORRELATIONS BETWEEN POVERTY AND HUNGER

As was demonstrated in Chapter 2, the data in this section show that while poverty and hunger do overlap, they are not identical. The

first column of Table 3.4 reports national incidences of hunger among all people classified as poor. In every country, the majority of poor people are hungry. The overlap is particularly high in Sub-Saharan Africa, where more than 80 percent of the poor are food-energy deficient in all of the study countries. This is consistent with the fact that poverty is the primary cause of hunger. However, the fact that the incidences of hunger among the poor are not all 100 percent points to the measurement error inherent in these datasets, and also suggests that not all poor people are hungry.[16] Some are still able to meet their energy needs for an active, healthy life despite meager incomes. In some cases this may be due to relatively low food prices, possibly as a result of food subsidies.

The second column of Table 3.4 reports the incidences of poverty among the hungry. Here we find a consistently weaker correspondence. Indeed, in Guatemala, less than 10 percent of the food-energy deficient can be classified as poor. This finding suggests that, even allowing for measurement error, it is possible that a person who is hungry is not necessarily so because she or he is poor. It has been noted that in some cases, households with ample income to purchase food may be prevented from accessing it due to insufficient food supply caused by such problems as market fragmentation, natural disasters, or conflict (Sen 1983). It should be kept in mind, however, that the results in Table 3.4 are dependent on the cut-offs chosen. Using the definition of 2,200 calories as hungry, the data show that while nearly all those living on less than $1 a day are hungry, those who are hungry may live on more than $1 a day (especially in some countries). Hunger defined in this way may thus be a broader measure of deprivation than poverty at a $1 a day. Households that are not classified as poor by the dollar-a-day cut-off may still face tight income constraints, and thus trade-offs among competing needs, given the cost of living where they reside. Households in this situation may not have enough to eat because their income is primarily devoted to meeting other basic needs such as health, education, transportation, and housing. They may also be choosing to temporarily forgo food consumption in the short term in order to preserve their productive assets, including

**TABLE 3.4 Incidence of Hunger among the Poor, and of Poverty among the Hungry**

| Countries | Incidence of Hunger among the Poor | Incidence of Poverty among the Hungry |
|---|---|---|
| **Sub-Saharan Africa** | | |
| Burundi | 98.9 | 63.0 |
| Ghana | 85.7 | 44.3 |
| Kenya | 97.4 | 31.7 |
| Malawi | 92.4 | 50.6 |
| Mozambique | 89.6 | 62.8 |
| Rwanda | 84.4 | 84.6 |
| Senegal | 86.5 | 34.1 |
| Zambia | 83.1 | 70.9 |
| **South Asia** | | |
| Bangladesh | 73.5 | 59.9 |
| India | 86.9 | 46.3 |
| Pakistan | 90.6 | 19.0 |
| Sri Lanka | 98.8 | 10.3 |
| **East and Central Asia** | | |
| Timor-Leste | 98.7 | 17.3 |
| Tajikistan | 71.6 | 44.8 |
| **Latin America and the Caribbean** | | |
| Nicaragua | 56.9 | 86.3 |
| Guatemala | 89.5 | 8.6 |

*NOTE:* The poverty and hunger incidences are defined to be the sum of the incidences for the subjacent, medial, and ultra poor and hungry.

the education of their children, in the long term (Hoddinott 2006).

Providing further insight into the extent to which the hungry and poor overlap, Table 3.5 reports on the statistical correlations between national incidences of poverty and hunger across the 16 countries for which data are available for both. For overall poverty and hunger (with the three subgroups combined) at the national level the correlation between poverty and hunger is 0.63. Interestingly, when examining the subjacent, medial, and ultra groups, the correlations between poverty and hunger are relatively high and statistically significant only for the ultra poor and hungry.

The bottom row of Table 3.5 reports the correlations between the incidence of poverty (all subgroups combined) and the incidence of low diet quality. Here we find a weakly positive correlation of 0.43.

The results of the above analysis suggest that policies and programs aimed at alleviating poverty measured only by $1 a day may not have such a great impact on hunger (including both dietary energy deficiency and low diet quality) in every case.

### 3.5 CHARACTERISTICS OF THE POOREST AND HUNGRY

This section provides information on who the poorest and hungry are by presenting profiles of poor households in 15 of these countries.[17] The previous section suggests this group is also, by and large, hungry (although by using the cut-off of 2,200 calories, this group does not include all hungry households). We examine some key characteristics of households living on less than $1 a day. For 10 of the 15 countries in which the incidence of ultra poverty was relatively high, we go further in examining some of the characteristics, and compare those living in ultra poverty to those living on just less than $1 a day in subjacent poverty.[18] The characteristics are limited to those that can to some extent be compared across countries. We first look at how poor households spend their money. We then examine differences in demographic variables (such as whether or not poor households are more likely to be headed by women or to have elderly or children), schooling, and the ownership status of some selected assets. Access to electricity is

**TABLE 3.5 Correlations among Incidences of Poverty and Hunger**

| | National | | | |
|---|---|---|---|---|
| **Type of hungry** | **All of the Poor** | **Subjacent Poor** | **Medial Poor** | **Ultra Poor** |
| All of the hungry | 0.63*** | | | |
| Subjacent hungry | | 0.35 | | |
| Medial hungry | | | 0.11 | |
| Ultra hungry | | | | 0.63*** |
| Low diet quality | 0.42 | | | |

*NOTE:* The poverty and hunger incidences are defined to be the sum of the incidences for the subjacent, medial, and ultra poor and hungry.

considered as a proxy for the extent to which these households are connected to transport and communications infrastructure and the access to markets and services this brings. The incidence of poverty among excluded groups in three countries (indigenous peoples in Guatemala and Peru and scheduled castes and tribes in India) and among the mainstream majority is also compared.

#### Food and Nonfood Budget Shares

Appendix Tables A4.1a to A4.1e present, respectively, the budget shares of households living below and above the dollar-a-day poverty line, and households living in subjacent, medial, and ultra poverty. A detailed comparison and enlightening discussion of budget shares of those living on more than and less than $1 a day in many developing countries can be found in Banerjee and Duflo (forthcoming). In general, poorer households and households living in rural areas spend a relatively higher proportion of their budget on food but, perhaps surprisingly, the differences are not large. Food budget shares in Sub-Saharan African countries are higher than in countries in other regions; among the poor, food budget share at the national level ranges from 67 percent in Ghana to as high as 86 percent in Rwanda. In contrast, Guatemalan households living on less than $1 a day allocate 50 percent of their budget to acquiring food.

Poor households spend very little on education, especially in our sample of countries in Sub-Saharan Africa. The poor in Vietnam, Nicaragua, and Tajikistan allocate a relatively higher percentage of their budget to education. One of the reasons for the low level of spending on education is that the poor usually attend public or other schools (such as NGO-run schools) that do not charge a fee (Banerjee and Duflo, forthcoming).

Interestingly, expenditures on fuel represent the second highest share of budget among both rural and urban poor in South Asia (Bangladesh, India, and Pakistan). The poor in South Asia also spend more on clothing (the third highest budget share) than do the poor in other countries included in this study. Housing costs represent the second highest budget share for the poor in all three sample countries in Latin America and in Tajikistan.

We have noted in section 3.3 that one of the reasons for lower energy consumption by urban dwellers compared to their rural counterparts could be that the budget share for housing for the urbanites is likely to be higher than for those living in rural areas. Indeed, the budget share for housing is considerably higher for the urban poor than for the rural poor in 13 of the 15 case-study countries; Nicaragua and Tajikistan are the exceptions.

Column 5 in Tables 1a to 1e presents expenditures on health care across these countries. Few patterns are observed between spending on health and poverty; spending increases with poverty in Burundi and Vietnam, but falls or does not change with poverty in other countries. This is a potentially worrisome finding as poverty assessments for these countries have repeatedly found that ill-health is more prevalent among the poor. For example, in Bangladesh, serious illness, accidents, or death occurred in 43-48 percent of poor households compared to 29 percent of households classified as non-poor (Kabeer 2002). In Vietnam, long-term illness was repeatedly mentioned in the participatory poverty assessment as a defining characteristic of poor families, with phrases such as "ill health," "chronic disease," and "becoming indebted to pay medical costs" being mentioned in all research sites (World Bank 2004, p. 37). And in Guatemala the prevalence of diarrhea among children is higher among those in the poorer quintiles (World

Bank 2003b). The finding that poorer households spend no more on health suggests that the poorest spend less on health care per need than wealthier households. Section 4.4 notes the pre-eminent importance of health shocks in causing and maintaining poverty, with as many as 74 percent of households in one study tracing their fall into poverty to unexpected ill-health.

### Women, Elderly, and Children

We present the patterns of demographic composition and female headship of households living below and above the dollar-a-day poverty line (Appendix Table A4.2), and for those living in subjacent, medial, and ultra poverty (Appendix Table A4.3).

First, we briefly note from the tables that larger households tend to be poorer than smaller households (with the exception of Bangladesh) and we also note that the poorest households tend to have higher dependency ratios (the number of household members of non-working age—children aged 0 to 14 years and elderly aged 60 years and over—that have to be supported by the household's working members). While intuitively we might expect that households with many to feed and fewer able-bodied adults will be poorer, caution is required in assuming this from the data too readily. Measurements of both poverty and hunger do not take into account the lower consumption requirements of children or those who are inactive, nor are they able to allow for any advantages from sharing public goods that larger households may enjoy. Concluding from these numbers (and from the many other studies in which poverty and hunger are calculated in the same way) that poorer households are larger or have higher dependency ratios can thus be erroneous.

One study on Mozambique takes into account these two factors and finds that there is an association between household size and poverty: larger households are found to be poorer (Simler et al. 2004). However, the association does not imply a causal link between household size and poverty since there are complex, dynamic links between demographic variables and poverty that prevent us from drawing conclusions from this.

So, is it possible to say anything about whether, in fact, the elderly or children are more likely to be poor? Although it is not analyzed here, it has been suggested elsewhere that poverty rates among the elderly are particularly high. A study on aging and poverty in Africa found that, although few elderly live on their own, the depth of poverty among elderly when they do was found to be much higher than the average (measured by the poverty gap ratio), especially in rural areas (Kakwani and Subbarao 2005). Although the elderly are not always the poorest—for example, the elderly were not found to be poorer in Mozambique (Simler et al 2004)—they are often poor, and poor in many dimensions: "It is easy to identify the house of an older person, as it is often dilapidated and of poor quality" (HelpAge International 2003).

In a number of countries considered in this report, children were found to be disproportionately more likely to belong to poor households, as evidenced by higher poverty rates among children in many countries. For example, in Vietnam children are 1.4 to 1.75 times more likely than adults to be poor (World Bank 2004). However, these studies do not control for the various factors noted above, and it is not clear that this relationship holds when these factors are taken into consideration.

Nonetheless, there are groups of children who are particularly vulnerable to poverty. These groups include orphans and street children. A high incidence of disease and poor access to health services makes orphanhood a

common phenomenon in many countries. The presence of conflict and the high incidence of HIV/AIDS make orphanhood even more likely. Current global figures estimate that 16 million children under 15 have already lost either one or both parents to HIV/AIDS and that another 40 million children will lose their parents within the next 10 years.[19]

In Rwanda, the prevalence of orphanhood after the genocide resulted in many orphaned children forming their own families. In 1997, there were approximately 85,000 child-headed households with an average family size of 4-5 children. According to surveys conducted by Save the Children in 1995, 70 percent of these households were headed by girls and only 15 of these households had any regular income. These households formed one of the poorest sections of society by any measure. In Timor-Leste, the long history of conflict has resulted in 1 in 12 children losing their father. Children who have lost their father are more likely to be poor than those who have not (World Bank 2003c).

Poverty in childhood is much more likely to have long-term impacts on the future poverty of that child, as is suggested in the following section on education and is further discussed in Chapter 4.

We turn now to the question of whether the poorest are more likely to be women, and look first at whether the prevalence of poverty—and ultra poverty—is higher among female-headed households.

Figure 3.7 shows that, in general, female-headed households are more prevalent in Sub-Saharan African countries, ranging from 19 percent among households living on less than $1 a day in Mozambique to 34 percent in Rwanda. In Asian countries, Sri Lanka has the highest proportion (22 percent) of female-headed poor households, but in Pakistan and Bangladesh, only 5-6 percent are female-headed. In Latin America, 25 percent of poor households in Nicaragua are headed by women, as compared to only 1 percent of poor households in Guatemala. Countries with a history of civil conflict, such as Rwanda and Sri Lanka, tend to have higher proportions of female-headed households.

A comparison of households above and below the dollar-a-day poverty line reveals that higher proportions of poor households are headed by women in five of seven countries in Sub-Saharan Africa and in Sri Lanka (Figure 3.7). In other countries in Asia and Latin America, the proportion of female-headed households is lower among poorer households.

When looking below the dollar-a-day line for the subset of 10 countries, we observe a more similar relationship between ultra poverty and female-headed households in Sub-Saharan Africa and Asia (Figure 3.8). In five of six Sub-Saharan African countries (Ghana being the only exception) and in all three Asian countries, female-headed households are more likely to be found living in ultra poverty than in subjacent poverty. For these three Asian countries (Bangladesh, India, and Vietnam), the relationship between poverty and female-headship is thus reversed when disaggregating below the dollar-a-day line. A comparison of those living in ultra poverty with those living on more than $1 a day shows that households in ultra poverty in these three countries are more likely to be female headed. The data from Nicaragua suggest that in Latin America, the pattern is not similarly reversed when disaggregating below $1 a day: ultra poor households are even less likely to be female headed.

The tendency of female-headed households to have higher numbers of children who have lower consumption requirements might again lead to an overestimation of poverty among female-headed households. However, a

**FIGURE 3.7 Proportion of Female-Headed Households: Living on More Than and Less Than $1 a Day (percent)**

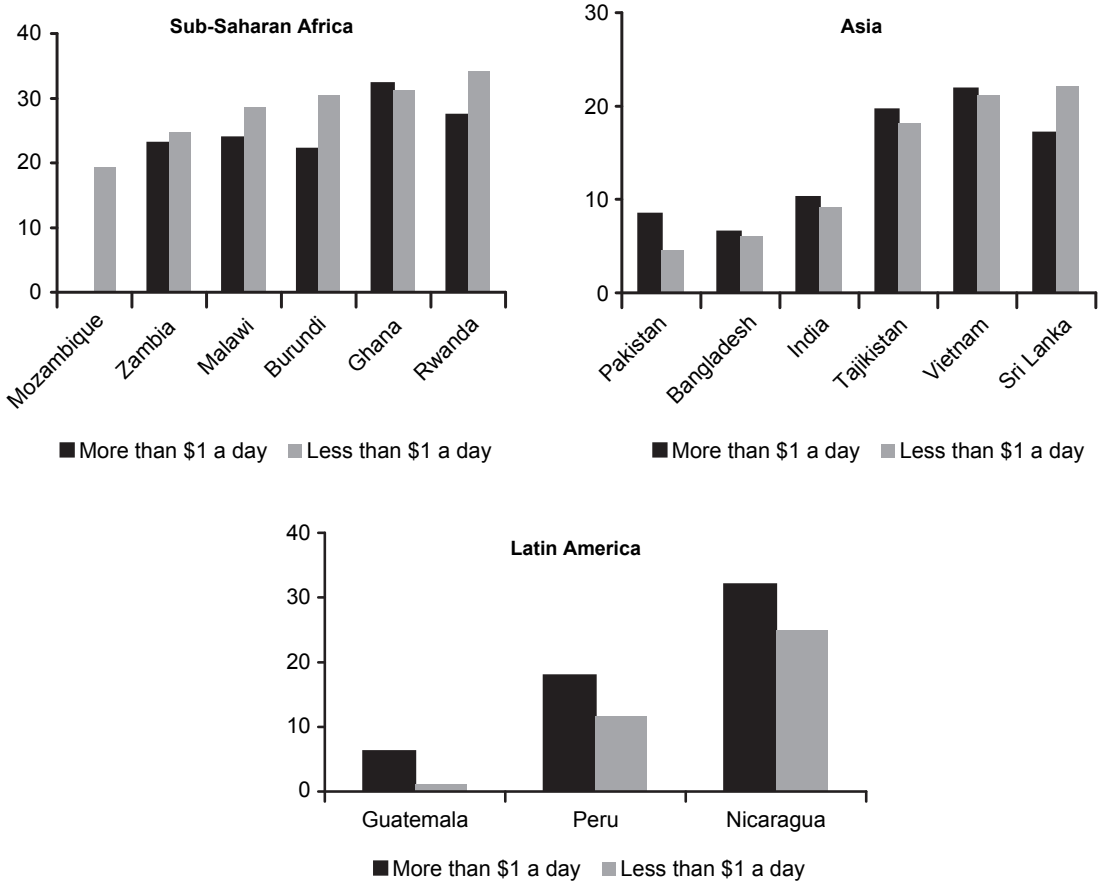
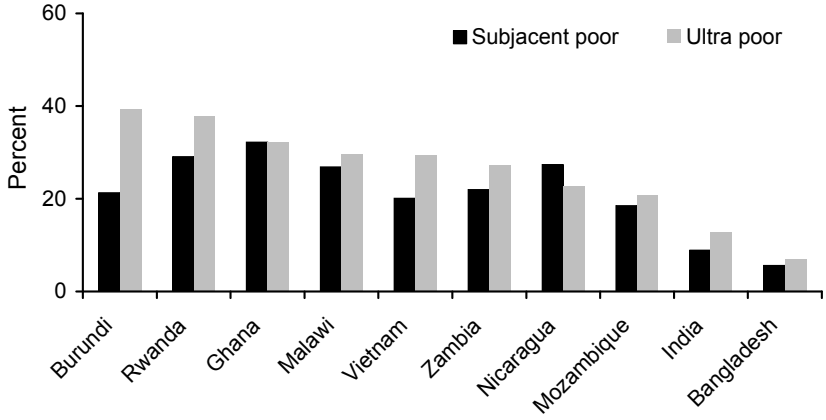



**FIGURE 3.8 Proportion of Female-Headed Households: Living in Subjacent and Ultra Poverty**



careful study of differences between male- and female-headed households across 10 countries using IFPRI datasets (and two LSMS surveys) showed that taking this into account made very little difference in comparisons between male- and female-headed households (Quisumbing, Haddad, and Pena 2001). If anything, taking this into account increased the number of countries in which female-headed households were found to be poorer: they were poorer in 8 of the 10 countries using the dollar-a-day poverty line. However, in each estimation method only two or three countries had differences big enough to be significantly different. This is worth bearing in mind since for some countries presented here the differences are also small and may not be significant.

We conclude that there is some evidence that is consistent with the hypothesis that female-headed households are overrepresented among the ultra poor. Why female-headed households may be poorer is considered in Chapter 4. Access to assets and resources may be one part of the explanation.

Examining only differences between male- and female-headed households hides the fact that within households headed by men, the welfare of women and girls is often lower than that of their male family members. While empirical evidence on this is more limited, the same study of IFPRI datasets found that at the individual level, women were poorer than men in 6 of the 10 countries considered, and were significantly so for some measure of poverty in Ghana, Madagascar, and Bangladesh (Quisumbing, Haddad, and Pena 2001). Additionally, studies in South Asia show that within households, women receive significantly less food and sometimes less high-quality food such as meat and eggs (Ahmed 2000a, Haddad et al. 1996, del Ninno et al. 2001).

**Education**

It is hard to overemphasize the importance of education for improving the welfare of individuals. Education has been shown to have significant positive impacts on agricultural productivity, employment, access to credit, use of government services, and own health and child health and education outcomes (section 4.6). In the developing world, providing universal primary education connotes a great opportunity to reduce poverty and to promote economic growth. Quality primary education equips children from poor families with literacy, numeracy, and basic problem-solving skills and enables them to move out of poverty. In many developing countries, poverty has kept generations of families from sending their children to school, and without education, their children's future will be a distressing echo of their own. Investment in education helps reduce the intergenerational transmission of poverty (see section 4.5).

Here we try to answer the question of whether the poor are less likely to be educated. We examine how the educational attainment of adults and investments in children's education vary among those living above and below the dollar-a-day line, and between those in subjacent and ultra poverty. Full tables on adult educational attainment and investments in children's education (by males and females and rural and urban areas) are provided in Appendix Tables A4.4 to A4.7.

Figure 3.9 and Figure 3.10 show the proportion of adult males and females above and below the dollar-a-day poverty line who have no schooling. The proportion of those educated varies from country to country, but it is clear that in every part of the world, and for both men and women, poor adults are less likely to be educated than those living on more than

**FIGURE 3.9 Proportion of Adult Males (Aged 18 and over) with No Schooling: Living on More Than and Less Than $1 a Day (percent)**

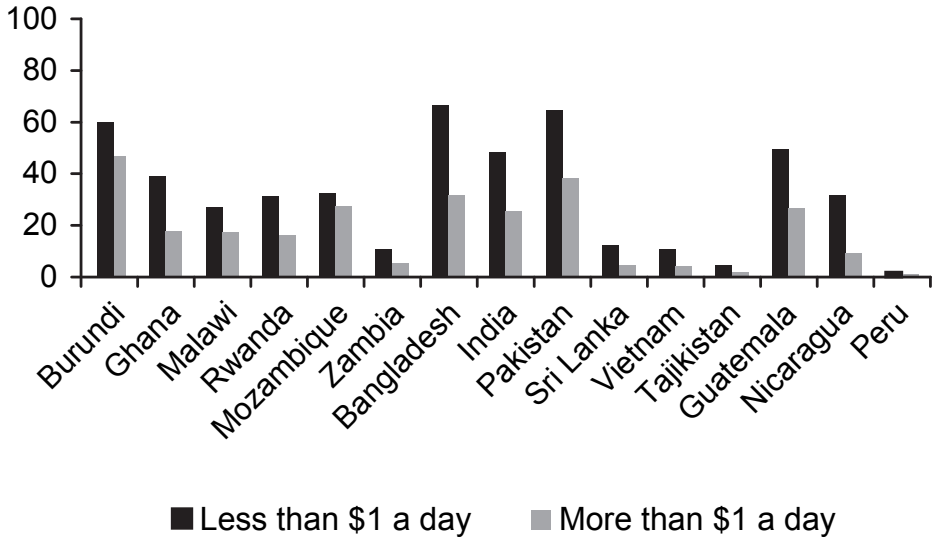



**FIGURE 3.10 Proportion of Adult Females (Aged 18 and over) with No Schooling: Living on More Than and Less Than $1 a Day (percent)**

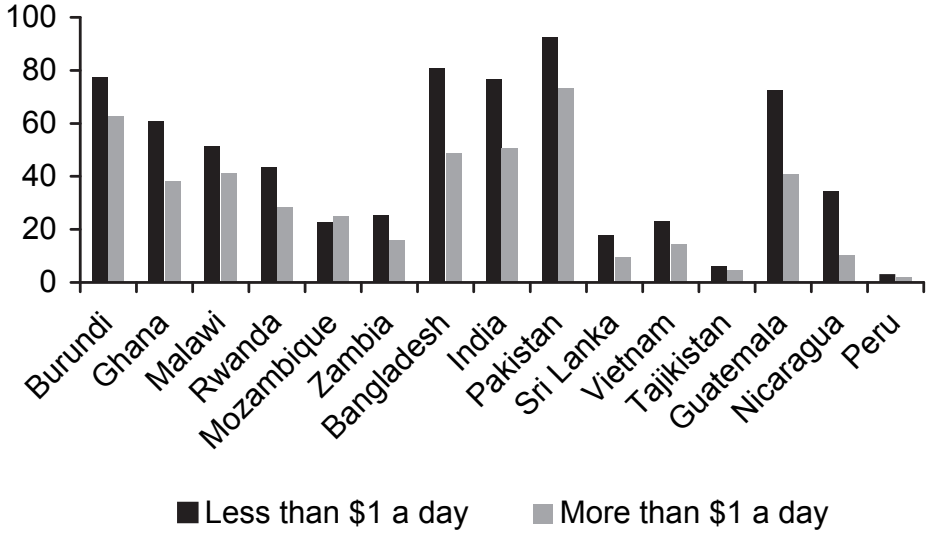


**FIGURE 3.11 Proportion of Adult Males (Aged 18 and over) with No Schooling: Living in Subjacent and Ultra Poverty**

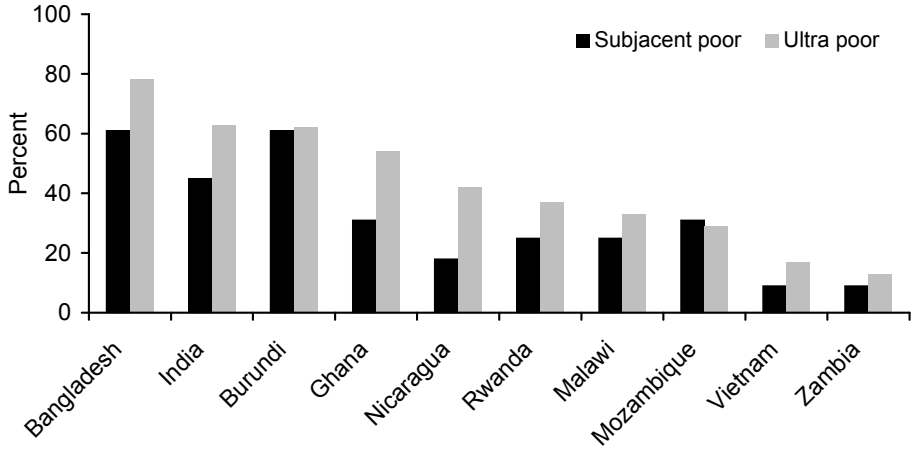
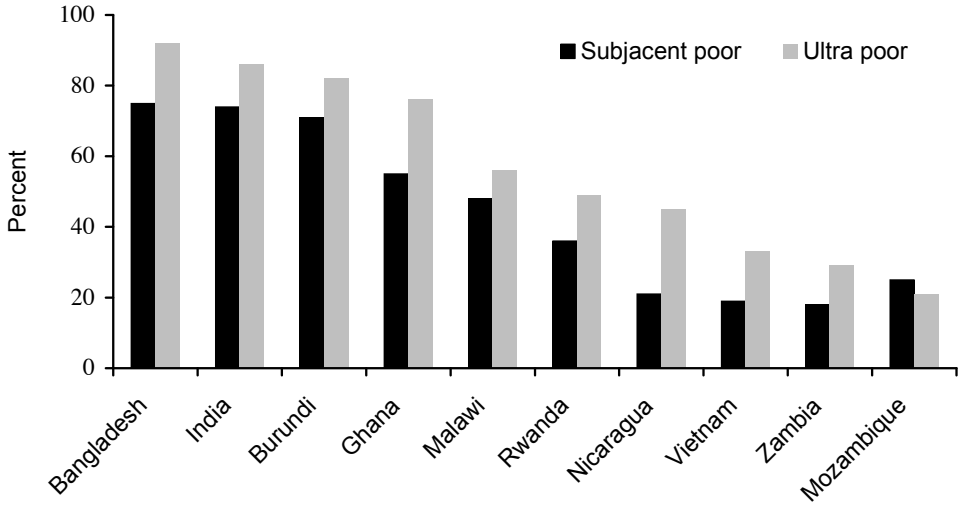



**FIGURE 3.12 Proportion of Adult Females (Aged 18 and over) with No Schooling: Living in Subjacent and Ultra Poverty**



$1 a day. And for many countries, the gap is considerable. This is especially so in South Asia and Latin America (the proportion of adult males without schooling living on less than $1 a day is almost twice the proportion of adult males without schooling living on more than $1 a day in Bangladesh, India, Pakistan, Guatemala, Nicaragua, and Peru), but the gap is also considerable in Malawi, Ghana, Rwanda, and Zambia. A comparison of the numbers in Figure 3.9 and Figure 3.10 reveals that women are much more educationally disadvantaged than men. In Pakistan, 93 percent of women and 64 percent of men from poor families never attended school. Although most adult men and women among the poor never attended school in Bangladesh, the gender gap there is considerably smaller than that in India and Pakistan.

Looking below the dollar-a-day poverty line, we see the same pattern. Unschooled women and men are much more likely to experience ultra poverty than subjacent poverty (Figures 3.11-3.12). Again, this is true in all countries except Mozambique. The differences in educational attainment between the ultra poor and those above the dollar-a-day line are large in all countries. With the exception of Mozambique and Burundi, the proportion of adult males without schooling is almost double or more among the ultra poor than the non-poor. In Vietnam and Nicaragua, adult males living in ultra poverty are three times more likely to be uneducated than those living on more than $1 a day. The data overwhelmingly show that the poorest are the least educated.

Given the relationship between poverty and education, investments in children's schooling may determine whether or not they will be poor in the future. Figure 3.13 presents national net enrollment rates for primary school-age children whose family members live on less than and more than $1 a day per person.[20] In all study countries, the evidence is the same: children from poorer families are less likely to go to school. Figure 3.14 presents the national net enrollment rates for primary school-age children living in subjacent and ultra poverty,

**FIGURE 3.13 Net Primary School Enrollment Rates: Living on Less Than and More Than $1 a Day**

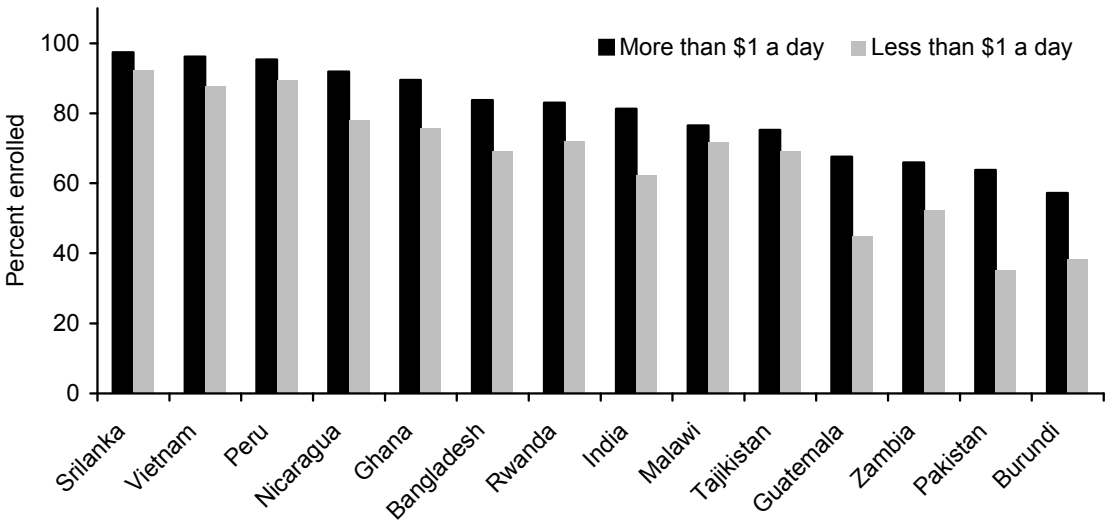
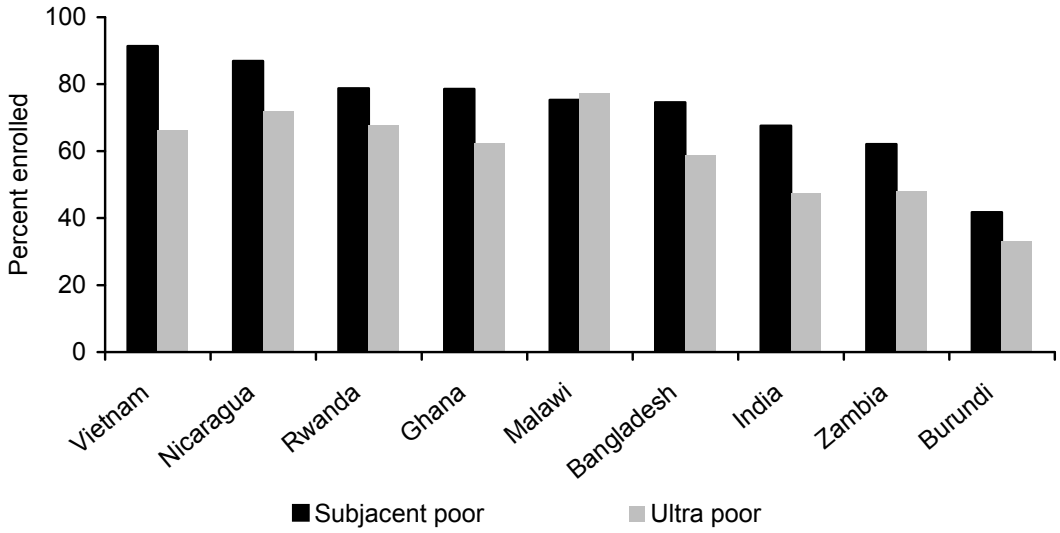


**FIGURE 3.14 Net Primary School Enrollment Rates: Living in Subjacent and Ultra Poverty**




and with the exception of Malawi, a similar pattern is observed. The poorest are the least able to invest in the education of their children. In India, there is a 33 percentage-point gap between children living in ultra poverty and children living on more than $1 a day. In Vietnam, the gap is 30 percentage points, and in Ghana and Burundi it is 28 and 24 percentage points, respectively. Some of constraints that limit investments in education by poorer households are considered in Chapter 4.

However, it is important to note that there is considerable variation in net enrollment rates across countries—for children from poor families, it ranges from only 35 percent in Pakistan to as high as 92 percent in Sri Lanka. Enrollment rates are low in Pakistan despite the country's relatively low dollar-a-day poverty rate (11 percent). In contrast, although Bangladesh has a dollar-a-day poverty rate of 50 percent, the enrollment rate for children from poor families is much higher (88 percent). Sri Lanka has the lowest poverty rate (6 percent) and the highest enrollment rate among the countries.

We have seen in section 3.2 that among the 20 case-study countries, Guatemala has the lowest dollar-a-day poverty rate (only 4 percent). Even so, 55 percent of primary school-age children in the country do not go to school. Guatemala has a high incidence of child labor. Many children do not attend school because they work, mainly on coffee and sugar plantations. Further, there are more than twice as many non-indigenous children as indigenous children enrolled in school (World Bank 2003b).

Education for girls has social and economic benefits for individuals and for society as a whole. While the enrollment rate for the poor is lower for girls than for boys in most of the case-study countries, girls overtake boys in Bangladesh, Malawi, Nicaragua, Sri Lanka, and Tajikistan. The gap in the enrollment rate between boys and girls is greatest in Pakistan—71 percent of girls aged 6 to 11 from poor fami-

lies do not go to school compared to 58 percent of boys in the same age group who do not go to school (see Appendix Table A4.6).

### Landlessness in Rural Areas

The ownership or control of productive assets is an important indicator of livelihood because assets generate income. Land is the vital productive asset in a rural economy. We would thus expect access to land and the opportunity to undertake agricultural cultivation to have an important bearing on the well-being of rural households in the developing world, and consequently the association between poverty and landlessness to be high. As land markets are undeveloped in most developing countries, inheritance is the main mechanism through which land ownership changes hands (see section 4.7). In some countries, rural households have acquired land as a result of government land-reform policies.

Appendix Tables A4.8 and A4.9 provide detailed information on cultivable land ownership in 12 of the 20 countries above and below the dollar-a-day poverty line and among those in subjacent, medial, and ultra poverty.[21] Figure 3.15 shows the proportion of landless among those above and below the dollar-a-day line, and Figure 3.16 depicts the incidence of landlessness among those in subjacent and ultra poverty. Of the 12 countries, Pakistan has the highest incidence of landlessness—77 percent of the poor own no land. The rate is 67 percent in Ghana and 58 percent in Bangladesh. We do not observe a uniform pattern of higher landlessness among the poor, since the relationship varies between Sub-Saharan Africa, Latin America, and Asia.

In all parts of Asia, those who are landless are the poorest. Rates of landlessness are higher among those living on less than $1 a day, and the incidence of landlessness increases for those living well below the dollar-a-day line in ultra poverty. Nearly 80 percent of the ultra poor in rural Bangladesh do not own land. In rural Bangladesh, landless laborers often also lack draft animals and agricultural implements, meaning they can seldom work as sharecroppers and must depend upon wages for livelihood.

**FIGURE 3.15 Ownership of Cultivatable Land in Rural Areas: Living on More Than and Less Than $1 a Day**

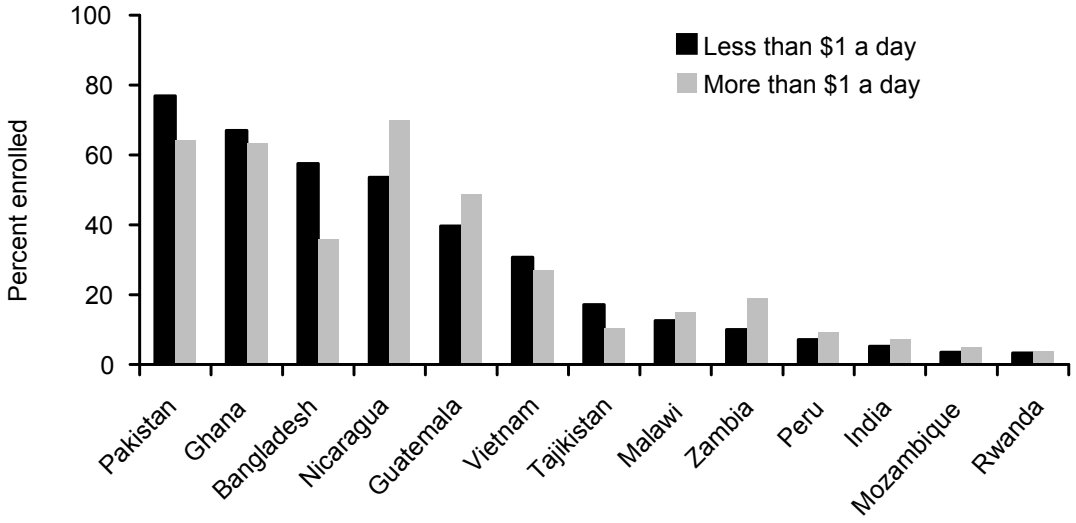
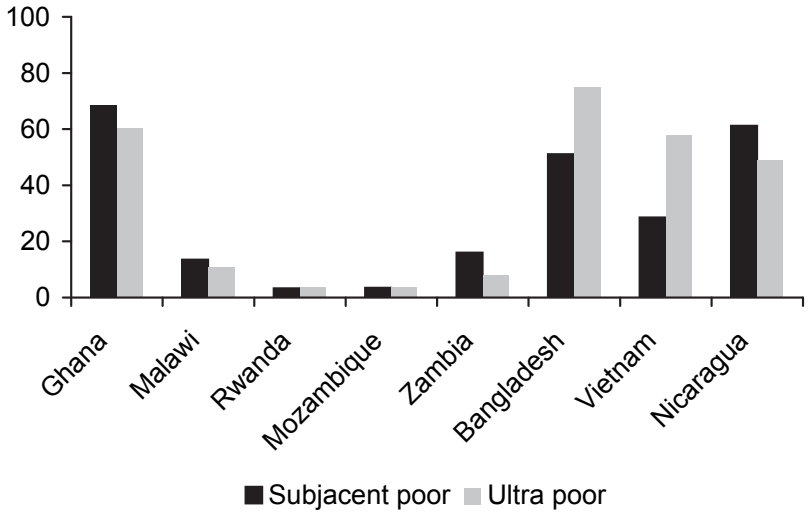


**FIGURE 3.16 Ownership of Cultivatable Land in Rural Areas: Living in Subjacent and Ultra Poverty**




Tajikistan has embarked on an ambitious program of agricultural land reform that involves passing land-use rights from state to farmers. However, many farmers are not yet aware of their rights under the new reform. Moreover, when land was redistributed after Tajikistan's independence, one of the criteria for receiving land in many areas of the country was the availability of male productive labor in the household. This resulted in female-headed households and households with elderly and disabled people receiving less land, causing further persistence of poverty (World Bank 2005b).

In Vietnam, while the distribution of land to rural households was remarkably egalitarian, a market for land transactions is gradually emerging. The development of a land market seemingly leads to a gradual concentration of land ownership, and consequently, increasing landlessness (Ravallion and van de Walle 2001).

In Sub-Saharan Africa, with the exception of Ghana, the incidence of landlessness is much lower, and the link between poverty and landlessness is also weak. Little difference was found between the incidence of landlessness among poorer and less poor households, and in some cases the reverse pattern was found. This corresponds to the findings of other studies that in Sub-Saharan Africa, the poorest often own some land (but not enough) and lack access to other key assets and markets, such as credit markets (noted in Lanjouw, 2007). Also it may reflect the fact that where productivity of land varies within a region, the key question is not just how much land is owned, but also the quality of the land.

Although the incidence of landlessness is high in Nicaragua, Guatemala, and Peru, it was actually found to be higher among those who live on more than $1 a day than among those living on less than $1 a day. Also, in Nicaragua those living in ultra poverty were less likely

to be landless than those living just below the dollar-a-day line. This suggests that in Latin America, the poorest are more likely to be self-employed cultivators than the non-poor, perhaps lacking employment opportunities in non-agricultural sectors. However, returns to skilled labor and capital are probably higher than returns to land; therefore, people move out of agriculture with higher levels of economic development.

### Remoteness, Access to Electricity, and Ownership of Radio and Television

Access to electricity is a composite indicator of development at the national, community, and household levels. In addition to being an indicator of wealth, an electricity connection also indicates the extent to which a household is "connected" in a broader sense to roads, markets, and communications infrastructure (information technology in particular), and the resulting income-earning opportunities and public services. As noted in section 3.2, the prevalence of poverty is higher in rural areas, and many of the World Bank Poverty Assessments for the countries we consider also indicate that the poorest and most-food-insecure households are located furthest from roads, markets, schools, and health services.

For example, the incidence of extreme poverty in Nicaragua is 20 percent higher in the central rural region, a region where people have to travel twice as far to reach the closest healthcare service and primary school (World Bank 2003a). In Zambia, the prevalence and severity of poverty is lower in provinces that are close to the rail line in the center of the country, and the poor are more likely to be located more than 20 km from the nearest market than the non-poor are (World Bank 1994). In Laos, poverty is lower in villages with roads than in those without (World Bank 2006b), and poverty maps for Vietnam show that the incidence of poverty is highest in the remote areas of the northeast and northwest regions, the upland areas of the north central coast, and the northern part of the central highlands (Minot, Baulch, and Epprecht 2006). To some extent, examining the relationship

**FIGURE 3.17 Households with Electricity: Living on Less Than and More Than $1 a Day**

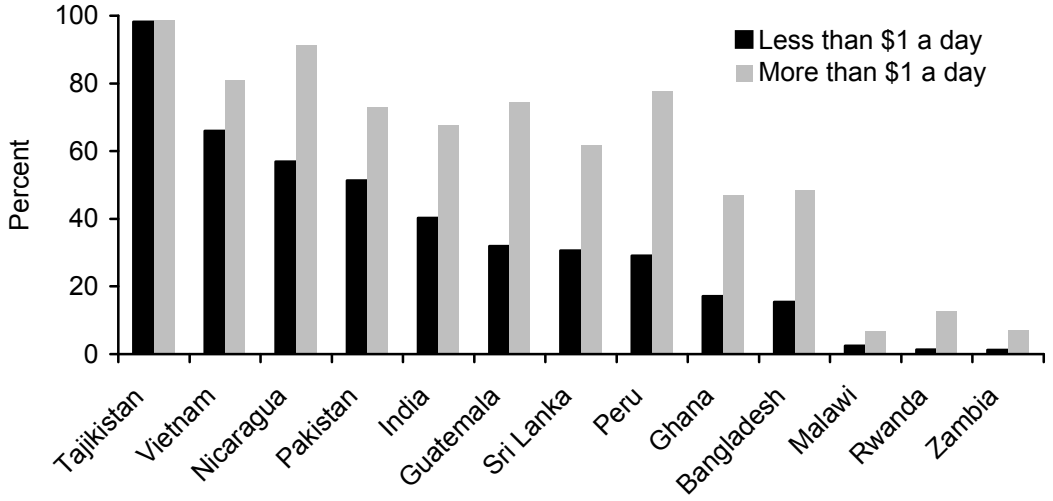
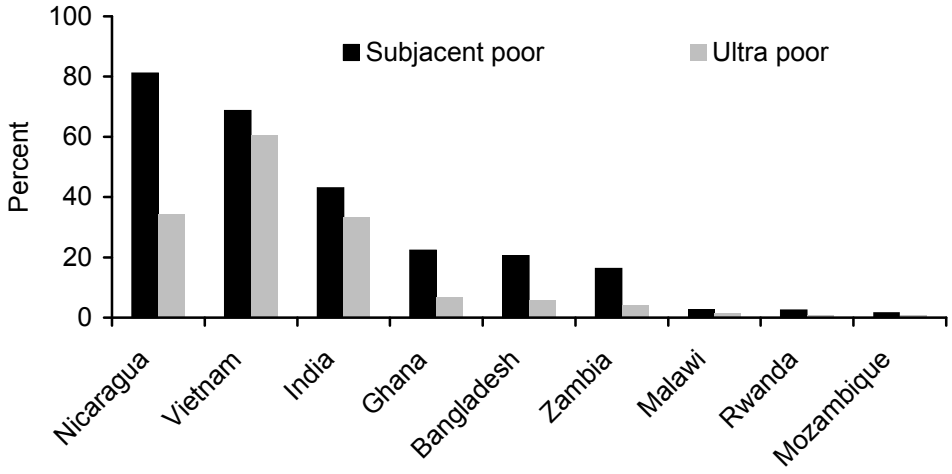


**FIGURE 3.18 Households with Electricity: Living in Subjacent and Ultra Poverty**




between electricity connections and poverty allows us to further consider the relationship between poverty and remoteness.

Appendix Tables A4.10 and A4.11 provide data on households with electricity, and Figures 3.17 and 3.18 depict the proportion of households with electricity that are below and above the dollar-a-day poverty line, and that are in subjacent and ultra poverty, respectively.[22] The rate of access to electricity for the poor varies extremely across countries—from virtually universal access in Tajikistan to almost non-existence (1 percent of households) in Mozambique. However, consistently across countries, households living on less than $1 a day have considerably lower access to electricity than those living on more than $1 a day, and those living on much less than $1 a day in ultra poverty are even less likely to be connected. Disaggregating households on less than $1 a day reveals that households living in ultra poverty are on average four times less likely to be connected to electricity than households living above the dollar-a-day line. Households in Rwanda and Bangladesh are 13 and 7 times more likely to be unconnected, respectively. In rural areas of Sub-Saharan Africa, the proportion of ultra poor households with electricity connections approaches zero.

To the extent that access to electricity is a proxy for access to roads and markets, this suggests that the poorest households are often the most remote, which is consistent with the poverty profiles in World Bank country poverty assessments.

At the household level, access to electricity leads to the use of radio, television, and other appliances. Besides being used for entertainment, radio and television are major sources of information for the poor, particularly for illiterate people. Developing-country governments use radio and television as the most effective forms of media to inform citizens of improved agricultural practices and crop prices, health and hygiene, and interventions for poverty reduction such as social protection and safety-net programs, among others.

As expected, fewer households below the dollar-a-day poverty line own radios and televisions than do those living above the line. However, the rate of ownership varies widely

across countries, between rural and urban areas, and between the two categories (radio and television). Except in urban Ghana, hardly any poor households in our sample of Sub-Saharan countries own a television (Appendix Tables A4.10 and A4.11).

### 3.6 ETHNICITY AND EXCLUDED GROUPS

In each of the 20 countries for which we have household-level data, there are some groups, considered separate from the majority, that have a consistently higher prevalence of poverty and hunger.

In Laos and Vietnam, ethnic minorities (many of whom reside in upland areas) are more likely to experience poverty and hunger. For example, in Laos the Mon-Khmer are more likely to experience poverty than the majority Lao (54 percent prevalence of poverty compared to 25 percent), and in Vietnam, the incidence of poverty is 42 percent among ethnic minorities compared to 6.5 percent among Kinh and Chinese (World Bank 2004, 2006b). There is a regional and ethnic dimension to poverty within Central Asia also. In Tajikistan, provinces with high proportions of ethnic groups distinct from the Tajik majority experience much higher poverty rates: the poverty rate is twice the national average in the GBAO province, where the ethnicity and religion of the people differ from the Tajik majority (World Bank 2005b).

Indigenous peoples represent about one-tenth of Latin America's population and experience higher poverty than other groups. In Peru, the incidence of poverty is twice as high among indigenous groups as compared to non-indigenous groups, and in Guatemala stunting is more than twice as widespread among indigenous children as compared to non-indigenous children.

In South Asia, deprivation is also characterized by ethnic bias. In Bangladesh, poverty and deprivation are substantially higher among the ethnic minority who populate the Chittagong Hill Tracts than among the mainstream population (World Bank 2002b). In India, scheduled castes and tribes consistently experience deprivation in a number of dimensions. In Sri Lanka, the incidence of poverty is highest among Indian Tamils.

In Africa, access to land and other resources depends on membership in groups of common descent, which results in strangers having difficulty in accessing resources and securing stable livelihoods. This is the case in Senegal—where refugees from Mauritania and the displaced from the Casamance are most likely to remain in poverty (World Bank 1995c)—and in the high vulnerability of Malawian migrants in Zimbabwe (Kabeer 2005). The role of ethnicity in determining access to resources has been demonstrated by the genocide in Rwanda, and other ethnic tensions in the Great Lakes Region.

The identification of a household's membership in an "excluded group" was not always possible from the household survey datasets. However, these groups could be identified in three countries—India, Peru, and Guatemala—and the following analysis focuses on those countries. These three countries represent two areas of the world in which group status is reportedly important: Latin America and South Asia.

Figure 3.19 shows that although indigenous groups make up 25 percent and 39 percent of the population in Peru and Guatemala, respectively, they are overrepresented among the poor, and are increasingly so the further below the dollar-a-day poverty line one goes (particularly in Peru). Additionally, poor indigenous groups are often characterized

**FIGURE 3.19 Proportion of Indigenous in National Population, and Living in Subjacent, Medial, and Ultra Poverty: Guatemala and Peru**

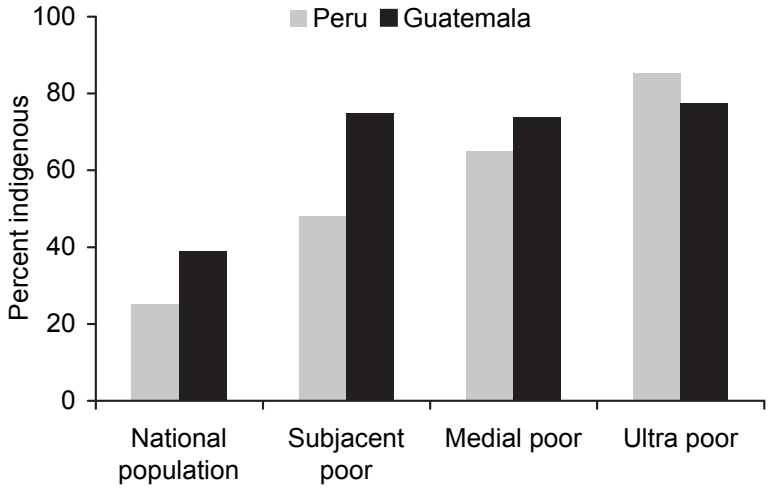
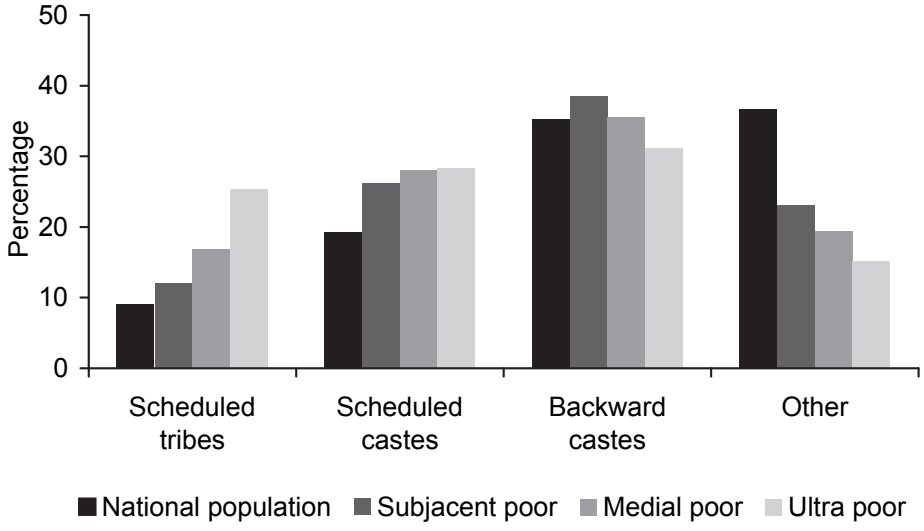



**FIGURE 3.20 Proportion of Scheduled Castes and Scheduled Tribes in National Population, and Living in Subjacent, Medial, and Ultra Poverty: India**



by physical remoteness. For example, in Guatemala no indigenous groups living in ultra poverty are connected to electricity, compared to 57 percent of the non-indigenous ultra poor and 74 percent of the non-poor. In Peru, 11 percent of indigenous groups living in ultra poverty are connected to electricity, compared to 21 percent of the non-indigenous ultra poor and 78 percent of the non-poor. This corresponds to other findings that show that indigenous peoples in Peru are concentrated mostly in the less accessible Andean and Amazonian regions, and that indigenous groups in Guatemala have less access to good roads (World Bank 2003b, 2005a).

In India, scheduled tribes and castes are also overrepresented among the ranks of the poor, particularly among those poor living in ultra poverty (Figure 3.20). This is truer for scheduled tribes than for scheduled castes. Scheduled tribes comprise 9 percent of the population but 25 percent of the ultra poor, meaning that someone from a scheduled tribe is 2.5 times more likely to live in ultra poverty than someone who is not from a scheduled tribe. Those from scheduled castes are also more likely to experience poverty and are more likely to live in ultra poverty than those from other castes. The higher poverty rates among scheduled tribes may reflect the fact that they are more likely to live in remote hill stations than those from scheduled castes. It is consistent with the finding that during the 1990s, poverty rates among scheduled castes fell much faster than poverty rates among scheduled tribes (Thorat and Mahamallik 2005).

## 3.7 CHAPTER CONCLUSION

This chapter of the report has used household survey data to take a closer look at patterns of poverty and hunger across the countries, and within the countries' rural and urban areas. It has shown that while poverty and hunger overlap, they are not identical. The information from household surveys is then used to examine some of the key characteristics of the poorest in different parts of the developing world, especially those living in ultra poverty. The characteristics chosen represent those that are both important and measurable in some comparable way across countries and settings. Given data constraints, we are limited in what we have been able to say about the characteristics of the poorest; however, we have established that the poorest are those from excluded groups, those living in remote areas with little education and few assets, and—in Asia—the landless. The next chapter considers some of the reasons these characteristics prevail among the poorest and some of the reasons those in ultra poverty become and stay poor.

# 4

## CAUSES OF PERSISTENT POVERTY AND HUNGER

In contrast to the thousands of lives depicted in the figures and tables of the previous chapters, we start this chapter by considering the life story of one family in Bangladesh. A group of IFPRI researchers visited Abdul and Ayesha Karim a number of years ago and the Karims' story is told in Box 4.1. Their story underscores the severity of poverty and hunger and highlights some of the reasons their deprivation was worse than that of others in their village. Remoteness from government services, sudden loss of their land, distress sales of other assets, and unemployment resulting from low productivity and hunger all contributed to the severity of their situation.

In the last few years, researchers have learned much about the causes of persistent poverty and hunger in the lives of Abdul, Ayesha, and others like them who are represented in the numbers in the previous pages. This chapter of the report reviews what has been learned. It draws on the literature on the causes of poverty and hunger and on the analysis of the causes of poverty and hunger in World Bank Poverty Assessments of the 20 countries considered in Chapter 3.

The location of a household—the country of residence and the location within a country—is found to have a large impact on potential household welfare. Section 4.1 of this chapter shows that a country's growth experience and its ability to translate that growth into poverty reduction varies from country to country, affecting the probability that a household will experience poverty and hunger. A person's country of residence determines his or her access to services, infrastructure, and markets, and thus determines the return an individual can expect to get on his or her assets. Perhaps even more importantly than this, the ability of a country to secure peace for its citizens is an essential precursor to well-being. The disparity in the incidence of poverty and hunger across countries presented in Chapters 2 and 3 attests to the importance of regional and country characteristics in determining poverty and hunger, as does the fact that economic migrants are the fastest-growing group of international migrants.[23] Section 4.2 highlights the importance of agroecological conditions and access to technologies, markets, and services in allowing households to live lives free of poverty and hunger.

**BOX 4.1 Causes of Poverty and Hunger in One Family**

Abdul Karim, about 35, is the head of a landless household. He lives with his wife, Ayesha, and their three children in Puthimari village of Chilmari Thana, one of the most distressed areas of Bangladesh. Abdul's household is among the many severely poor households in the village that were not covered by any government intervention program. The household was included in the control group of IFPRI's consumption and nutrition survey.

Abdul's one-room house, with walls made of kash (a tall, wild grass) and bamboo and a roof of straw, is too small for his family. It is clear that the household is in subjacent poverty. The severity of the family's malnutrition is evident from their skeleton-like features.

IFPRI field investigators Zobair and Farzana interviewed Abdul and Ayesha. "You can see our miserable condition. Yet we are not included in any of the government programs," Abdul said bitterly. "It is true that most of those who are getting rations are also poor, but none of them are as needy as we are."

"Two days ago, I worked on a neighbor's land, weeding his radish field. He gave me 5 taka, and a meal of rice and dal for the whole day's work," Abdul continued. "Yesterday, I went to him again, but he offered me only 3 taka and a meal. I accepted and worked from morning till evening." The day IFPRI visited the Karims, nobody in the family could find any work. Abdul had spent his 8 taka to buy about a kilogram of wheat, which Ayesha was frying in an earthen pot. "I soaked the wheat in salt water before frying," she said. "The wheat becomes hard and brittle after frying. This fried wheat is all we have for today's meal. From this, I have to save some for tomorrow also; we don't have money to buy more wheat or rice. Nobody wants to hire me or my husband for work because we are so weak. But if we can't find work, then we can't eat, and without eating we will become weaker."

Abdul nodded. "She is right. Aswin and Kartik [months in the lean season] are the most difficult months. Many children in this area die during this time. They are so weak that even simple diseases kill them," he said, looking at his own children. "But things will improve after a month during the aman rice harvest. Everybody will get work. Ayesha will parboil paddy and husk rice in farmers' houses."

"But what will happen to us next? The river will probably take away our house next year," said Ayesha anxiously. "We were not this poor when we got married. We had some land, and we produced enough rice for our small family during that time. But one night, there was a big land erosion and the rakkushi [a legendary animal, like a dragon] river swallowed our land. Except this house, we have nothing left now. Last month, I sold my gold nose pin to a neighbor for one-fourth the price my husband paid for it. With that money we bought some rice and wheat."

Abdul sold a mango tree earlier in the month for only 100 taka. "The tree could easily fetch 500 taka," he said. "Big and sweet mangoes used to grow on that tree. But the man who bought the tree cut it for firewood because it could go into the river during the next flood. You see, the river is the cause of all our misery," Abdul concluded.

As the interview ended, Biplab, Abdul's eight-year-old son, came running with a large and beautiful water hyacinth flower in his hand. He gave the flower to Farzana and said shyly, "Please come again." Farzana had managed to hold her tears during the interview. She could not hold them any longer.

*Source:* Ahmed (2000b).

Against this backdrop of institutions, technology, and infrastructure, there are causes of persistent poverty and hunger that operate at the individual or group level (considered in Sections 4.3 to 4.10). Two themes underlie many of these explanations: traps and exclusion.

The inability of poor households to invest in the education and assets of their children (see Section 4.5), the constrained access to credit for those with few assets (see Section 4.7), and the lack of productive labor of the hungry (see Section 4.8) are all indicative of the presence of a trap in which poverty begets poverty and hunger begets hunger. In some cases, initial poverty and hunger does entrap, which contradicts an alternate view caricatured by Bowles, Durlauf, and Hoff (2006, p. 1) that "initial poverty typically does not entrap; only those who don't make the effort remain in its clutches." One of the striking features of the regional comparisons presented in Chapter 2 is the high numbers of ultra poor in Sub-Saharan Africa and the slow improvement in reducing poverty in this region since 1990. This persistence of poverty and hunger is consistent with the existence of a poverty trap for very poor households.[24] While some studies find little evidence of poverty begetting poverty, a number of studies at the individual and household level provide clear evidence that poverty and hunger do put into play mechanisms that cause their persistence, suggesting that for some, poverty does entrap.[25] In these cases, poverty and hunger are inherited at birth, or result from unfortunate and unexpected events in the lifetime of an individual that can persist for many years (see Sections 4.3 and 4.4).

The systematic exclusion of certain individuals from access to resources and markets based on their characteristics increases the propensity of ethnic minorities, scheduled castes and tribes, women, and those who are sick and disabled to be poor. This tendency of certain groups to be excluded from institutions and markets that would allow them to improve their welfare changes only slowly over time and gives rise to persistent poverty and hunger.[26] These mechanisms are considered in Sections 4.9 and 4.10.

## 4.1 SLOW GROWTH, INEQUALITY, AND UNREST

### Growth and Inequality

Differences in average incomes between the poorest and richest countries in the world are immense and are directly attributable to the different growth experiences the countries have had since the industrial revolution, when the average incomes of countries across the world were pretty constant.[27] A number of cross-country studies concur that poverty reduction is more likely to take place in countries that experience economic growth.[28] Chapter 2 made clear that regions of the world that have experienced the most poverty reduction in recent years are also the regions of the world that have experienced the highest growth (East Asia and the Pacific and South Asia) and this is true on a country level as well. On average across countries, 1 percent of growth will bring a 2-3 percent reduction in the number of people living below the poverty line.[29]

There are many factors that influence a country's growth process, including resource endowments, institutions, access to markets, aid, terms of trade, commodity dependence, and many other factors. Rodrik and others suggest that the quality of institutions—institutions ranging from the legal system and protection of property rights to broader political institutions—is the most important determinant (Rodrik 2003).

However, although growth is good for the poor, it has not been found to be equally good in all countries. Growth explains only a quarter of the variation in reductions in poverty (Bourguignon 2003). The potential impact of 1 percent of growth on poverty reduction has been estimated to vary between 0 and 0.73 percentage points across 14 countries (Klasen and Misselhorn 2006).

The level of inequality in a country is one of the factors that affects the relationship between growth and inequality. Growth has been found to have less of an impact on reducing poverty in countries where inequality is high. This means that in countries where inequality is high, not only do the poorest and hungry have the least share of resources, they are also least likely to benefit from growth (Ravallion 2007).

The influence of growth on poverty and hunger also depends on whether the type of growth that occurs benefits poorer or richer households more. Section 2.2 showed that while the ultra poor have benefited the least from increases in incomes during the past 15 years, they did benefit at least a little in most regions of the world, which allowed some reductions in ultra poverty to be made. Growth in sectors in which the poor and hungry reside benefits them the most, and Chapter 3 showed that for much of the developing world that means growth in the rural sectors of the economy (such as agriculture).[30]

Although reductions in inequality rarely occur in practice without concurrent growth, reductions in inequality (through growth that favors the poor more than the rich or through redistributive measures) can reduce poverty. This is indicated by rough estimates that show that reducing the level of inequality in each region in the world by one standard deviation is enough to more than halve poverty in Sub-Saharan Africa and almost halve poverty in Latin America.[31] Some types of inequality are more likely to result in persistent poverty and hunger than are others. For example, removing market restrictions that keep inequality low by compressing the labor-market returns to schooling may ultimately help households escape poverty. However, inequalities resulting from inequalities in education, exclusion of certain groups on grounds of their ethnicity, or inequalities in access to credit and insurance make it hard for the welfare of the poorest to improve.[32] Good policy is crucial to both encouraging growth and reducing inequality.

### Unrest

Stable environments are also essential for helping households escape poverty and hunger. A third of those living in absolute poverty in developing countries live in countries defined as "difficult environments" due to conflict or state collapse. Of the 980 million people identified by Collier (2007) as living in 50 failing states, nearly three-quarters live in states that have recently been through, or are still in the midst of, a civil war (and 70 percent live in Africa).[33] Chapter 2 showed that most of the large outliers with comparatively high Global Hunger Index (GHI) scores, especially in Sub-Saharan Africa, are countries that have experienced long-lasting wars in the past 15 years. And even this is an incomplete picture, since those countries most affected by conflict—such as Somalia, Afghanistan, and Iraq—are those without poverty and hunger estimates. Conflict impacts poverty and hunger both during the conflict and after it has ceased, as evidenced by the experience of some of the countries considered here that have recently experienced conflict (Rwanda, Mozambique, and Sri Lanka). Hunger is also sometimes used as a weapon when combatants cut off food supplies with

the aim of starving opposing populations into submission.[34]

The most direct impact of conflict on well-being is the loss of human life. In addition to the immediate distress this causes, loss of life can have a long-term impact on a household's welfare because the loss of able-bodied members limits the household's earning ability and deprives children, the sick, and the elderly of their caregivers. In northeastern Sri Lanka (where civil conflict has been present for the past two decades), 1 of every 12 households reported that a family member was killed as a result of the conflict. Those who are the poorest experienced even higher losses, with 1 of every 7 households reporting a member killed.[35] In some cases, the poorest and most vulnerable are more likely to become combatants and risk loss of life. Sometimes they are forcibly recruited, but in Sri Lanka the rural poor are reported to be more likely to serve in the armed forces due to a lack of other opportunities to earn a living.[36]

When people are compelled to leave their homes as a result of conflict, they are cut off from their usual sources of income and food and become very vulnerable. In refugee camps, they are frequently subject to overcrowding, poor sanitary conditions, and inadequate food supplies. Outbreaks of micronutrient deficiency diseases rarely observed in populations in their normal environment have been frequently reported in refugee camps. This was the case, for example, among Mozambican refugees in Malawi in 1990.[37] The living conditions in the camps facilitate the spread of infectious diseases, including HIV infection, as was the case in Rwandan refugee camps set up as a result of the genocide that displaced half the Rwandan population.[38]

The disruption of markets, roads, crops, livestock, and land that warfare brings also has an immediate and long-term impact on the incomes of those in the affected areas.[39] Rwanda's Participatory Poverty Assessment highlighted how the genocide had set in place a vicious cycle of "low production, lack of seasonal savings, lack of inputs in subsequent seasons, and increasing food insecurity."[40] The destruction of livestock and the loss of life during the genocide had long-term economic impacts. In Sri Lanka, there has been some compensation for asset loss resulting from the civil war, but those who have not benefited from this are the poorest households.[41]

Provision of basic services is difficult during and after conflict when institutions are absent, many service providers are missing, and security cannot be guaranteed. Persistent poverty and hunger becomes more likely when basic services are absent. Schools are destroyed during conflict and teachers are killed, compromising the education of a whole generation, especially in long-lasting civil wars.[42] Healthcare services are also jeopardized. Deliberate destruction of healthcare facilities has been reported during conflicts in Mozambique, Liberia, and Sierra Leone, and more generally, healthcare systems suffer from a lack of public funding, a lack of medical supplies, and personnel losses during times of conflict.[43] In Rwanda, most of the trained workforce was killed or fled the country during the genocide.[44]

The impact of conflict on poverty and hunger in turn makes conflict more likely.[45] Regression estimates suggest that halving the income of a country doubles the risk of civil war. This and the fact that conflict is also likely to reoccur—half of all civil wars are post-conflict relapses—generate a "conflict trap" in which countries embark on a downward spiral of increasing impoverishment, hunger, and violence.[46]

Achieving peace, an equitable society, and economic growth are clearly important elements of a poverty and hunger reduction strategy. The remainder of this chapter examines the factors

that, given those broad conditions, have been shown to be important in determining whether a particular household in a given country will or will not experience poverty and hunger.

## 4.2 ADVERSE ECOLOGY AND REMOTENESS

In Chapter 3, we noted that locational variation in the prevalence of poverty and hunger within countries can be just as striking as that between countries; it is estimated that 76 percent of those living on less than $1 a day live in rural areas,[47] and the poorest are often located in certain geographic areas within countries: southwestern China, parts of northeastern India, northwestern and southern rural areas of Bangladesh, northern Ghana, and the Andean and Amazonian regions of Peru.

Extreme poverty in Peru, for example, is about six times higher in the Andes and more than four times higher in the Amazonian region than in the urban coastal areas.[48] In Ghana, a participatory poverty assessment indicated that the depth of poverty and vulnerability in the rural north is greater than in other rural areas, that serious food insecurity prevails for at least part of the year for nearly all households in the region, and that, unlike in the rest of the country, access to food predominates in local views of poverty.[49] This section explores whether some of these differences reflect the importance of a person's location in explaining his or her experience of poverty and hunger.

### Adverse Ecology

The regional patterns of poverty and hunger across the world and within countries show that the world's most deprived are those located in geographically adverse zones. Areas such as deserts, savannah, mountains, and swamps are characterized by harsh living conditions and often low productivity and higher incidence of untreatable disease. Upon dividing countries into three categories—tropical, arid, and temperate—the variations in yields across agroclimatic zones are clear. Average cereal yield in 1995 was 18,051 kilograms per hectare (kg/ha) in tropical areas, 18,540 kg/ha in arid areas, and 37,288 kg/ha in temperate areas.[50]

In adverse zones, the technologies available to increase productivity and fight the diseases that that affect humans, crops, and livestock lag behind the technologies that have been developed to control habitats in more temperate zones. For example, a study in West Africa showed that almost 100 percent of the increase in per capita food output since 1960 has come from an expansion of harvest area as opposed to the use of new technologies or farming methods.[51] Some of this results from a failure to adopt new methods when they exist, but to some extent it indicates little technological development. Of the 1,223 new drugs marketed worldwide between 1975 and 1996, only 13 were developed to treat tropical diseases.[52] As a result of low yields, greater risks of disease, and a higher prevalence of natural disasters, households located in less-favorable areas are more likely to be and remain poor.

In Ethiopia, the poorest live at altitudes of less than 1,800 meters or more than 2,400 meters and food-insecure regions are those that experience both the lowest and most variable rates of rainfall.[53] In Senegal, rural poverty is concentrated in areas where land availability is low because of population pressures, soil degradation, or saltwater intrusion.[54] In Bangladesh, the most severe poverty exists in areas of physical remoteness, areas that are prone to drought or flooding (such as the northwest), and the southern coastal region, which is vulnerable to cyclonic storms and high tidal waves.[55] In Guatemala, the poorest areas are remote areas with limited agricultural potential.[56]

This pattern has been found in other countries, too. Other things being equal, households in rural mountainous areas in southern China are less likely to escape poverty than households in the hills, while households in the hills are less likely to escape poverty than households on the plains. This reflects the fact that natural conditions for agriculture in China tend to be better in the plains than in the mountains or hills.[57]

The fact that the poorest live in these areas is not necessarily a coincidence; culturally devalued and impoverished groups are frequently driven to inhabit less-favorable lands by the dominant ethnic group or wealthiest households.[58] In Guatemala, for example, one impact of the expropriation of indigenous communal lands was to force indigenous peoples into marginal areas.[59] Similarly in Peru, indigenous peoples are concentrated in the less-favorable Andean and Amazonian regions.[60]

#### Remoteness

Frequently, the poorest regions of a country are not only ecologically disadvantaged, but are also the most remote, with the highest traveling time to the country's capital and main economic centers. A consistent characteristic of poverty among the 20 countries considered in Chapter 3 is that the poorest and most food-insecure households are those located furthest from roads, markets, schools, and health services.

The cost of buying or selling goods increases greatly for households located far from markets, so many households operate as subsistence farmers, growing food to meet their own consumption needs. Barter trade with neighboring households is possible, but it limits the types of goods that can be bought and sold. In rural Laos, barter trade was found to account for as much as 80 percent of trade in the remotest areas, and fell when villages had access to all-weather roads and were closer to major towns.[61] In the poor rural west of Timor-Leste, the nearest everyday market is approximately 26 kilometers away, compared to about 1.5 kilometers in the better-off rural east.[62]

In Ethiopia, the poverty assessment finds that remote rural areas are more likely to be poorer than the national average. Areas with high food insecurity have on average greater distances to food markets (7.4 km compared with 6.0 km in food-secure zones) and all-weather roads (15.7 km compared with 11.0 km in food-secure zones). Other things being equal, the increased distance to food markets, water, and transportation services lowers consumption.

In Bangladesh, poverty is severe in areas of physical remoteness, as indicated by the fact that seven rural districts are home to half of the country's severely stunted children (there are 64 districts in Bangladesh) while Dhaka is home to only 1 percent.[63] Enhancing accessibility by improving the surface of roads was found to reduce daily transport costs by 36-38 percent and fertilizer prices by 45-47 percent, and increase the average prices of the five main crops sold by 3-5 percent. Per capita consumption increased by 11 percent as a result.[64]

Remoteness also reduces households' access to public services. The poorest and hungry have the furthest to travel to reach basic education and health services. This increases the cost (and reduces the likelihood) of the poorest receiving education and increases the likelihood that they will suffer diseases that go untreated. In Zambia, the poorest are located far from secondary schools and hospitals; more than 55 percent of the poor stated that they did not access healthcare because it was too far away.[65] In Malawi, only 42 percent of the poorest households were within 5 kilometers of a health unit, as compared to 71 percent of the richest households.[66] In

Nicaragua, the incidence of extreme poverty is 20 percent higher in the central rural region. Only 9 percent of the roads in this region are paved and residents have to travel twice as far as the average Nicaraguan household to reach the closest healthcare service and primary school. Additionally, about three-quarters of the population in this region does not have electricity and more than one-third lives without access to safe water.

There are different reasons for remoteness. Easy access to roads and markets is more difficult in mountainous areas than in lowland areas, and at the country level, landlocked countries or countries located the furthest distance from export markets are likely to have lower incomes and lower growth rates than countries with sea ports or those closer to markets.[67] However, remoteness and lack of access to services can be the result not only of geographic factors, but also of political decisions. In the Dominican Republic, the dictator Rafael Trujillo avoided building any roads to villages in areas of dissent, and in Cameroon, President Ahmadou Ahidjo refused to pave the roads between the capital, Douala, and Bafoussam in the heart of the Bamileke region in order to limit the development of the region and more generally, to limit southern economic power.[68]

### 4.3 SUDDEN AND UNEXPECTED EVENTS

A distinct characteristic of countries with high poverty and hunger is the risk associated with everyday life. In Ethiopia alone, there were 15 droughts (and famines) between 1978 and 1998 that led to the displacement, injury, or death of more than 1 million people.

Unexpected events that cause ill health, a loss of assets, or a loss of income (often collectively referred to as shocks) play a large part in determining the fortunes of many people in the developing world. A study exploring welfare dynamics in rural Kenya and Madagascar found that every poor household interviewed could ultimately trace its poverty to an unexpected loss of assets or health.[69] Shocks play an important role in explaining poverty in South Asia, too. In 74 percent of the households that had fallen into poverty in the Indian state of Andhra Pradesh, serious illness was discovered to be one of the causes.

Unexpected events often hit harder once a household is already poor, ensuring that hunger and poverty remain persistent. In Peru, a third of poor households are never able to recover from a natural disaster, about twice the proportion of non-poor households.[70] In Pakistan and China, the consumption of households in the bottom income deciles fluctuated much more than the consumption of households in the upper income deciles, suggesting they were less able to protect themselves against shocks. In Ethiopia, fluctuations in adult nutrition were found to be larger for women and individuals from poorer households.[71]

In fact, the harsh blows these unexpected events inflict on the poorest is a distinguishing feature of what it means to be poor, as was highlighted in Voices of the Poor (Narayan-Parker et al. 2000):[72]

"The poor live at the whim and mercy of nature." Kenya 1997 (p. 45)

"In my family if anyone becomes seriously ill, we know that we will lose him because we do not even have enough money for food so we cannot buy medicine." Vietnam 1999 (p. 39)

"If you don't have money today, your disease will take you to your grave." Ghana 1995 (p. 42)

This is the nature of poverty—wealthier, more socially connected households are better able to protect themselves against unexpected misfortunes than are poor households—thus,

the fate of poor households is more strongly bound to the events it experiences.

Shocks have a permanent effect on households' welfare, lasting long after the event itself. Although an unexpected event can rapidly change the fortunes of a household, recovery tends to be gradual and often slow. Household incomes may take several years to recover from shocks and recovery is slower for the poor.[73] In Ethiopia, the long-term impact of the 1984–85 famine was considered for households in six villages. The drought was found not only to influence the level of poverty years later, but it also affected the rate at which the incomes of households that had been badly affected were improving many years later. Households at the 75th percentile of consumption loss during the 1984–85 famine experienced on average 16 percentage points less growth during the 1990s than those at the 25th percentile.[74] One reason for this slow increase in growth is that households sometimes have to sell their productive assets such as land and livestock in order to survive the hardship brought about by a shock (these are often referred to as distress sales, and in these cases the prices received are often much lower than their true value). This loss of assets reduces the opportunities available to a household for earning income and causes households to change their behavior in ways that make persistent poverty and hunger more likely (as seen in Section 4.7). With other types of shocks, such as ill-health or death of a family member, the household directly loses its ability to earn.

In addition to selling assets, poor households often adopt other drastic coping mechanisms that can have long-term impacts. In the face of reduced income or higher food prices and food scarcity, households often cut back on consumption. In Peru, one-fifth of poor households reduced consumption and another fifth reduced their savings/assets.[75] These were also common risk-coping strategies in Nicaragua.[76] Sometimes parents cut back on their consumption to protect the consumption of their children, but when the consumption of children is also cut back, it can have long-term consequences.[77] This was seen after the drought in Zimbabwe. Those who were children during the drought suffered malnutrition at a crucial age and as a consequence had lower adult heights and poorer educational outcomes. The impact on lower earnings was estimated at about 7 percent of lifetime earnings.[78] In a number of circumstances, the consumption of women and girls has been shown to be cut back before the consumption of male family members. Another drastic coping mechanism that parents often have to adopt is pulling children out of school when hardship strikes.[79] Both of these coping mechanisms show that when hardship strikes at critical ages, the impact can be very long lasting.

While the types of shocks that cause households to fall into and remain in poverty depend to some extent on the context, we see that more than any other shock, health shocks such as the long-term illness, disability, or death of an adult household member are large determinants of poverty. These are considered in further detail in the next section.

There are also many examples for the 20 countries considered here in which shocks due to weather or macroeconomic conditions have caused severe deprivation. The fact that these shocks affect a household and its neighbors simultaneously can contribute to the severity of their impact. Droughts, floods, and sudden price decreases in crops commonly produced for sale (or conversely price increases in crops commonly bought for consumption) are all examples of such shocks. In Pakistan, a significant proportion of variation in expenditure is explained by weather shocks.[80]

In Nicaragua, decreases in the coffee price between 1998 and 2001 caused consumption to fall by 16 percent among coffee-producing households. Although net primary enrollment rates increased by 10 percent on average among rural households, they declined by more than 5 percent among coffee-producing households, suggesting that coffee-producing households were responding to the decline in prices by taking their children out of school.[81] In Guatemala, coffee-producing households—which comprise some of the poorest households in the country—also reported responding to declines in the international coffee price by taking children out of school so that they could work, as well as decreasing their consumption and using their savings.

### 4.4 ILL HEALTH AND DISABILITY

Health shocks such as HIV/AIDS, malaria, tuberculosis, disfigurement or loss of limb, and leprosy can cause a household's fortunes to change rapidly. Not only does a household have to pay for the sick member to receive treatment, it also loses the income that could have been earned in the future. In addition, for illnesses such as HIV/AIDS and physical and mental disabilities, the illness is often the basis for exclusion from society, village institutions, and public services. As this quote from Barrett et al. (2006) shows, the impacts of health shocks are far ranging:

> "Some adverse effects are direct, as when economically active household members fell ill and subsequently had to stop working or even died and their earnings were lost or their absence came at a critical time in the cropping cycle, causing them significant seasonal losses from which they have been unable to recover. Other effects respondents mentioned frequently are indirect, as when children had to be pulled out of school for want of school fees due to the high costs of treating illness or funeral expenses, or when the family lost productive draught power, manure or milk production when it had to undertake ritual slaughter of livestock for a funeral."[82]

In villages in Kenya and Madagascar, health shocks causing the permanent injury, illness, or death of an adult household member were the most frequently cited reasons for households falling into poverty.[83] In one area of Kenya (Madzuu), health shocks were cited by nearly every household that was poor in 2002. In the Indian state of Andhra Pradesh, 74 percent of households that had fallen into poverty cited health and health-related expenses as being one of the four main reasons. Further examining the experience of these households through regression analysis, we see that households experienced declining fortunes when ill health occurred in combination with debt, offering some indication that one shock on its own will not cause a decline into poverty, but a shock at the wrong moment will.[84] In Bangladesh, illness, accident, or death in the family was the most frequently reported crisis for all households, but particularly so among households that had fallen into poverty or stayed in poverty (43 percent and 48 percent, respectively, for these households compared to 29 percent for households that were not poor during this period).[85] In Vietnam, long-term illness and disease was repeatedly mentioned in the participatory poverty assessment as a defining characteristic of poor families, with phrases such as "ill health," "chronic disease," and "becoming indebted to pay medical costs" being mentioned in all research sites.[86]

When adults of working age suffer from ill health and disability they become much less able to take on productive activities, especially the heavy-labor activities of agriculture production that are the province of many poor

households. Ill health can also result in additional costs being incurred for medical advice and treatment. The impact of ill health is often worse for poorer households on account of the fact that they are less likely to seek medical treatment even though their incidence of disease is higher. In Guatemala, for example, only 14 percent of children in the lowest quintile with diarrhea or acute respiratory infection see a doctor compared to 56 percent of children from families in the highest quintile.[87] Despite more severe health problems and higher malnutrition among the poorest in Vietnam, they are less likely to use health services or even treat themselves (34 percent of the poorest quintile compared to 37 percent of the richest) and the average number of health-service utilization visits per year is also lower (8 in the poorest quintile and 10 in the richest).[88]

#### Disability

Little evidence has been collected on the well-being of households with disabled adult members, but a recent study on this issue in Uganda found that the incidence of poverty was 15-44 percent higher in households with disabled heads. In urban areas, the probability of poverty among people who live in a household with a disabled head was 60 percent higher than for those in a household with a non-disabled head.[89] This confirms what has been found in qualitative studies. For example, participatory poverty assessments consistently found that the poorest of the poor were those with no control over labor resources, such as the disabled.

In many cases, physical and mental disability carries a stigma that is the basis for exclusion of these groups, and is an additional source of poverty and hunger. For example, when land was redistributed after Tajikistan's independence, those living in disabled households were less likely to receive land on account of the lack of productive labor in their household.[90] Disabled children also suffer greater deprivation. In Tanzania, children with disabilities have relatively low school attendance, such that by the age of 17, children with disabilities have missed 4 years of primary education compared to 1.7 years among children without disabilities.[91] In Nicaragua, there were also significantly lower school enrolment rates among disabled children.[92]

#### Elderly

As noted in Chapter 3, there are complex and dynamic links between demographic variables and poverty, but the higher reported incidence of poverty and hunger among elderly people arises from their inability to work and their resultant reliance on others. The elderly are also frequently excluded: "institutional policies in all countries regularly discriminate against people on the grounds of age, while popular opinion carries ingrained prejudices against older people and accepts the routine denial of their basic rights."[93]

In many countries with high poverty rates, care for the elderly is traditionally provided by the extended family, but this is not a perfect safety net, especially when the children of elderly people are too poor to support them or when adult children die from disease, as is increasingly the case with the spread of HIV/AIDS.

In Sub-Saharan Africa, more and more families contain only the young and the old because HIV/AIDS causes high mortality among the adults on whom these family members have traditionally depended. In 20 of 28 countries in Africa and Latin America, more than one-fifth of orphaned children were found to be living with their grandparents. This was the case for 40 percent of orphaned children in South Africa and Uganda, and more than 50 percent in Zimbabwe.[94] The financial burden of being

a primary caregiver again late in life can cause the elderly to sell assets or borrow money and can result in substantial poverty in these households. In Malawi, Uganda, and Zambia, the poverty rate among households containing only the elderly and children is 20 percent higher than the average. Other changes also limit the extent to which extended families are now able to provide and support for older people, including demographic changes that are contributing to the increasing aging of the world population, urbanization, and the shift to nuclear families.

### 4.5 THE INHERITANCE OF POVERTY

Poverty and hunger are often passed on from one generation to another. When poverty is experienced in childhood, it is likely to have long-term impacts because it affects the health and education outcomes that bear on an individual's future earning potential. Assets such as land are also often difficult to acquire other than through inheritance, and as a result, a lack of assets is another means by which poverty is passed on from parent to child.

Parental investments in their children determine the assets and educational attainment children take with them into adult life. But the time and budget constraints that parents face limits the extent to which they can invest in their children and the extent to which they can invest in their children equally. When incomes are tight, time may need to be dedicated to work rather than child care. In a Ghanaian study, children said that one of the worst consequences of poverty for them was the lack of time their parents had to show them love or answer questions.[95] When consumption supplies are limited, children suffer nutrition shortfalls and those who have higher earning potential (boys) may be given more food than children who are less likely to earn so much (girls). Shortfalls in consumption and nutrition requirements have particularly large impacts on young children, affecting height and cognitive development. As a result, nutrition shortfalls early in life have long-term impacts because they translate into lower adult heights, poorer educational outcomes, and consequently, lower adult earnings.[96]

When parents face both budget and credit constraints, they may not be able to invest in their children's education as much as they might otherwise choose to.[97] There is much empirical evidence from all parts of the world that when parents face credit constraints, low levels of income affect investments in education;[98] the tables presented in Chapter 3 show that to be true for the countries considered here. School fees can prevent children from attending school. A study in Zambia found that more than half of households whose children had dropped out of school cited an inability to afford school fees as the main reason. In Pakistan, the cost of schooling was often given as the reason for a child not going to school.[99] However, the cost of going to school can be a deterrent even when education is free because the cost of books, school uniforms, and traveling to school can be prohibitively high. For households with very little income, the opportunity cost of a child going to school when he or she could be undertaking productive work is also another reason many children do not progress beyond a few years of primary education. In Guatemala, about 500,000 children between the ages of 7 and 14 are employed and work about 30 hours a week, which seriously inhibits their ability to attend school.[100] The experience of Simon Aprianus Banamtuan, a 13-year-old Indonesian boy, provides a clear example of the dilemma faced by parents and children in this situation (see Box 4.2).

Holding other things constant, children from low-income households have been shown

**BOX 4.2 The Cost of Education**

"Simon Aprianus Banamtuan is 13 years old. As a student at an SD (primary school), he was always at the top of his class. His favorite subject is mathematics. "On my report card, I always received the top grade for mathematics," he says calmly. But his prowess is not limited to mathematics; he excels in all subjects, as shown by his Final School Exam (UAS), which placed him second in overall ranking at his school. But after completing his sixth-grade exam in 2004, Simon did not continue on to SMP (junior secondary school). His parents could not afford the entrance fee and the annual tuition fees. Despite there being an SMP not far from Simon's house and three other SMPs in the local district, Simon's family cannot make use of them. Instead of going to school, Simon now helps his neighbor by scaling his coconut trees to collect coconuts. For every10 coconuts he collects, Simon is given four. Since he usually collects 20 coconuts, this means he gets to keep 8. After gathering the coconuts, he accompanies his neighbor to the market to help sell them. If he manages to sell all 8 of his own coconuts at the market, Simon should receive a total of Rp 4,000, or Rp 500 for each coconut. … Although Simon is keen to continue his education, the topic of school is never discussed. But his father is already clearly aware of it: with obvious pride, Jonathan highlights the awards his son has achieved at school. He concedes that if Simon were to continue his education, his future would be brighter. With a hint of bitterness in his voice, Jonathan says that putting his bright, hardworking son through school is just a pipe-dream when the reality is that Simon is needed for work, no matter how modest his contribution."

*Source:* World Bank 2007b, pp. 80-81.

to be less likely to complete as many years of school as children from higher income households in Peru, Malaysia, Brazil, and Indonesia, and in Peru and Vietnam, children from households with lower income and fewer holdings of durable goods are more likely to fall behind in school.[101] Perhaps the clearest example of the direct link between household income and child education comes from studies in Brazil and India, which found that when poor households experienced sudden and unexpected falls in their income, children spent less time in school or were withdrawn from school altogether.[102] Being in a household with more siblings also reduces resources available for each child; a study in Bolivia and Guatemala found that children with more siblings in the house are more likely to repeat grades.[103] It is likely that the quality of the schooling received by children of poor parents is lower than that of other children in that they are more likely to go to public schools than to private schools and poor parents are often illiterate themselves and less able to determine how much their children are learning. A survey in India indicated that poor parents are less able to know whether their school-age children can read than richer parents.[104]

When parents own little land they can give very little land to their children. There is less empirical evidence on this given a lack of longitudinal data, but one study undertaken in the Philippines shows that parents who were credit constrained 20 years previously made significantly lower transfers of land and non-land assets to children.[105] One of the

ways in which parents give assets to children is by giving them assets at marriage. A study examining this issue in Ethiopia found that the correlation between parental wealth and child wealth at marriage is high.[106] Also, importantly, the assets and education a child is able to take into a marriage often influences the choice of partner, with the poor marrying the poor and the rich marrying the rich. The pairing of prospective partners in this way reinforces the passing of asset inequalities from one generation to the next.

The impact of parental income on investments in children in these ways causes poverty to be passed on from generation to generation since adults who were nutritionally deprived while young attain less, adults without education are more likely to be poor, and adults without land are more likely to face hunger.

### Orphanhood

Although having poor parents increases a child's vulnerability to poverty and hunger in later life, some of the most vulnerable children are those who have lost one or both of their parents. As well as being a distressing and traumatic experience in the life of a child, the loss of a parent also signifies the loss of a breadwinner in the household and sometimes a household dissolves as a result. A number of studies have shown that orphanhood can result not only in lower current consumption, but also stunting and reduced educational attainment, which causes the impact of orphanhood to last well into adult life. Stunting among orphans was observed in Tanzania and Uganda.[107] In Tanzania, orphans and foster children between the ages of 13 and 17 had significantly lower enrollment rates than children living with both their parents; in Rwanda, orphans were about 20 percent less likely to be enrolled in school than non-orphans by age 15.[108] An analysis of data on orphans in 10 African countries found orphans were less likely to be in school than the non-orphans with whom they lived.[109]

Existing datasets often make it difficult to fully attribute lower health and education outcomes to the impact of orphanhood rather than to other unobservable causes. However, a recent study undertaken in northern Tanzania that traced and surveyed children over 14 years found substantial impacts of orphanhood on height and educational attainment, indicating that orphanhood not only reduces the welfare of a child but increases the likelihood of poverty and hunger in adult life also. Almost one-quarter of the children interviewed had lost one or both parents in this 14-year period. Those who lost their mother were less likely to survive and when they did, they suffered a permanent height deficit of 2 centimeters and a persistent loss of one year of total years of education. In general, those children who lost their father did not suffer as much, but this was partly because they often did not live in the same household as their father before he died. Those children who did live in the same household as their father before their father died had two-thirds less schooling by adulthood as a result of his death.[110]

Orphaned children are also vulnerable to the risk of abuse, neglect, and exploitation. Teenage female orphans seem particularly at risk. The lack of parental protection often leads to a violation of rights to assets and property grabbing by others.[111] This means that orphaned children have fewer assets at adulthood than adults who were not orphans, and experience the increased chance of poverty and hunger that this implies. Orphanhood can often result in a life on the streets. Children on the streets have extremely low welfare, receive much less education, and are more exposed to health risks and prostitution, drug abuse, HIV infection, and crime.[112]

### 4.6 LACK OF EDUCATION AND SKILLS

Education improves welfare and reduces the likelihood of experiencing poverty and hunger in a variety of ways:

> Education can offer a means to get a better-paying, safer job; to understand the instructions on a bag of fertilizer or bottle of medicine; to follow price trends in the newspapers and keep accounts; to extend one's social network into those who influence policy; and to garner respect in one's own household and community.[113]

Empirically, education has been shown to have significant positive impacts on agricultural productivity, engaging in off-farm self-employment, getting a job, overall income, accessing credit, size of social network, political participation, using government services, own health, and child health outcomes. As a result of a lack of skills, the poor are often found in employment that does not require the high levels of specialized competence that take a long time to acquire.[114] Education also has an intrinsic value separate from whether or not it is a means by which people can increase their income. It is a fundamental part of increased capabilities.

Chapter 3 showed not only that children in poor and hungry families are less likely to go to school, but also that adults in poor families are less educated. Further analysis shows that this relationship between the education of adults and poverty persists even when controlling for other household characteristics. In Ethiopia, regression analysis shows that the poorest are those who have less education: other things being equal, an extra year of schooling increases consumption by 1.6 percent for men and 2 percent for women.[115] In Peru, diversification of household income is important in escaping poverty and hunger and yet, uneducated households are found to be less able to diversify. In Vietnam, households whose heads have higher education consume 28 percent more than those without, other things being equal. Correspondingly, the higher education of the spouse of the household head increases consumption by 43 percent.[116]

However, the importance of the contextual setting in determining the impact of low levels of education as a cause of poverty and hunger cannot be overstated. In situations where there are low returns to education, receiving higher levels of education may not help. In rural Pakistan, the relationship between education and higher income is insignificant, and in Bangladesh, education in the past has had a greater impact on reducing poverty and hunger in urban areas than in rural areas, predominantly because of greater labor market opportunities and returns to education in urban Bangladesh.[117] Additionally, when discrimination is present—such as discrimination against girls or discrimination against ethnic groups and indigenous peoples—the ability of education to improve welfare among those already disadvantaged in labor markets and social structures is limited. For instance, comparing households with higher secondary education and above in India shows that households from scheduled castes are more than twice as likely to be poor than non-scheduled households, and households from scheduled tribes are one and a half times more likely to be poor than non-scheduled households.[118] In Guatemala, analysis suggests that by relying on improvements in education alone, a Ladino woman would need 15 years of schooling to escape poverty, while an indigenous woman would require 23 years.[119]

### 4.7 ASSET POVERTY TRAPS

The tables in Chapter 3 clearly show that the poorest and hungry have fewer assets than better-off households. Given that asset levels are in many ways a different indicator of poverty, it is not surprising that we find that the poorest are those with less land, fewer livestock, less production and transport equipment, and less consumer durables. This section considers how a lack of assets can cause households to be persistently trapped in poverty and hunger. Owning few assets is a cause of initial and persistent poverty. We start by understanding the reasons for lack of access to land among poor households.

#### Landlessness

While factors such as a household's sociopolitical setting and the geographical environment determine the assets it most benefits from holding, for many of the world's poorest and hungry, being assetless is synonymous with being landless. Historically and currently, land plays a major role in the livelihoods of the vast majority of rural households. Where productivity of land varies within a region, the key question is not just how much land is owned, but also the quality of the land. In the countries considered in Chapter 3, it is clear that land ownership rates are always lower for the poor. This is particularly the case for the poorest in Asia. In Sub-Saharan Africa, the poorest often own some land—but not enough—and lack access to other key assets.[120] In Pakistan, 75 percent of the poor do not have any land of their own, and regression analysis shows land to be most important in reducing chronic poverty.[121] Regression analysis has also found that in Malawi, a household must have at least 0.54 hectares to generate the income necessary to reach the 40th percentile income cut-off, yet few of the poorest own that amount.[122]

The history of land rights is in many respects context specific and often complex, but in general there has been a move from communal patterns of land holding to more individualistic private property rights. However, access to land often comes through community membership rather than through the market. This was even found to be the case in recent land privatization efforts in Tajikistan in central Asia. During privatization, members of local governing clans helped themselves and their relatives gain access to land and assets, or gave more favorable leases to clan members.[123] In many countries across the world, land ownership rights are not given or transferred to women, which is a major source of the prevalence of poverty and hunger among women.[124]

In rural areas, little land is bought and sold, and land rental markets are weak.[125] Evidence from Africa suggests there are few economies of scale in crop production; rather, small family farms have been found to be more efficient than large ones. However, poor households rarely buy bits of land from larger farmers and if anything, the sales of land that are most commonly observed are distress sales made by poor farmers to large farmers in times of hardship. And most land is passed from one owner to another through inheritance. The inability of poor households to acquire land can be explained by their lack of access to credit and savings, the insurance value to large farmers of holding land, and the power large landlords enjoy when they choose not to sell land. These explanations are considered further in the next two subsections.

### Access to Credit and Asset Poverty Traps

Empirical studies have shown that optimal behavior and welfare dynamics change once a household falls below a certain level of assets, causing households to be engaged in behavior that traps them in poverty. We consider why this is the case in order to understand some of the means by which poverty can entrap.

When credit markets are limited, lenders usually require collateral (often in the form of land) from their borrowers. The poor lack land or other assets for collateral so are unable to take these loans, and lacking these loans they are often left in low-income activities that require little initial investment. The type of investment that high-return activities require is often large and indivisible, for example, improved cows for zero-grazing dairy production, irrigation for fruit production, or motorized vehicles for trading operations. In a cross-country study of the economic activities of the poor, Banerjee and Duflo show that many of the poor are engaged as entrepreneurs, they undertake many different types of activities (usually those with low start-up costs in terms of capital or acquisition of skills), and they undertake those activities on a small scale.[126] Studies in Senegal have found that the "distinguishing characteristic of economic activity of poor households is not the sector of activity, but the lack of capital with which the activity is performed."[127] Participatory poverty assessments in southern Ghana similarly pointed to a lack of access to capital as an impediment to improvements in well-being.[128] Measuring access to credit is difficult, but an indication of credit constraints is given by the fact that poor households are less likely than non-poor households to be granted loans (as is the case in Malawi, Nicaragua, and Peru).[129]

Sometimes loans are available to poor households, but without collateral the interest rates are much higher than elsewhere, making it difficult for the poor to pay back the loans. Those living on less than $1 a day in the Indian city of Udaipur were found to pay 3.84 percent interest per month on average compared to 3.13 percent among households living on $1–2 a day. Furthermore, interest rates from informal sources were lower by 0.40 percent per month for each additional hectare of land owned.[130]

When poor households are excluded from financial markets, the only option they have is to slowly accumulate savings. This slow accumulation strategy requires substantial short-term sacrifices for little immediate gain on the part of the households that already have very low consumption, since it is only when they have accumulated enough savings that they are able to invest in indivisible assets and enter into new activities with higher returns. For many of these households, using some of their precious few resources to save for very little immediate reward is just too difficult, and as a result, savings rates are often lower among the poor.[131] For example, poor households are three times less likely to save in Peru.[132] Without interventions to aid savings or access to credit, the very poverty of the poor prevents them from accessing credit markets or being able to save. As a result, they are often unable to take advantage of economic opportunities that may exist for their wealthier neighbors. In the face of poverty, opportunity proves not to be enough.

Empirical evidence of this type of asset-based poverty trap has been found among very poor households in Africa. Those with low asset levels in Kenya were found to be unable to "surmount liquidity barriers to entry into or expansion of skilled non-farm activities and so remain trapped in lower return … livelihood strategies" (Barrett, Bezuneh, and Aboud 2001, p. 15). In less-favored areas in Kenya and Madagascar, increasing returns to assets

(consistent with the presence of indivisible, highly remunerative investments) were found for households above rather than below the poverty line. In southern Ethiopia, poverty traps in livestock wealth were found to exist for pastoralists.[133] Evidence of asset-based poverty traps is also found in South Africa.[134]

Lack of access to credit can also result in another means by which low levels of assets cause poverty to endure. When households do not have access to credit or insurance markets, they are forced to insure themselves, often at considerable cost. One way for poor households to insure themselves is to limit their exposure to risk. The anticipation that something bad will happen for which one is unprepared can in this way change the type of earnings activities undertaken or the way assets are kept. For example, households may pass up a profitable opportunity that is considered too risky, diversify the types of economic activities pursued, or keep assets (as much as possible) in easily disposable forms. By limiting exposure to risk through these strategies, the poor tend to lower their average income, which reinforces long-run poverty.[135]

In Tanzania, households with few livestock were found to be more likely to grow low-risk, low-return potatoes than wealthier households. A shift into low-risk, low-return crops resulted in 20 percent lower incomes per unit of land for households in the lowest quintile compared to the richest quintile.[136] In India, households with lower levels of wealth are more likely to engage in low-risk, low-return activities, and more likely to hold low-risk, low-return assets and make investments that are more readily liquidatable.[137] As a result of undertaking less risky strategies, poorer households were indeed found to have less volatile incomes than richer households in northern Kenya.[138] Together, these studies suggest that the incomes of the poor could be 25-50 percent higher on average if they had the same protection against shocks as those with high asset levels.[139]

If asset-based poverty traps are present, we would expect to see households stubbornly holding onto assets at all costs to prevent themselves from falling beneath critical asset levels as much as possible. This is indeed what has been found. In Zimbabwe, those with fewer than two oxen tend to allow their consumption to fluctuate up and down in order to hold onto their assets, while those with more than two oxen sell the additional oxen in times of need to keep consumption constant.[140] In Ethiopia following the 1998 drought, the richest households sold their assets to ensure minimum consumption while poorer households stubbornly held onto their livestock, allowing consumption to fall.[141]

### The Social Power of Assets as a Poverty Trap

In addition to being excluded from credit markets, asset-poor households are often more likely to be excluded from various social networks that bestow resource advantages. While exclusion from political power can occur on the grounds of ethnicity, gender, or other prejudices (discussed below), it can also result from a lack of asset ownership. Large landholdings can give their owners special social status or political power.[142] According to Barrett and Foster (2007), "The most needy households, for example, may not have the same access to income smoothing or information networks as do better off households. Endogenous social arrangements can cause and perpetuate exclusionary mechanisms associated with persistent poverty."[143] In Tanzania, poorer households tend to have fewer people to turn to in times of need, and can only turn to other poor households, not richer households.[144]

As Shepherd (2007, p. 16) states, "political participation in some contexts can be more open to the 'assetted,' as assets act as status signals that grant 'permission' to speak in public." This has been found to be the case in a number of different settings. In Jamaica, wealthier and better-networked individuals dominated decisionmaking in participatory processes, and similar patterns have been found in Malawi, Nicaragua, and Zambia.[145] This is not necessarily true in all contexts; in India, for example, it is the most disadvantaged groups that are likely to attend local meetings.[146]

### 4.8 THE HUNGER TRAP

Hunger itself has its own dynamic. When an individual is severely malnourished, the lack of energy and the ill health it brings can entrap. This "hunger trap" is described by Dasgupta (1997):

> The picture of begging is one of behavioural adaptation with a vengeance. The account tells us that emaciated beggars are not lazy: they have to husband their precarious hold on energy. As we have seen, even the timeless model makes sense of these matters by showing how low energy intake, undernourishment, and behavioural adaptation that takes the form of lethargy, can all be regarded as being endogenously determined … 500 million people in Asia, Africa and Latin America are undernourished … The nutrition-productivity model I have sketched here offers an account of how this could have come about. More importantly, it offers an account of how it persists. (p. 30)

Evidence from a number of countries is found to be consistent with this hypothesis. In Colombia, height, weight, and lean body mass were found to be significantly correlated with the daily tonnage of sugarcane delivered by sugarcane cutters and loaders. The stature of Guatemalan laborers was found to be positively correlated with the quantity of coffee beans picked per day, the amount of sugarcane cut and loaded, and the time taken to weed a given area. In Brazil, height was found to have a strong and positive effect on market wages. In Sierra Leone, energy intake was found to have a positive effect on productivity up to about 5,300 kcal per day: a worker that consumed 5,200 kcal per day was twice as productive as one who consumed 1,500 kcal per day.

As indicated above, hunger has a particularly long-term impact on maintaining poverty when its victims are the young and children. Those who are hungry when young are likely to be poorer for longer. As Dasgupta (1997) stated:

> Mild to moderately wasted pre-school children under free-living conditions have been observed to spend more time in sedentary and light activities than their healthy counterparts. They have been found to rest longer and to play more often in a horizontal position … Little children by the wayside no more consciously husband their precious hold on energy than bicyclists solve differential equations in order to maintain balance. (pp. 20-1)

### 4.9 GENDER DISCRIMINATION

Tentative evidence that women are more likely to suffer poverty and hunger than men was presented in Chapter 3. For countries in Asia and Sub-Saharan Africa, there was some evidence that female-headed households are likely to be poorer. This is the case for a number of reasons discussed in this chapter of the report: women are less likely to be educated, have less ownership rights over land,[147] are more likely to suffer from HIV/AIDS, and are more likely to be discriminated against in the

provision of services and access to markets. In Malawi, female-headed households were poorer than other households and they also owned less land, had less access to credit markets, and owned fewer productive assets than other households.[148] In some cases, the reason women are disadvantaged is because they have less access to assets and resources, not because of other additional effects of gender. In Ethiopia, for example, female-headed households were found to be no poorer than households headed by males with similar demographic features, the same level of education, and the same access to land.[149]

However, female-headed households are a heterogeneous group comprising married women whose husbands have migrated, widowed women, and single or divorced women. The vulnerability of each of these types of female-headed households to poverty and hunger is not necessarily the same. For example, while female headship was not on its own related to poverty in the Ghanaian participatory poverty assessment, the combination of age, widowhood, and lack of adult children was frequently seen as being associated with chronic vulnerability.[150] Also, in Vietnam's participatory poverty assessment, women who had been divorced or deserted by their husbands were noted as particularly vulnerable in a number of sites.[151] In Malawi, the incidence of poverty is similar for single, divorced, and widowed women, but it is lower for married female household heads.[152]

Examining only the differences between male- and female-headed households hides the fact that within households headed by men, the welfare of women and girls is often lower than that of their male family members. While empirical evidence on this is limited, an IFPRI data study (noted in Chapter 3) found that at the individual level, women were poorer than men in 6 of 10 countries and significantly poorer in Ghana and Bangladesh. In a number of countries, statistics suggest that parents are less likely to invest in the schooling of their girls (although Appendix Tables A4.6 and A4.7 show that this is not universally the case). For example, there is substantial evidence of greater investment in boys' education than in girls' education in South Asia.[153] This is confirmed by the fact that the enrolment rate is as low as 21 percent for girls from poor families in rural Pakistan (compared to 38 percent for boys).[154] Micro-level studies in South Asia also show that women receive significantly less provision of medical care.[155]

The IFPRI study noted that cultural practices are a strong determinant of whether or not women are poorer than men. In Burkina Faso, for example, women who are subjected to onerous cultural practices and girls who have dropped out of school were identified as groups highly vulnerable to poverty.[156] In Ethiopia, the strength of traditional norms in impacting beliefs is seen in the fact that 85 percent of women in Ethiopia believe that a husband is justified in beating his wife for at least one of the following reasons: burning food, arguing with him, going out without telling him, neglecting the children, or refusing sexual relations. The disempowerment of women not only impacts the well-being of these women themselves, it is also highly correlated with the development outcomes of their children. The under-five mortality rate for children of women who did not accept any of the given reasons as justification for abuse was 154 out of 1,000 live births, but was more than 192 for children of women who accepted at least one reason—representing an increase of almost 40 more children per 1,000 live births.[157]

## 4.10 GROUP IDENTITY AND DISCRIMINATION

Although individual experiences and behavior are important in explaining why poverty persists, an explanation based on these reasons alone misses out on much of what causes poverty: the deliberate exclusion (current or historical) of particular groups of people from participating in the opportunities for betterment available to the society as a whole. There are relational features of deprivation. The Chronic Poverty Research Centre eloquently states this problem:

> The chronically poor are those trapped in unequal social relations that are so unjust that there is no or very limited opportunity for upwards social and economic mobility, such that they experience persistently high levels of poverty. These may be at national or international level, but in some cases are at local, community level, and may even be found within households.[158]

In the countries studied in Chapter 3, there are some groups considered separate from the majority that were found to have a consistently higher prevalence of poverty and hunger: ethnic minorities in Southeast Asia, hill tribes and scheduled castes in South Asia, indigenous groups in Latin America, and pastoralists and strangers in Sub-Saharan Africa.

The higher deprivation of one group vis-à-vis another is often the result of identity-based forms of disadvantage. These differences can often be explained by a political exercise of power by one group to exclude (or include on adverse terms) another, either legally or in reality, through the continued influence of processes of historical exclusion. This cause of poverty is one that is difficult to overcome, since elites may not want the change necessary to bring about an end to this cause of poverty.

### Identity and the Return to Assets

As the discussion on landlessness highlighted, identity can determine access to assets. Additionally, some groups of the poor find it harder to receive adequate returns to their assets (labor, land) and the goods they sell. This means that even when two groups own the same amount of assets, one group will still earn a lower income. While this may sometimes reflect individual differences, when it is systematically experienced by distinct disadvantaged groups it is likely to be a consequence of their socially excluded status.[159]

Unequal asset ownership explains a large part of the higher incidence of poverty among ethnic groups in Laos. The Lao majority have more land (and irrigation) than other ethnic groups and have a higher value of agricultural assets (average of 4.5 million kip in rural areas compared to 2-3.8 million kip for ethnic minorities). However, even controlling for asset endowments and village infrastructure, the Mon-Khmer remain poorer than the Lao.[160] In Vietnam, the per capita expenditures of ethnic minorities are 14 percent lower than those of Kinh or Chinese, even holding family size, asset ownership, education, and location constant.[161] Similarly, although the differences between indigenous and non-indigenous households result from differences in the endowments of both groups, analysis finds that holding asset endowments constant, indigenous households are still 11 percent more likely to be poor than non-indigenous households in Peru, and 14 percent more likely to be poor in Guatemala.[162] Regression estimates show a 42 percent gap in labor earnings between indigenous and non-indigenous males in Guatemala that cannot be explained by productive characteristics.[163]

In India, regression analysis has also shown that households from scheduled castes (SCs) are being rewarded less than their counter-

parts in non-scheduled households for similar jobs. Despite affirmative action taken by the government of India to ensure the rights of the SCs and the scheduled tribes (STs), the discrimination against these groups continues in many subtle ways throughout the country. For example, most SC/STs live in the village outskirts and are not permitted within the village communities beyond a certain time of the day. It was estimated that for SC households, 36 percent of the probability of being in the bottom income quintile came from a "discrimination factor;" for ST households it was 53 percent.[164]

#### Utilization of Services

Access to public services such as health, education, and transfers is important in reducing the likelihood of poverty and hunger. However, different groups often have very different access to services. For example, many urban migrants are often excluded from public services in cities as a result of being unregistered. Even when access is constant, discrimination at the point of delivery often results in certain groups utilizing these services less.

In Guatemala, indigenous children are less than half as likely to be enrolled in school as non-indigenous children, and a higher share of indigenous children report not having school books.[165] In Laos, it takes the Mon-Khmer three hours to travel to the nearest pharmacy compared to only one hour for the Lao, and even longer for other ethnic groups (4-6 hours). Net primary enrolment rates are 76 percent among the Lao, compared to 49 percent among the Mon-Khmer (and even less among the other ethnic groups).

The following story from the state of Madhya Pradesh in India provides a clear example of how different groups can have very different real access to basic services:

> If you go to primary school in Jabuya, the demographic division will be honestly reflected in class one: 85 percent will be tribals and 15 percent will be non-tribals. By the time you get to high school, the percentage is exactly reversed … Dalit girls drop out because of child labor and acute poverty but also because of the torture inflicted on them by fellow students. These girls tend to be bhangis, the ones who clean latrines and you don't need to be an expert on caste to know who the bhangi girls are because they are not allowed to sit with the rest of the class. They sit in the corner, near the door, where the shoes of the other students are kept. They are not allowed to sit on the pattis that other rural children sit on, they have their own sacks. When the girl enters the class, all the other children mock them and start singing "Bhangi aye hain" (the latrine-cleaner has come). The girl bursts into tears and runs away and refuses to go back to school.[166]

Access to political representation and social networks that help fill in for missing markets is also often heavily determined by group membership. In Peru, indigenous people have little political voice and as a result, while there has been general social progress over time, wage earners have more social protection than indigenous populations in rural areas.

#### Aspirations and Perceptions

More subtly, group membership can have a measurable impact on individual welfare by determining role models and peer groups. Successful role models of those with like identities are important in determining aspirations. Peer groups have an impact by reinforcing language or behavior that is different from that of actors with power (such as employers and law enforcers) and that is perceived as deviant,

dysfunctional, or unproductive.[167] By influencing both perceptions of others and aspirations, the group an individual belongs to can exert a strong influence on educational attainment, occupational choice, employment, and protection by the law, even when no explicit discriminatory behavior has taken place. Role models have been shown to be important in encouraging adoption of income-improving livelihoods in Ghana.[168]

The power of a history of discrimination and deprivation is highlighted in the following examples from India and Peru. In Uttar Pradesh, a recent study of Indian castes showed how a history of social and legal disabilities may have persistent effects on an individual's earnings through the impact of group membership on expectations. When caste was hidden, low-caste and high-caste students performed equally well on tests, but when caste was announced, low-caste groups performed less well by 23 percentage points. This was not because of lower self-confidence on the part of lower-caste students, but because low-caste children anticipated that when their caste was known, they would be treated prejudicially.[169] In Peru, the history of deprivation causes those households who are most excluded not to perceive it. Despite the huge gap in monetary poverty between indigenous and non-indigenous groups in Peru, only 22 percent of indigenous households said they considered their household to be poor compared to 23 percent of non-indigenous households.[170]

## 4.11 CHAPTER CONCLUSION

In this chapter we have considered some of the causes of persistent poverty and hunger found in numerous analyses, focusing mainly on the countries considered in Chapter 3. Sections 4.1 and 4.2 underlined the importance of the location of a household in determining its likelihood of experiencing poverty and hunger. Unexpected events in the life of a household—particularly health shocks—and lack of educational investments and assets passed on from previous generations of poverty were then shown to be a significant determinant. The last six sections of this review showed how group identity and the health, educational, and asset endowments of households can have persistent impacts on poverty by limiting their access to opportunities, credit, markets, services, and hope. Together, these sections suggest that interventions to address exclusion of groups, child malnutrition, lack of education, and low assets are essential to help the poorest move out of poverty.

# 5

# CONCLUSION

In this report we have sought to answer two crucial questions—who are the world's poorest and hungry, and why do poverty and hunger persist?—by identifying the regions of the world in which deprivation is most severe and noting where progress has been achieved, examining the characteristics of the extremely poor and hungry, and reviewing the causes of deprivation and its persistence. The overall goal of this research is to strengthen the empirical basis upon which policymakers can make informed policy choices for reducing hunger and extreme poverty.

## 5.1 REGIONS OF DEPRIVATION

Disaggregating those living on less than $1 a day into three groups according to their location below the dollar-a-day poverty line allowed us to consider the severity of poverty. Those in subjacent poverty live on just less than $1 a day (between $0.75 and $1), those in ultra poverty live well below $1 day (on less than $0.50), and those in medial poverty are in between (living on between $0.50 and $0.75). Using this disaggregation, we have shown that many of the world's 1 billion extremely poor people live in ultra poverty, and that progress in reducing poverty among this group has been slow.

While South Asia accounts for most of the developing world's subjacent and medial poor, Sub-Saharan Africa is home to three-quarters of all ultra poor—121 million people in Sub-Saharan Africa lived on less than a meager $0.50 a day in 2004. Although the Latin America and Caribbean region's share of dollar-a-day poverty is relatively small, its share increases with the depth of poverty.

Progress against poverty has been slowest in regions where poverty is most severe. The decline in the global poverty rate has been largely driven by East Asia and the Pacific, aided by South Asia. Indeed, East Asia and the Pacific have overachieved the Millennium Development Goal of halving poverty by 2015; between 1990 and 2004, the dollar-a-day poverty rate in the region fell from 29.8 percent to 9.1 percent. However, poverty rates stagnated in Sub-Saharan Africa (falling from 46.8 percent to 41.1 percent) and Latin America and the Caribbean (10.2 percent to 8.6 percent).

Overall, developing countries experienced larger reductions in subjacent and medial poverty than in ultra poverty. Disaggregating further, it is clear that in all major regions, changes in poverty benefited those closer to the poverty line more than those further away from it. Ultra poverty rates decreased less than they would have had everyone's income grown equally, especially in Sub-Saharan Africa and in Latin America and the Caribbean.

Progress in reducing hunger was measured with the help of the Global Hunger Index (GHI)—an index designed to capture three dimensions of hunger: lack of economic access to food, shortfalls in the nutritional status of children, and child mortality. The findings of the Global Hunger Index show that most hunger hot spots today are in Sub-Saharan Africa and South Asia.

In Sub-Saharan Africa, overall progress against hunger in the 1990s was slow. The proportion of people who were food-energy deficient decreased, but there was very little improvement in underweight in children and in the under-five mortality rate. The high under-five mortality rate echoes the high prevalence of ultra poverty in this region. South Asia made large strides in combating hunger in the 1990s, but despite the remarkable improvement in child nutritional status in South Asia, the region still has the highest prevalence of underweight in children in the world. Because it has a higher rate of child malnutrition than Sub-Saharan Africa, South Asia's GHI score is only slightly better than Sub-Saharan Africa's despite the fact that its dollar-a-day poverty rate is significantly lower—by about 10 percentage points. Why is South Asia's child malnutrition rate higher than Sub-Saharan Africa's, when it does so much better with respect to poverty reduction? Studies suggest that the low status of women in South Asia compared to Sub-Saharan Africa is at the root of the region's nutritional status gap.

The slow rate of reduction in ultra poverty, and components of the Global Hunger Index suggest that business as usual will not be sufficient to reach the most deprived within an acceptable period of time.

## 5.2 CHARACTERISTICS OF THE POOREST AND HUNGRY

We analyzed country-level survey data from 20 countries in Asia, Sub-Saharan Africa, and Latin America and the Caribbean to identify certain characteristics of the poorest and hungry. The characteristics we chose represent those that are both important and measurable in some comparable way across countries and settings. We also reviewed literature on the characteristics and causes of poverty in these countries.

We found that, in general the poorest are by and large also hungry, although not everyone classified as hungry lives on less than $1 a day. Looking at the characteristics of the poorest, we found that the poorest are those from excluded groups, those living in rural remote areas with little education, those with few assets, and—in Asia—those without land. Despite a global trend toward an increase in the proportion of poor in urban areas, incidences of poverty are higher in rural areas and there is a tendency toward greater rural–urban differences as poverty deepens. Additionally, the poorest and most food-insecure households are located furthest from roads, markets, schools, and health services. In each of the 20 countries there are some groups, considered separate from the majority, that have a consistently higher prevalence of poverty and hunger. Individuals in groups excluded from regional progress against poverty remain among the poorest

in Asia. In Latin America, indigenous peoples were also found to be overrepresented among the poor, and increasingly so further below the dollar-a-day poverty line. In nearly all study countries, the proportion of adult males without schooling is almost double or more among the ultra poor than among the non-poor, and children from poorer families were also found to be less likely to go to school.

### Causes of poverty and hunger

Our review of the literature on the causes of persistent poverty and hunger shows that the location of a household—its country of residence and its location within the country—has a large impact on potential household welfare. However, against the backdrop of institutions, technology, and infrastructure determined by a household's location, there are causes of persistent poverty and hunger that operate at the individual or group level. Two themes underlie many of these explanations: traps and exclusion. The inability of poor households to invest in the education and assets of their children, the constrained access to credit for those with few assets, and the lack of productive labor of the hungry are all indicative of the presence of a trap in which poverty begets poverty and hunger begets hunger. The systematic exclusion of certain groups from access to resources and markets also increases their propensity to be poor, and changes only slowly over time, also giving rise to persistent poverty and hunger.

The coincidence of severe and persistent poverty and hunger is consistent with the presence of a poverty trap existing for very poor households. When this is the case, then poverty and hunger inherited at birth—or resulting from unfortunate and unexpected events in the lifetime of an individual—can persist for many years. Indeed, unexpected events in the life of a household, especially health shocks, were found to have persistent effects and to explain the descent of many households into poverty.

Together, these findings motivate a focus on policies and programs that are particularly effective in improving the welfare of the world's poorest and hungry. The analysis suggests that interventions to insure the poor against health shocks, address the exclusion of certain groups, prevent child malnutrition, and enable investment in education and other capital for those with few assets are essential to help the poorest move out of poverty.

These findings also highlight the importance of improving our knowledge and understanding of who the world's poorest and hungry are. It is only with carefully collected, context-specific, and time-relevant data that it is possible to correctly design and evaluate policies and interventions for improving the welfare of the most deprived.

# Appendix 1

## REGIONAL AND GLOBAL POVERTY TRENDS: METHODOLOGY

The measures of poverty incidence and number of poor used in the analysis of regional and global poverty trends in Chapter 2 of this report come from PovcalNet. PovcalNet is an interactive computational tool that has been developed by a team at the World Bank Research Group to allow users to calculate poverty measures for different poverty lines and country groupings based on household survey data. The data provided are the same as the data used in Chen and Ravallion's estimates of global poverty (Chen and Ravallion 2007). Details on the methodology can be found in Chen and Ravallion (2004), but the main techniques and assumptions are summarized here.

Nationally representative household survey data are used to generate per capita consumption or income aggregates (in constant US PPP) for each household in a given country for a given year. These aggregates are then weighted by the size of the household and the number of people each household represents (from survey sample weights) to generate a distribution of individual consumption or income for each country. A parametric specification of the underlying Lorenz curve is then fitted for each distribution.[171] This specification is used by PovcalNet to allow the user to calculate different measures of poverty and inequality.

Currently, PovcalNet brings together more than 500 nationally representative household surveys from more than 100 countries across 23 years. In bringing together different types of data to generate standard measures of poverty, the tool addresses the following four issues:

- *Income versus consumption:* Measures of individual consumption are preferred to measures of individual income for measuring poverty. In more than half of the surveys, consumption aggregates are used (this is true for all the surveys in South Asia, Sub-Saharan Africa, and the Middle East and North Africa). In about one-quarter of the cases when income is used, it is possible to adjust the income measure by a ratio of the difference between the mean consumption and the mean income. In the remaining cases, unadjusted income data are used. The difference this makes was tested using surveys with both consumption and income data: consumption estimates of poverty are a couple of percentage points higher

than estimates from income data, but the difference is not statistically significant. For the regional estimates presented here, the main implication is that poverty measures in Latin America are likely to be lower by a couple of percentage points than they would be had more consumption data been available.

- *Actual versus tabulated data:* The most frequently used data were raw household survey data, but occasionally specially designed grouped tabulations were constructed from the raw data following the guidelines of the World Bank Research Group team. Details of the guidelines given and the use of group data are in Chen, Datt, and Ravallion (1994).
- *Interpolation of estimates:* Country estimates are available at three-year intervals between 1981 and 2004 (except that 2001 was used instead of 2002). However, household surveys are often conducted less regularly than every three years (nine countries have only conducted one household survey) and may take place in years other than those for which poverty estimates are made available. To generate estimates for the same years for each country, estimates from years in which household surveys were conducted are interpolated using estimates of growth in private consumption from national accounts data to adjust for changes in the mean (but not the shape) of the distribution. More details on the method used for interpolation are in Chen and Ravallion (2004).
- *Missing countries in regional and global estimates*: Estimates are based on the data that are available. For some regions, there is less coverage than for others and this should be taken into account when interpreting the regional and global estimates. The region with the least amount of coverage (74 percent of the population) is the Middle East and North Africa.

The basis of this data on household surveys and the care with which it has been compiled allows it to generate fairly accurate country and regional poverty estimates—to the extent that comparable cross-country estimates of poverty can be generated—for three-year intervals from 1981 to 2004. There is a trade-off between coverage and accuracy in bringing together this data; in general, the data are most accurate for the 1990s and early 2000s, given the time it takes for surveys to be processed and made available and the fact that survey coverage was weak in the 1980s. In this report, we only use data from 1990 onward, which means the trends presented are quite accurate.

## MEASURES OF DOLLAR-A-DAY, SUBJACENT, MEDIAL, AND ULTRA POVERTY

Using PovcalNet, estimates of regional headcount poverty incidence (in other words, the proportion of people in poverty) and numbers were obtained from 1990 to 2004 for dollar-a-day poverty (representing a US$1.08 PPP a day or US$32.74 PPP a month poverty line).

Two other regional estimates were also obtained: estimates for headcount poverty rates and numbers at poverty lines of US$0.81 PPP a day (US$24.56 PPP a month) and US$0.54 PPP a day (US$16.37 PPP a month). These were used with the US$1.08 PPP a day estimates to generate the following three classifications of poverty:

- *Subjacent poor:* those living on between US$1.08 PPP and US$0.81 PPP a day
- *Medial poor:* those living on between US$0.81 PPP and US$0.54 PPP a day
- *Ultra poor:* those living on less than US$0.54 PPP a day

### SUBJACENT, MEDIAL, AND ULTRA POVERTY DECOMPOSITION ANALYSIS

For each region, the change in the incidence and number of poor was further decomposed into changes in subjacent, medial, and ultra poverty incidences and numbers. The contribution of decreases in the incidence of each type of poverty is depicted in Figure 2.12 by simply comparing the reductions in incidence of each type of poverty.

To calculate the change in poverty that would have resulted from equal growth in all incomes, it was assumed that incomes within countries and regions were lognormally distributed (a common assumption in the inequality literature [see Bourguignon (2003) and Klasen and Misselhorn (2006)]) such that the distribution of income in 1990 was lognormally distributed with mean $\boldsymbol{y}$ and standard deviation σ. Bourguignon (2003) shows that in this case, the poverty rate, $\boldsymbol{P_t}$, can be calculated from only the mean and standard deviation of income by:

$$P_t(z) = \Pi\left[\left(\frac{\log z - \log y}{\sigma}\right) + \frac{\sigma}{2}\right] \qquad (1)$$

where **z** is the poverty line and $\Pi$ is the cumulative normal distribution. When incomes are lognormally distributed, the standard deviation can be calculated from the Gini coefficient of income (**G**) by:

$$\sigma = \sqrt{2}\Pi^{-1}\left(\frac{G+1}{2}\right) \qquad (2)$$

where $\Pi^{-1}$ is the inverse of the cumulative normal distribution.

Using (**1**) it is possible to determine the growth in income commensurate with the observed change in dollar-a-day headcount poverty between 1990 and 2004 by calculating the estimated level of mean income, $\bar{\boldsymbol{y}}_{2004}$, that would give the observed headcount poverty estimate of $\boldsymbol{P_{2004}}$ (**1.08**) if the standard deviation of the distribution had stayed the same ( $\sigma_{1990}$):

$$\log \bar{y}_{2004} = \log(1.08) - \left[\Pi^{-1}\left[P_{2004}(1.08)\right] - \frac{\sigma_{1990}}{2}\right]\sigma_{1990}$$

Using this estimate of $\bar{\boldsymbol{y}}_{2004}$, headcount poverty estimates $\bar{\boldsymbol{P}}_{2004}$ (**0.81**) and $\bar{\boldsymbol{P}}_{2004}$ (**0.54**) can be determined and from this, an expected change in subjacent, medial, and ultra poverty can be generated.

Country Gini Indices were taken from PovcalNet. For regions, the standard deviation of the regional distribution of income was taken directly from Besley and Burgess (2003). Milanovic's estimates of the distribution of world income from household survey data were used for an estimate of the Gini of the developing world (Milanovic 2002).

# Appendix 2

## A GLOBAL HUNGER INDEX: CONCEPT AND METHODOLOGY

Based on the conceptual framework presented in Figure A2.1, the Global Hunger Index (GHI, used in Chapter 2 of this report) was designed to capture several dimensions of hunger, defined as follows:

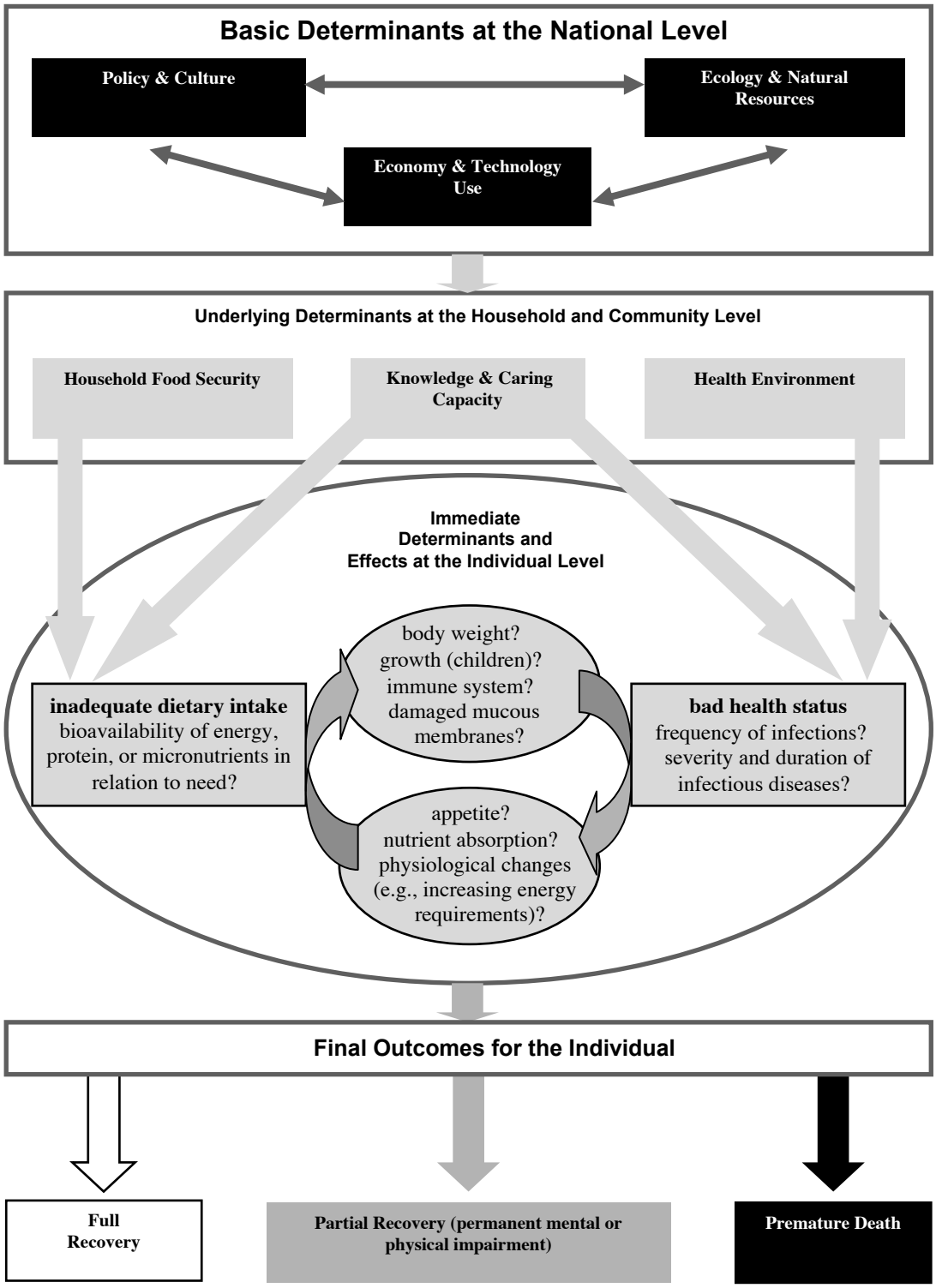
- insufficient availability of food (as compared to requirements),
- shortfalls in nutritional status, and
- premature mortality caused directly or indirectly by undernutrition.

This definition goes beyond food-energy deficiency at the household level, which is the focus of the Food and Agriculture Organization of the United Nations (FAO) measure of undernourishment[172] (FAO 1996a). Sufficient dietary energy availability at the household level does not guarantee that food intake meets the dietary requirements of individual household members, nor does it imply that health status permits the biological utilization of food. However, the outcomes of insufficient quantity, quality, or safety of food as well as the consequences of a failure to utilize nutrients biologically are encompassed in the above three-dimensional definition.

While it would be desirable to assign more than one indicator to each of the dimensions defined above, data availability is limited, especially for the prevalence of micronutrient deficiencies (often referred to as "hidden hunger"). Consequently, the following three indicators were selected to represent the three dimensions:

- the proportion of undernourished as estimated by FAO, reflecting the share of the population with inadequate dietary energy intake (the proportion of people who are food-energy deficient),
- the prevalence of underweight in children under the age of five, indicating the proportion of children suffering from weight loss and/or reduced growth, and
- the under-five mortality rate, partly reflecting the fatal consequence of the synergy between inadequate dietary intake and unhealthy environments.

**FIGURE A2.1 Determinants, Effects, and Outcomes of Hunger and Undernutrition**




Source: Adapted from UNICEF 1990, Smith and Haddad 2000, von Braun et al. 1998, Tomkins and Watson 1989.

All three indicators were selected to monitor progress toward the Millennium Development Goals (United Nations 2001).[173] A common feature of food-energy deficiency, underweight prevalence in children, and child mortality is that they are assumed to be associated with or—in the case of the latter two indicators—partly caused by micronutrient deficiencies. Thus, although no indicator of vitamin or mineral deficiencies can be included in the Index due to insufficient data availability, the GHI is expected to reflect micronutrient deficiencies to some extent.

The Index combines the percentage of people from the entire population who are food-energy deficient with the two indicators that deal with children under five. This ensures that both the situation of the population as a whole and that of children, a particularly physiologically vulnerable subsection of the population, are captured (Wiesmann 2006). Children's nutritional status deserves particular attention because malnutrition puts them at high risk of permanent physical and mental impairment and death (WHO 1997).

The proportion of people who are food-energy deficient and the prevalence of underweight in children both have the same shortcoming: they do not reveal the most tragic consequence of hunger: premature death (Wiesmann 2006). The same level of child malnutrition in two countries can have quite different effects on the proportion of malnutrition-related deaths among children, depending on the overall level of child mortality (Pelletier et al. 1994). This disadvantage of the indicator of child malnutrition is mitigated by the inclusion of the under-five mortality rate (Wiesmann 2006). Clearly, the mortality data comprise other causes of death than malnutrition, and the actual contribution of child malnutrition to mortality is not easy to track because the proximate cause of death is frequently an infectious disease (Pelletier et al. 1994). However, about 53 percent of deaths among children under five worldwide are attributable to malnutrition (Caulfield et al. 2004).

For aggregation into the Global Hunger Index, the three selected indicators are equally weighted; see Box A2.1 for details on the calculation and the data sources.

## LIMITATIONS OF THE GLOBAL HUNGER INDEX

It should be noted that there is no unambiguous way to derive weights or choose the aggregation function for the purpose of index calculation. The simplest possibility is usually equal weighting or "natural averaging" of the partial indicators of the Index. Principal components analysis (a special form of factor analysis that serves to condense information) is frequently used in order to derive weights from an empirical basis. This approach was chosen to explore options for weighting the GHI (see Wiesmann 2006). Each of the weights derived from principal components analysis for the three indicators is so close to one-third that it suggests equal weighting of the Index components. Exploring rank correlations of the GHI with index versions based on modified weights shows that the Index is not very sensitive to moderate changes in weighting factors (Wiesmann 2006).

Another option to modify the aggregation function of the index is the standardization of its components, which is usually applied to harmonize different measurement units (Szilágyi 2000). Even for indicators that are expressed in a common metric (such as the three GHI components that are all given as percentages), standardization may be advisable. Yet, despite the divergent ranges of the three GHI components, rankings based on index versions with standardized components essentially

### BOX A2.1 Calculation of the GHI and Data Sources

The calculation of GHI scores is restricted to developing countries and countries in transition for which measuring hunger is considered most relevant. Developed countries are not included, because hunger has been largely overcome in these countries, and because overconsumption is considered a much greater problem than a lack of food (see Wiesmann 2006 for the selection criteria). Table 1 below provides an overview of the data sources for the Global Hunger Index. The first column indicates the reference year of the GHI and the second column specifies the respective number of countries for which the Index can be calculated.

**Table 1—Data Sources for the Global Hunger Index (GHI)**

| GHI | Number of countries with GHI | Index components: Indicators | Reference years | Data sources |
|---|---|---|---|---|
| 1981 | 89 | -Percentage of undernourished | 1979-1981[a] | -FAO 1999, author's estimates |
| | | -Prevalence of underweight in children under five | 1977-1982[b] | -WHO 2006,[c] UN ACC/SCN 1993, author's estimates |
| | | -Under-five mortality rate | 1980 | -UNICEF 1995 |
| 1992 | 97 | -Percentage of undernourished | 1990-1992[a] | -FAO 2004, author's estimates |
| | | -Prevalence of underweight in children under five | 1987-1992[b] | -WHO 2006,[c] UN ACC/SCN 1993, author's estimates |
| | | -Under-five mortality rate | 1992 | -UNICEF 1994 |
| 1997 | 118 | -Percentage of undernourished | 1995-1997[a] | -FAO 2004, author's estimates |
| | | -Prevalence of underweight in children under five | 1993-1998[b] | -WHO 2006,[c] author's estimates |
| | | -Under-five mortality rate | 1997 | -UNICEF 1999 |
| 2003 | 116 | -Percentage of undernourished | 2000-2002[a] | -FAO 2004, author's estimates |
| | | -Prevalence of underweight in children under five | 1999-2003[b] | -WHO 2006,[c] author's estimates |
| | | -Under-five mortality rate | 2003 | -UNICEF 2005 |

[a] Three-year average.
[b] Latest survey in this period.
[c] The methodology applied for the WHO Global Database on Child Growth and Malnutrition is described in de Onis and Blössner (2003).

The Global Hunger Index is calculated as follows:

$$GHI = \frac{PUN + CUW + CM}{3},$$

when GHI = Global Hunger Index,
PUN = proportion of the population undernourished (in percent),
CUW = prevalence of underweight in children under five (in percent), and
CM = proportion of children dying before age five (in percent).

All three index components are expressed in percentages, and the results of a principal components analysis suggest equal weighting. Higher GHI scores indicate more hunger. The Index varies between a minimum of 0 and a maximum of 100. However, the maximum value of 100 would only be reached if all children died before their fifth birthday, the whole population was food-energy deficient, and all children under five were underweight. Likewise, the minimum value of 0 does not occur, because this would mean that 0 percent of people were food-energy deficient, that no child under five was underweight, and that no child died before his or her fifth birthday. Even the most highly developed countries have under-five mortality rates greater than 0.

contain the same information as the ranking of the GHI without standardization, again showing the robustness of the Index to modifications of its aggregation function (Wiesmann 2006).

Therefore, the preference for a particular set of weights (equal weights as opposed to any other possible set of weights) and the use of unstandardized index components should not give too much cause for concern. Whereas the weighting of composite indices tends to be a point of contention due to its unavoidable arbitrariness, investing time and resources in improving the database might often be more worthwhile than extensively discussing weights.

Weaknesses in the data used for the GHI have been discussed extensively in the literature. Concerns have been raised about the reliability of all three parameters FAO uses to estimate the proportion of undernourished (dietary energy supply per capita, derived from macro data on agricultural production, net trade flows and stock changes, and uses other than food consumption; the variation of dietary energy intakes across households; and minimum dietary energy requirements (see FAO 1996a). The lack of consideration of intra-household food allocation has also been criticized (Svedberg 1998). The validity of the data about children is restricted by sampling and estimation errors and possible small inadequacies in international reference standards (see Klasen 2007) and, in the case of the under-five mortality rate, is partly dependent on the reliability of government statistics.

However, the computation of the GHI is likely to decrease the impact of measurement errors in its three components (assuming that random measurement errors for the three indicators are independent of each other, given the different sources of the data). Nonetheless, a distortion of GHI values for a few countries due to unreliable data for at least one partial indicator cannot be excluded. However, to the extent that the GHI promotes a synopsis of food security and nutrition indicators, this may help to detect errors and inconsistencies within the datasets.

On a more general note, the virtue of using composite indices to condense information, which facilitates the use of statistics by policymakers and the public, is contrasted with the loss of detail due to aggregation. However, this argument applies only if an index is intended to replace its partial indicators. The GHI is meant to complement rather than substitute for existing food security and nutrition indicators, and the Index can be easily decomposed due to its simple construction (compare Figure 2.15 showing regional trends for the GHI and its components). In fact, the partial indicators of the GHI might be given greater attention if the Index is able to mobilize political will for improving food and nutrition security.

Whereas international indices are better suited than single indicators to capture multifaceted phenomena, the weighting of the components defines trade-offs that may not be in accordance with national priorities. Yet the robustness of the GHI to modifications in its weighting factors means that countries pursuing national priorities deviating from the relative importance attached to GHI components by the weights would not be significantly disadvantaged in terms of their ranking position. Also, as already mentioned, all three index components have been selected as target indicators for the Millennium Development Goals to which 189 countries have already committed themselves.

A more comprehensive discussion on the transformation, standardization, weighting, and aggregation of indicators for composite indices as well as the pros and cons of international indices can be found in Wiesmann (2004). Further details on the choice of indicators and the statistical properties of the GHI are reported in Wiesmann (2006). For a recent critique of FAO's indicator of undernourishment and the measurement of child malnutrition, see Smith, Alderman, and Aduayom (2006) and Klasen (2007).

# Appendix 3

## DATA AND METHODOLOGY FOR ANALYSIS OF "WHO ARE THE POOREST AND THE HUNGRY?"

Nationally representative household expenditure surveys were used to conduct an analysis of the incidence of poverty and hunger, the correlations among poverty and hunger, and the characteristics of the poor in 20 selected countries. Appendix 3 describes the data and methodology used in this analysis, which is presented in Chapter 3 of the report.

### DATA

The surveys were conducted using two- or three-stage stratified sampling designs, thus ensuring full geographic coverage and representativeness at the national level. When using complex sampling designs instead of simple random sampling, it is important to correct for the design so that any calculated statistics apply to the population group of interest (Deaton 1997). Here, the sampling weights provided with the surveys and the variables delineating the strata and community of residence for each household are used to correct for the sampling design in the calculation of all measures.

Table A3.1 gives some basic information on the surveys. Most were conducted in the latter half of the 1990s or early 2000s, with Peru (1994) being the only exception. For most, data collection was distributed evenly throughout a full year in order to capture seasonal variability. Some surveys took place over only three to six months, however. The number of study households retained after data cleaning ranges from 1,800 for Timor-Leste to 119,059 for India, the country with the largest population. More information on the data collection for the Sub-Saharan African and South Asian countries as well as Laos is given in Smith, Alderman, and Aduayom (2006) and Smith and Subandoro (2005). Information for the remaining countries can be found in World Bank (2005e), Vietnam Statistical Publishing House (2000), World Bank (2005f), World Bank (2003), Gobierno de Nicaragua (2001), and World Bank (1998b).

### METHODS OF CALCULATING INDICATORS OF POVERTY AND HUNGER

All of the datasets rely on expenditures data rather than monetary income to measure income, and thus poverty. The incidences of poverty for the poverty groups (subjacent, medial, and ultra) are calculated by determining whether each study household's per capita total expenditure falls within (or below, for the ultra poor) the cut-offs when denominated in local currencies. The local currency cut-offs are calculated based on each country's purchasing power parity (PPP) exchange rate in a base year, the base year Consumer Price Index (CPI), and the survey year CPI to calculate a PPP exchange rate for the survey year (Sillers, undated).[174] To take into account the fact that the cost of living is generally higher in urban than rural areas, mostly due to higher food and housing costs, urban poverty lines are adjusted upward using ratios of the urban to rural poverty lines reported in Ravallion, Chen, and Sangraula (2007). Note that for some countries, the dollar-a-day poverty rates reported here differ from those published by the World Bank (for example, World Bank 2007). This is due to the fact that per capita household expenditures have been subjected to different data cleaning protocols and, in some cases, calculated differently.

With respect to measurement of the hunger indicators, the surveys collected data on all foods acquired by households, including foods purchased, foods consumed out of own production, and in most cases, foods received in kind. The methods of data collection differ across the countries in a number of respects, including the number of foods for which data were collected, recall periods, how long the data were collected for each household, and whether the diary or interview method was used. Smith and Subandoro (2005) show that, despite these differences, estimates of the hunger measures from household expenditure surveys are largely comparable across the countries.

The data collected from households consist of: (1) expenditures on each food, and/or (2) quantities acquired of each food, which are often reported in non-metric or "local" units of measure, for example, bunches or cans. The first essential step in calculating incidences of food-energy deficiency is to convert the data to metric quantities (grams or kilograms). To do so, reported expenditures on each food are divided by the food's metric price; reported quantities in local units of measure are multiplied by the metric weight of one local unit of the food. The energy content of each food acquired can then be determined using food composition tables. Each household's total per capita dietary energy availability is calculated by summing up across the foods acquired. Finally, each person in each household is assigned a "1" if household dietary energy availability falls within (or below) the respective hunger group (again: subjacent, medial, or ultra) cut-off and a "0" otherwise. The survey design-corrected mean of the resulting dummy variable is the incidence of hunger for each hunger group (see Smith and Subandoro 2007). Calculation of the low diet-quality indicator takes place by allocating foods acquired to food groups, summing the number of groups to create a diet diversity score, and assigning people a "1" if their household's score is less than 5 and a "0" otherwise.

A more complete explanation of the data processing and cleaning for the Sub-Saharan African and South Asian countries as well as Laos can be found in Smith and Subandoro (2005) and Smith, Alderman, and Aduayom (2006). For the remaining countries, see World Bank (2005e), Vietnam Statistical Publishing House (2000), World Bank (2005f), World Bank (2003), Gobierno de Nicaragua (2001), and World Bank (1998b).

**TABLE A3.1 Basic Information on the Surveys**

| Country | Year of data collection | Name of survey | Data collection agency | Survey duration *(months)* | Number of study households[a] |
|---|---|---|---|---|---|
| **Sub-Saharan Africa** | | | | | |
| Burundi | 1998 | Enquête Prioritaire 1998 - Etude nationale sur les conditions de vie des populations | Institut de Statistiques et d'Etudes Economiques du Burundi | 6 | 6,585 |
| Ethiopia | 1999 | Household Income, Consumption and Expenditure Survey 1999/2000 | Central Statistical Authority of Ethiopia | 12[b] | 17,306 |
| Ghana | 1998 | Ghana Living Standards Survey 4 | Ghana Statistical Service | 12 | 5,940 |
| Kenya | 1997 | Welfare Monitoring Survey III | Central Bureau of Statistics | 3 | 10,599 |
| Malawi | 1997 | Integrated Household Survey 1997/98 | National Statistical Office | 12 | 10,522 |
| Mozambique | 1996 | Mozambique *inqerito nacional aos agregados familiareas sobre as condicoes de vida* | Instituto Nacional de Estatistica | 15 | 8,148 |
| Rwanda | 2000 | Enquête intégrale sur les conditions de vie des ménages au Rwanda | Direction de la Statistique du Ministère des Finances et de la Planification Economique | urban: 15<br>rural: 12 | 6,365 |
| Senegal | 2001 | Enquête Sénégalaise aupres des ménages II | Direction de la Prévision et de la Statistique | 4 | 6,007 |
| Zambia | 1996 | Zambia Living Conditions Monitoring Survey – I (1996) | Central Statistical Office | 3 | 11,583 |
| **South Asia** | | | | | |
| Bangladesh | 2000 | Household Income and Expenditure Survey 2000 | Bangladesh Bureau of Statistics | 12 | 7,426 |
| India | 1999 | National Sample Survey 55th Round Socio-Economic Survey | National Sample Survey Organization | 12 | 119,059 |

| | | | | | |
|---|---|---|---|---|---|
| Pakistan | 1998 | Pakistan Integrated Household Survey 1998/1999 | Pakistan Federal Bureau of Statistics | 16 | 16,094 |
| Sri Lanka | 1999 | Sri Lanka Integrated Survey 1999/2000 | Department of Census and Statistics | 12 | 7,484 |
| **East Asia** | | | | | |
| Lao PDR | 2002 | Lao PDR Expenditure and Consumption Survey III 2002/2003 | National Statistical Center | 12 | 8,089 |
| Timor-Leste | 2001 | Timor-Leste Living Standards Measurement Survey 2001 | | 4 | 1,800 |
| Vietnam | 1998 | Vietnam Living Standards Survey 1997-98 | General Statistical Office | 12 | 4,800 |
| **Central Asia** | | | | | |
| Tajikistan | 2003 | Tajikistan Living Standards Survey 2003 | | | 4,160 |
| **Latin America/Caribbean** | | | | | |
| Guatemala | 2000 | Encovi 2000 | Instituto Nacional de Estadistica-Guatemala | 6 | 7,276 |
| Nicaragua | 2001 | EMNV 2001 | Instituto Nacional de Estadistica-Nicaragua | | 4,191 |
| Peru | 1994 | Peru Living Standards Measurement Survey 1994 | Encuesta Nacional de Hogares Sobre Medicion de Vida | 3 | 3,623 |

[a] These numbers represent the number of households surveyed minus those dropped from the study during the data-cleaning process. See Smith, Alderman, and Aduayom (2006) and Smith and Subandoro (2005) for details.

[b] This survey was undertaken in two rounds of two to three months each representing key seasons of the annual cycle.

# Appendix 4

## TABLES

**TABLE A4.1a Budget Share: Living on Less Than $1 a Day (percent)**

| Countries | Food | Clothing | Fuel | Housing | Health | Education | All other expenses |
|---|---|---|---|---|---|---|---|
| **Sub-Saharan Africa** | | | | | | | |
| Burundi | 74.8 | 3.8 | 0.0 | 0.4 | 1.9 | 1.2 | 17.9 |
| Rural | 75.0 | 3.8 | 0.0 | 0.3 | 1.9 | 1.2 | 17.8 |
| Urban | 64.8 | 2.1 | 0.2 | 3.4 | 2.7 | 1.9 | 25.0 |
| Ghana | 66.7 | 6.5 | 3.1 | 2.7 | 2.8 | 3.7 | 14.5 |
| Rural | 68.9 | 6.6 | 2.6 | 2.5 | 2.8 | 3.1 | 13.6 |
| Urban | 60.3 | 6.3 | 4.4 | 3.3 | 3.1 | 5.5 | 17.1 |
| Malawi | 71.2 | 4.6 | 3.1 | 4.7 | 0.7 | 0.3 | 15.4 |
| Rural | 74.8 | 4.4 | 2.2 | 3.6 | 0.6 | 0.2 | 14.2 |
| Urban | 50.5 | 5.3 | 8.7 | 10.9 | 1.6 | 0.6 | 22.4 |
| Rwanda | 85.6 | 3.8 | 0.1 | 0.5 | 0.0 | 2.5 | 7.6 |
| Rural | 86.4 | 3.8 | 0.0 | 0.2 | 0.0 | 2.3 | 7.2 |
| Urban | 67.7 | 4.7 | 1.2 | 5.7 | 0.0 | 5.7 | 15.0 |
| Mozambique | 69.8 | 3.3 | 9.1 | 8.2 | 0.3 | 0.7 | 8.6 |
| Rural | 70.7 | 3.5 | 9.2 | 8.0 | 0.2 | 0.6 | 7.8 |
| Urban | 65.7 | 2.7 | 8.7 | 9.1 | 0.7 | 1.4 | 11.7 |
| Zambia | 71.9 | 4.2 | 4.3 | 0.9 | 1.9 | 1.6 | 15.2 |
| Rural | 74.6 | 4.2 | 3.3 | 0.2 | 1.7 | 1.2 | 14.8 |
| Urban | 63.8 | 4.0 | 7.1 | 3.2 | 2.4 | 2.6 | 16.9 |
| **South Asia** | | | | | | | |
| Bangladesh | 64.8 | 7.1 | 9.3 | 0.6 | 2.4 | 1.7 | 14.0 |
| Rural | 65.6 | 7.1 | 9.3 | 0.0 | 2.4 | 1.6 | 13.9 |
| Urban | 60.1 | 6.8 | 9.4 | 4.1 | 2.3 | 2.3 | 15.0 |
| India | 64.2 | 7.7 | 8.7 | 0.5 | 3.4 | 1.2 | 14.4 |
| Rural | 65.1 | 7.8 | 8.7 | 0.1 | 3.4 | 1.0 | 14.1 |
| Urban | 61.0 | 7.3 | 9.0 | 1.8 | 3.4 | 1.9 | 15.6 |
| Pakistan | 55.3 | 9.5 | 8.4 | 8.6 | 3.8 | 1.6 | 12.8 |
| Rural | 56.1 | 9.7 | 8.3 | 7.4 | 4.1 | 1.2 | 13.2 |
| Urban | 52.5 | 8.7 | 8.9 | 12.7 | 3.0 | 3.0 | 11.2 |
| **East Asia** | | | | | | | |
| Vietnam | 59.8 | 5.8 | 6.1 | 5.2 | 6.2 | 5.3 | 11.5 |
| Rural | 63.7 | 6.3 | 5.8 | 3.8 | 6.5 | 4.2 | 9.6 |
| Urban | 49.3 | 4.5 | 7.1 | 8.9 | 5.4 | 8.1 | 16.7 |
| **Central Asia** | | | | | | | |
| Tajikistan | 71.8 | 3.7 | 4.8 | 8.1 | 3.1 | 5.3 | 3.2 |
| Rural | 70.7 | 4.1 | 5.1 | 8.2 | 2.9 | 5.2 | 3.9 |
| Urban | 74.1 | 2.8 | 4.3 | 8.0 | 3.6 | 5.5 | 1.6 |
| **Latin America** | | | | | | | |
| Guatemala | 50.3 | 5.5 | 1.3 | 14.5 | 2.9 | 1.7 | 23.8 |
| Rural | 50.5 | 5.5 | 1.3 | 14.3 | 2.8 | 1.8 | 23.8 |
| Urban | 47.6 | 5.3 | 1.3 | 16.7 | 3.7 | 1.2 | 24.2 |
| Nicaragua | 51.6 | 3.2 | 4.9 | 13.7 | 5.4 | 5.5 | 15.7 |
| Rural | 51.5 | 3.7 | 4.0 | 14.9 | 5.9 | 5.1 | 14.9 |
| Urban | 51.7 | 2.8 | 5.8 | 12.5 | 4.9 | 6.0 | 16.3 |
| Peru | 66.5 | 6.4 | 5.7 | 8.6 | 0.4 | 2.1 | 10.3 |
| Rural | 72.3 | 6.1 | 3.6 | 7.4 | 0.4 | 1.8 | 8.4 |
| Urban | 54.0 | 7.0 | 10.3 | 11.2 | 0.3 | 2.9 | 14.3 |

**TABLE A4.1b Budget Share: Living on $1 a Day and Above (percent)**

| Countries | Food | Clothing | Fuel | Housing | Health | Education | All other expenses |
|---|---|---|---|---|---|---|---|
| **Sub-Saharan Africa** | | | | | | | |
| Burundi | 77.1 | 3.3 | 0.2 | 1.1 | 1.6 | 1.0 | 15.7 |
| Rural | 79.0 | 3.2 | 0.0 | 0.7 | 1.5 | 0.9 | 14.7 |
| Urban | 56.8 | 4.1 | 1.4 | 6.3 | 2.5 | 2.5 | 26.4 |
| Ghana | 60.4 | 7.1 | 3.0 | 2.1 | 3.4 | 3.2 | 20.8 |
| Rural | 64.7 | 7.0 | 2.3 | 1.5 | 3.4 | 2.4 | 18.7 |
| Urban | 53.3 | 7.3 | 4.2 | 3.0 | 3.3 | 4.5 | 24.3 |
| Malawi | 66.6 | 6.1 | 2.5 | 4.6 | 0.8 | 0.6 | 19.0 |
| Rural | 69.9 | 6.0 | 2.0 | 3.5 | 0.7 | 0.4 | 17.5 |
| Urban | 34.5 | 6.7 | 6.8 | 15.0 | 1.5 | 2.3 | 33.1 |
| Rwanda | 72.2 | 4.2 | 0.4 | 1.9 | 0.0 | 2.0 | 19.3 |
| Rural | 78.1 | 3.7 | 0.1 | 0.1 | 0.0 | 1.4 | 16.5 |
| Urban | 50.3 | 5.9 | 1.6 | 8.5 | 0.0 | 3.9 | 29.8 |
| Mozambique | 68.0 | 4.2 | 8.9 | 6.1 | 0.3 | 0.5 | 12.0 |
| Rural | 69.9 | 4.3 | 9.0 | 5.7 | 0.2 | 0.3 | 10.6 |
| Urban | 60.0 | 3.6 | 8.1 | 7.6 | 0.4 | 1.0 | 19.3 |
| Zambia | 61.4 | 8.2 | 5.3 | 2.2 | 2.9 | 2.1 | 17.9 |
| Rural | 63.2 | 9.5 | 5.4 | 0.6 | 2.8 | 1.7 | 16.8 |
| Urban | 59.0 | 6.6 | 5.1 | 4.2 | 3.1 | 2.7 | 19.3 |
| **South Asia** | | | | | | | |
| Bangladesh | 51.4 | 6.8 | 7.1 | 1.8 | 3.1 | 4.7 | 25.1 |
| Rural | 54.0 | 7.0 | 7.3 | 0.1 | 3.3 | 4.1 | 24.3 |
| Urban | 43.5 | 6.3 | 6.3 | 7.0 | 2.6 | 6.7 | 27.7 |
| India | 55.9 | 6.9 | 7.6 | 1.9 | 5.3 | 2.3 | 20.1 |
| Rural | 58.8 | 7.0 | 7.7 | 0.5 | 5.6 | 1.6 | 18.8 |
| Urban | 49.3 | 6.7 | 7.4 | 5.2 | 4.6 | 3.8 | 23.2 |
| Pakistan | 50.5 | 8.4 | 7.8 | 12.3 | 4.5 | 2.6 | 13.8 |
| Rural | 52.6 | 8.9 | 8.1 | 9.0 | 4.8 | 1.8 | 14.7 |
| Urban | 45.4 | 7.3 | 7.1 | 20.1 | 3.9 | 4.7 | 11.6 |
| **East Asia** | | | | | | | |
| Vietnam | 57.1 | 5.4 | 5.6 | 5.3 | 5.1 | 5.0 | 16.6 |
| Rural | 59.9 | 5.7 | 5.3 | 4.2 | 5.3 | 4.5 | 15.0 |
| Urban | 46.4 | 3.8 | 6.8 | 9.5 | 3.9 | 6.9 | 22.7 |
| **Central Asia** | | | | | | | |
| Tajikistan | 67.0 | 4.8 | 3.3 | 6.8 | 5.2 | 4.2 | 8.7 |
| Rural | 67.2 | 4.8 | 3.7 | 7.2 | 4.9 | 3.6 | 8.7 |
| Urban | 66.7 | 4.7 | 2.6 | 6.2 | 5.8 | 5.4 | 8.6 |
| **Latin America** | | | | | | | |
| Guatemala | 43.7 | 4.5 | 1.9 | 13.6 | 6.8 | 3.5 | 26.0 |
| Rural | 51.0 | 4.9 | 1.3 | 11.1 | 6.2 | 2.0 | 23.5 |
| Urban | 34.6 | 4.0 | 2.7 | 16.7 | 7.5 | 5.3 | 29.2 |
| Nicaragua | 44.1 | 3.4 | 4.8 | 13.8 | 6.6 | 6.3 | 21.0 |
| Rural | 48.6 | 3.5 | 4.3 | 11.2 | 9.3 | 4.6 | 18.5 |
| Urban | 42.7 | 3.3 | 4.9 | 14.6 | 5.8 | 6.8 | 21.9 |
| Peru | 47.9 | 5.7 | 5.6 | 15.5 | 0.9 | 4.0 | 20.4 |
| Rural | 65.4 | 6.3 | 3.4 | 7.9 | 0.8 | 2.0 | 14.2 |
| Urban | 41.9 | 5.4 | 6.3 | 18.1 | 1.0 | 4.6 | 22.7 |

**TABLE A4.1c Budget Share (subjacent poor) (percent)**

| Countries | Food | Clothing | Fuel | Housing | Health | Education | All other expenses |
|---|---|---|---|---|---|---|---|
| **Sub-Saharan Africa** | | | | | | | |
| Burundi | 78.41 | 3.61 | 0.02 | 0.32 | 1.35 | 1.04 | 15.26 |
| Rural | 78.62 | 3.63 | 0.01 | 0.27 | 1.32 | 1.03 | 15.12 |
| Urban | 67.63 | 2.34 | 0.25 | 2.94 | 3.08 | 1.59 | 22.18 |
| Ghana | 65.2 | 6.8 | 3.1 | 2.3 | 2.9 | 4.0 | 15.7 |
| Rural | 68.0 | 6.9 | 2.4 | 2.1 | 2.7 | 3.4 | 14.5 |
| Urban | 57.7 | 6.5 | 5.1 | 2.8 | 3.4 | 5.7 | 18.9 |
| Malawi | 71.0 | 5.2 | 2.7 | 4.2 | 0.8 | 0.3 | 15.8 |
| Rural | 74.2 | 5.1 | 1.9 | 3.3 | 0.6 | 0.2 | 14.6 |
| Urban | 46.5 | 5.8 | 8.5 | 11.4 | 2.0 | 0.8 | 25.1 |
| Rwanda | 82.9 | 4.0 | 0.1 | 0.5 | 0.0 | 2.2 | 10.2 |
| Rural | 84.2 | 4.0 | 0.0 | 0.0 | 0.0 | 1.9 | 9.8 |
| Urban | 64.1 | 4.4 | 1.5 | 7.7 | 0.0 | 6.2 | 16.1 |
| Mozambique | 70.0 | 4.0 | 8.4 | 6.6 | 0.2 | 0.6 | 10.2 |
| Rural | 71.0 | 4.2 | 8.3 | 6.5 | 0.2 | 0.5 | 9.3 |
| Urban | 64.9 | 2.9 | 9.0 | 7.2 | 0.4 | 1.2 | 14.4 |
| Zambia | 65.3 | 6.4 | 5.7 | 1.6 | 2.4 | 1.7 | 16.9 |
| Rural | 67.3 | 7.2 | 5.4 | 0.3 | 2.4 | 1.3 | 16.1 |
| Urban | 61.6 | 4.9 | 6.3 | 4.0 | 2.5 | 2.5 | 18.2 |
| **South Asia** | | | | | | | |
| Bangladesh | 63.1 | 7.1 | 8.9 | 0.7 | 2.7 | 2.1 | 0.1 |
| Rural | 64.1 | 7.2 | 9.0 | 0.0 | 2.7 | 2.0 | 0.1 |
| Urban | 57.5 | 6.8 | 8.7 | 4.6 | 2.4 | 2.9 | 0.1 |
| India | 64.0 | 7.5 | 8.5 | 0.5 | 3.7 | 1.2 | 14.6 |
| Rural | 64.9 | 7.6 | 8.4 | 0.1 | 3.7 | 1.0 | 14.3 |
| Urban | 60.4 | 7.1 | 8.8 | 2.2 | 3.8 | 2.0 | 15.8 |
| **East Asia** | | | | | | | |
| Vietnam | 59.3 | 5.9 | 6.0 | 5.2 | 5.8 | 5.8 | 12.0 |
| Rural | 62.7 | 6.5 | 5.6 | 3.9 | 6.2 | 4.7 | 10.3 |
| Urban | 49.1 | 4.2 | 7.1 | 9.0 | 4.7 | 8.9 | 17.1 |
| **Latin America** | | | | | | | |
| Nicaragua | 51.3 | 3.6 | 5.0 | 11.9 | 5.7 | 5.5 | 17.1 |
| Rural | 52.5 | 4.0 | 3.7 | 11.6 | 6.8 | 4.6 | 16.8 |
| Urban | 50.5 | 3.3 | 5.7 | 12.1 | 5.0 | 6.1 | 17.3 |

**TABLE A4.1d Budget Share (medial poor) (percent)**

| Countries | Food | Clothing | Fuel | Housing | Health | Education | All other expenses |
|---|---|---|---|---|---|---|---|
| **Sub-Saharan Africa** | | | | | | | |
| Burundi | 77.44 | 3.54 | 0.01 | 0.3 | 1.64 | 1.23 | 15.84 |
| Rural | 77.58 | 3.55 | 0.01 | 0.27 | 1.64 | 1.22 | 15.73 |
| Urban | 64.57 | 1.99 | 0.25 | 3.02 | 2.2 | 1.95 | 26.02 |
| Ghana | 67.9 | 6.3 | 3.0 | 2.8 | 2.8 | 3.5 | 13.7 |
| Rural | 69.9 | 6.4 | 2.7 | 2.5 | 2.9 | 2.8 | 12.9 |
| Urban | 62.5 | 6.1 | 4.0 | 3.6 | 2.7 | 5.4 | 15.7 |
| Malawi | 71.8 | 4.2 | 3.3 | 4.7 | 0.7 | 0.2 | 15.1 |
| Rural | 75.9 | 3.9 | 2.2 | 3.6 | 0.6 | 0.2 | 13.6 |
| Urban | 51.4 | 5.5 | 8.4 | 10.2 | 1.4 | 0.7 | 22.5 |
| Rwanda | 85.4 | 3.6 | 0.1 | 0.3 | 0.0 | 1.6 | 9.1 |
| Rural | 86.2 | 3.5 | 0.0 | 0.1 | 0.0 | 1.5 | 8.7 |
| Urban | 67.5 | 4.7 | 1.3 | 4.7 | 0.0 | 4.8 | 17.0 |
| Mozambique | 70.0 | 3.5 | 9.7 | 7.5 | 0.3 | 0.7 | 8.3 |
| Rural | 70.8 | 3.5 | 9.7 | 7.4 | 0.2 | 0.6 | 7.8 |
| Urban | 65.8 | 3.2 | 9.8 | 8.1 | 0.6 | 1.3 | 11.2 |
| Zambia | 69.4 | 5.3 | 4.8 | 1.1 | 1.9 | 1.6 | 15.9 |
| Rural | 71.8 | 5.6 | 4.0 | 0.2 | 1.7 | 1.2 | 15.5 |
| Urban | 63.4 | 4.4 | 6.9 | 3.3 | 2.4 | 2.6 | 17.0 |
| **South Asia** | | | | | | | |
| Bangladesh | 66.3 | 7.1 | 9.4 | 0.6 | 2.1 | 1.4 | 0.1 |
| Rural | 67.0 | 7.1 | 9.4 | 0.0 | 2.2 | 1.3 | 0.1 |
| Urban | 62.2 | 6.8 | 9.7 | 4.1 | 2.0 | 1.9 | 0.1 |
| India | 65.4 | 7.6 | 9.0 | 0.4 | 3.0 | 1.0 | 13.7 |
| Rural | 66.3 | 7.7 | 9.0 | 0.0 | 2.9 | 0.8 | 13.3 |
| Urban | 62.4 | 7.3 | 9.2 | 1.4 | 3.0 | 1.7 | 15.0 |
| **East Asia** | | | | | | | |
| Vietnam | 61.3 | 5.6 | 6.3 | 5.1 | 6.8 | 4.3 | 10.6 |
| Rural | 65.7 | 5.9 | 6.0 | 3.6 | 7.1 | 3.3 | 8.3 |
| Urban | 50.1 | 4.7 | 7.1 | 8.8 | 5.9 | 6.7 | 16.6 |
| **Latin America** | | | | | | | |
| Nicaragua | 52.8 | 3.1 | 4.6 | 12.2 | 5.6 | 5.7 | 15.9 |
| Rural | 53.2 | 3.8 | 3.3 | 12.5 | 6.5 | 5.2 | 15.6 |
| Urban | 52.4 | 2.6 | 5.8 | 12.1 | 4.8 | 6.2 | 16.1 |

**TABLE A4.1e Budget Share (ultra poor) (percent)**

| Countries | Food | Clothing | Fuel | Housing | Health | Education | All other expenses |
|---|---|---|---|---|---|---|---|
| **Sub-Saharan Africa** | | | | | | | |
| Burundi | 69.5 | 4.2 | 0.0 | 0.4 | 2.5 | 1.4 | 22.0 |
| Rural | 69.5 | 4.3 | 0.0 | 0.4 | 2.5 | 1.4 | 21.9 |
| Urban | 60.7 | 1.9 | 0.0 | 4.3 | 2.7 | 2.2 | 28.2 |
| Ghana | 68.6 | 6.1 | 3.0 | 3.8 | 2.8 | 3.0 | 12.7 |
| Rural | 69.6 | 6.2 | 2.9 | 3.6 | 2.7 | 2.6 | 12.4 |
| Urban | 64.4 | 5.9 | 3.5 | 4.7 | 3.0 | 4.7 | 13.8 |
| Malawi | 70.8 | 3.5 | 4.2 | 5.8 | 0.7 | 0.2 | 14.7 |
| Rural | 74.7 | 3.3 | 3.0 | 4.5 | 0.5 | 0.2 | 13.9 |
| Urban | 55.4 | 4.2 | 9.2 | 11.2 | 1.5 | 0.4 | 18.0 |
| Rwanda | 87.1 | 3.9 | 0.0 | 0.6 | 0.0 | 3.3 | 5.0 |
| Rural | 87.8 | 3.8 | 0.0 | 0.4 | 0.0 | 3.2 | 4.8 |
| Urban | 71.2 | 5.0 | 0.8 | 4.7 | 0.0 | 6.3 | 12.1 |
| Mozambique | 66.7 | 2.7 | 9.7 | 11.7 | 0.4 | 0.9 | 7.9 |
| Rural | 66.8 | 2.9 | 10.4 | 11.6 | 0.2 | 0.7 | 7.4 |
| Urban | 66.4 | 2.0 | 7.4 | 12.0 | 0.9 | 1.6 | 9.7 |
| Zambia | 76.0 | 2.6 | 3.4 | 0.6 | 1.7 | 1.5 | 14.2 |
| Rural | 78.4 | 2.6 | 2.3 | 0.2 | 1.5 | 1.3 | 13.7 |
| Urban | 65.8 | 2.9 | 7.8 | 2.4 | 2.3 | 2.8 | 16.0 |
| **South Asia** | | | | | | | |
| Bangladesh | 66.3 | 7.0 | 10.7 | 0.5 | 2.5 | 1.1 | 0.0 |
| Rural | 67.1 | 6.9 | 10.7 | 0.0 | 2.3 | 1.0 | 0.0 |
| Urban | 62.8 | 7.3 | 10.8 | 2.5 | 3.3 | 1.2 | 0.1 |
| India | 59.5 | 10.4 | 9.5 | 0.2 | 2.8 | 1.4 | 16.3 |
| Rural | 59.8 | 10.8 | 9.5 | 0.0 | 2.8 | 1.3 | 15.8 |
| Urban | 58.8 | 9.2 | 9.4 | 0.8 | 2.6 | 1.7 | 17.5 |
| **East Asia** | | | | | | | |
| Vietnam | 57.9 | 4.9 | 7.2 | 6.2 | 8.5 | 4.9 | 10.3 |
| Rural | 67.1 | 4.7 | 7.2 | 3.5 | 8.3 | 2.3 | 6.9 |
| Urban | 48.2 | 5.2 | 7.2 | 9.1 | 8.8 | 7.6 | 13.8 |
| **Latin America** | | | | | | | |
| Nicaragua | 50.8 | 3.1 | 5.0 | 16 | 5.1 | 5.4 | 14.6 |
| Rural | 50.1 | 3.6 | 4.5 | 17.6 | 5.3 | 5.2 | 13.7 |
| Urban | 52.0 | 2.4 | 5.9 | 13.4 | 4.8 | 5.7 | 15.8 |

**TABLE A4.2 Demographic Composition and Female-Headed Households: Above and Below $1 a Day**

| Countries | Above $1 a day | | | Below $1 a day | | |
|---|---|---|---|---|---|---|
| | Household size | Total dependency ratio | Female-headed household | Household size | Total dependency ratio | Female-headed household |
| | *(number)* | *(percent)* | *(percent)* | *(number)* | *(percent)* | *(percent)* |
| **Sub-Saharan Africa** | | | | | | |
| Burundi | 4.4 | 105.1 | 22.1 | 5.5 | 148.4 | 30.4 |
| Rural | 4.4 | 107.7 | 22.5 | 5.5 | 148.4 | 30.3 |
| Urban | 4.7 | 77.3 | 18.0 | 6.2 | 142.4 | 35.9 |
| Ghana | 3.9 | 91.3 | 32.3 | 6.0 | 150.1 | 31.2 |
| Rural | 4.1 | 101.4 | 30.7 | 6.1 | 153.5 | 28.5 |
| Urban | 3.5 | 75.1 | 35.1 | 5.7 | 140.3 | 39.0 |
| Malawi | 4.1 | 90.5 | 23.9 | 5.2 | 135.1 | 28.6 |
| Rural | 4.1 | 94.3 | 24.6 | 5.2 | 142.5 | 31.0 |
| Urban | 3.8 | 55.9 | 17.3 | 4.9 | 93.4 | 15.2 |
| Rwanda | 4.5 | 86.0 | 27.4 | 5.2 | 126.0 | 34.1 |
| Rural | 4.3 | 88.5 | 28.5 | 5.2 | 125.8 | 33.9 |
| Urban | 5.0 | 76.8 | 23.3 | 5.8 | 131.4 | 38.1 |
| Mozambique | 4.1 | 85.7 | 23.3 | 5.8 | 138.9 | 19.3 |
| Rural | 3.9 | 85.2 | 23.9 | 5.8 | 137.9 | 18.2 |
| Urban | 5.1 | 87.9 | 20.9 | 6 | 143.4 | 24.2 |
| Zambia | 4.0 | 73.3 | 23.0 | 5.6 | 122.1 | 24.7 |
| Rural | 3.7 | 79.1 | 26.1 | 5.4 | 125.4 | 26.4 |
| Urban | 4.3 | 66.4 | 19.1 | 6.4 | 112.4 | 19.3 |
| **South Asia** | | | | | | |
| Bangladesh | 6.2 | 83.2 | 6.5 | 6.1 | 122.5 | 6.0 |
| Rural | 6.3 | 87.9 | 6.0 | 6.0 | 124.6 | 5.7 |
| Urban | 5.9 | 68.8 | 7.8 | 6.2 | 110.2 | 7.4 |
| India | 4.5 | 66.9 | 10.2 | 5.8 | 111.0 | 9.1 |
| Rural | 4.7 | 72.4 | 10.5 | 5.8 | 113.7 | 8.9 |
| Urban | 4.1 | 53.9 | 9.4 | 5.8 | 101.1 | 9.9 |
| Pakistan | 6.6 | 115.9 | 8.4 | 8.9 | 180.4 | 4.6 |
| Rural | 6.6 | 123.7 | 8.8 | 8.8 | 185.4 | 4.0 |
| Urban | 6.5 | 96.9 | 7.5 | 9.3 | 162.9 | 7.0 |
| Sri Lanka | 4.4 | 61.8 | 17.1 | 5.5 | 79.9 | 22.1 |
| Rural | 4.4 | 61.9 | 16.3 | 5.4 | 81.2 | 21.6 |
| Urban | 4.6 | 60.8 | 22.2 | 6.5 | 67.2 | 27.6 |
| **East Asia** | | | | | | |
| Vietnam | 5.2 | 82.4 | 21.8 | 6.3 | 113.0 | 21.1 |
| Rural | 5.2 | 87.2 | 17.2 | 6.4 | 125.3 | 15.9 |
| Urban | 4.8 | 64.2 | 39.2 | 6.0 | 79.3 | 35.2 |
| **Central Asia** | | | | | | |
| Tajikistan | 5.9 | 106.8 | 19.6 | 7.3 | 134.5 | 18.2 |
| Rural | 6.6 | 111.2 | 14.1 | 7.8 | 142.2 | 13.8 |
| Urban | 4.7 | 98.1 | 30.1 | 6.4 | 117.0 | 28.0 |
| **Latin America** | | | | | | |
| Guatemala | 5.1 | 111.1 | 6.2 | 7.5 | 175.4 | 1.1 |
| Rural | 5.5 | 123.6 | 4.9 | 7.5 | 176.5 | 1.2 |
| Urban | 4.6 | 95.6 | 7.9 | 7.5 | 162.3 | 0.0 |
| Nicaragua | 4.3 | 70.7 | 32.0 | 6.2 | 117.8 | 24.9 |
| Rural | 4.2 | 76.6 | 21.7 | 6.3 | 122.1 | 17.8 |
| Urban | 4.3 | 69.0 | 35.1 | 6.1 | 113.3 | 32.3 |
| Peru | 5.1 | 87.2 | 17.9 | 7.1 | 152.2 | 11.6 |
| Rural | 5.1 | 105.6 | 11.5 | 6.9 | 161.2 | 9.0 |
| Urban | 5.1 | 80.9 | 20.2 | 7.7 | 132.5 | 17.3 |

**TABLE A4.3 Household Size, Dependency Ratio, and Female-Headed Households: Subjacent, Medial, and Ultra Poverty**

| Countries | Subjacent poor | | | Medial poor | | | Ultra poor | | |
|---|---|---|---|---|---|---|---|---|---|
| | Household size | Total dependency ratio | Female-headed household | Household size | Total dependency ratio | Female-headed household | Household size | Total dependency ratio | Female-headed household |
| | *(number)* | *(percent)* | *(percent)* | *(number)* | *(percent)* | *(percent)* | *(number)* | *(percent)* | *(percent)* |
| **Sub-Saharan Africa** | | | | | | | | | |
| Burundi | 5.5 | 140.8 | 21.3 | 5.5 | 143.7 | 28.7 | 5.6 | 159.1 | 39.4 |
| Rural | 5.5 | 141.3 | 21.1 | 5.5 | 143.7 | 28.7 | 5.6 | 158.9 | 39.4 |
| Urban | 5.9 | 116.4 | 32.5 | 6.2 | 144.6 | 36.4 | 6.7 | 179.4 | 40.4 |
| Ghana | 5.8 | 135.5 | 32.2 | 6.0 | 161.5 | 29.6 | 6.4 | 167.5 | 32.3 |
| Rural | 5.8 | 139.2 | 31.0 | 6.2 | 164.3 | 25.6 | 6.7 | 169.0 | 28.1 |
| Urban | 5.8 | 125.4 | 35.5 | 5.6 | 153.6 | 40.4 | 5.5 | 160.8 | 49.7 |
| Malawi | 5.0 | 133.5 | 26.9 | 5.3 | 135.7 | 30.7 | 5.6 | 138.6 | 29.6 |
| Rural | 5.0 | 140.2 | 28.8 | 5.3 | 144.9 | 34.3 | 5.7 | 145.1 | 31.0 |
| Urban | 4.6 | 83.3 | 12.1 | 4.9 | 91.4 | 12.7 | 5.4 | 112.7 | 24.0 |
| Mozambique | 5.5 | 128.7 | 18.5 | 5.8 | 138.8 | 18.3 | 6.4 | 150.9 | 20.9 |
| Rural | 5.4 | 128.5 | 18.4 | 5.7 | 138.0 | 17.6 | 6.6 | 148.9 | 17.4 |
| Urban | 6.1 | 129.9 | 19.0 | 6.0 | 143.5 | 22.0 | 6.0 | 157.5 | 31.5 |
| Rwanda | 4.9 | 107.5 | 29.1 | 5.1 | 123.1 | 32.7 | 5.5 | 138.2 | 37.9 |
| Rural | 4.8 | 106.3 | 29.0 | 5.1 | 122.4 | 32.4 | 5.5 | 138.4 | 37.7 |
| Urban | 5.8 | 124.6 | 31.3 | 5.7 | 137.1 | 38.8 | 6.0 | 132.8 | 44.0 |
| Zambia | 5.0 | 102.4 | 22.0 | 5.4 | 114.0 | 22.0 | 6.0 | 134.7 | 27.3 |
| Rural | 4.7 | 105.8 | 23.8 | 5.0 | 115.2 | 23.6 | 5.8 | 136.8 | 28.8 |
| Urban | 5.7 | 96.5 | 18.8 | 6.3 | 110.9 | 17.8 | 6.9 | 125.9 | 20.9 |
| **South Asia** | | | | | | | | | |
| Bangladesh | 5.9 | 108.7 | 5.6 | 6.2 | 131.2 | 6.2 | 6.1 | 151.9 | 7.1 |
| Rural | 5.9 | 111.0 | 5.5 | 6.2 | 133.9 | 6.0 | 6.0 | 152.3 | 5.9 |
| Urban | 6.0 | 95.7 | 6.5 | 6.4 | 115.3 | 7.1 | 6.2 | 150.5 | 12.5 |
| India | 5.6 | 101.3 | 8.9 | 6.1 | 124.2 | 8.8 | 5.7 | 135.7 | 12.8 |
| Rural | 5.6 | 104.2 | 8.7 | 6.0 | 127.6 | 8.6 | 5.6 | 137.5 | 13.4 |
| Urban | 5.5 | 89.8 | 9.8 | 6.1 | 112.8 | 9.7 | 6.0 | 131.1 | 11.5 |
| **East Asia** | | | | | | | | | |
| Vietnam | 6.1 | 107.3 | 20.1 | 6.6 | 122.9 | 21.8 | 7.4 | 131.0 | 29.4 |
| Rural | 6.3 | 119.5 | 16.1 | 6.7 | 135.4 | 15.0 | 7.4 | 156.6 | 19.0 |
| Urban | 5.7 | 70.4 | 32.3 | 6.3 | 90.5 | 39.3 | 7.3 | 103.0 | 40.3 |
| **Latin America** | | | | | | | | | |
| Nicaragua | 5.2 | 97.6 | 27.4 | 6 | 112.1 | 25.5 | 6.9 | 134.9 | 22.8 |
| Rural | 5.1 | 101.8 | 15.9 | 6 | 115 | 17.3 | 6.9 | 133.7 | 18.7 |
| Urban | 5.3 | 95.2 | 34.4 | 6 | 109.7 | 32.5 | 7 | 137.1 | 30 |

**TABLE A4.4 Adult Education (population age 18 and over): Above and Below $1 a Day (percent)**

| | Less than $1 a day | | | | $1 a day and above | | | |
|---|---|---|---|---|---|---|---|---|
| | Completed primary education | | No schooling | | Completed primary education | | No schooling | |
| Countries | Male | Female | Male | Female | Male | Female | Male | Female |
| **Sub-Saharan Africa** | | | | | | | | |
| Burundi | 23.5 | 17.3 | 59.4 | 77.6 | 42.6 | 37.2 | 46.7 | 62.7 |
| Rural | 23.0 | 16.7 | 59.8 | 77.9 | 34.4 | 29.2 | 51.4 | 67.1 |
| Urban | 47.0 | 34.2 | 35.7 | 58.6 | 84.2 | 81.4 | 8.6 | 16.8 |
| Ghana | 52.9 | 29.1 | 38.8 | 60.8 | 75.5 | 51.4 | 17.7 | 38.2 |
| Rural | 48.1 | 24.3 | 43.2 | 65.9 | 70.5 | 41.5 | 21.1 | 45.8 |
| Urban | 67.1 | 42.6 | 25.5 | 46.7 | 84.0 | 68.3 | 12.0 | 25.1 |
| Malawi | 50.4 | 27.9 | 26.9 | 49.3 | 60.2 | 38.4 | 17.3 | 39.0 |
| Rural | 44.0 | 22.5 | 31.2 | 54.2 | 56.4 | 33.7 | 19.0 | 41.9 |
| Urban | 79.8 | 60.4 | 4.9 | 16.0 | 92.0 | 87.5 | 2.1 | 4.1 |
| Rwanda | 27.1 | 23.5 | 31.2 | 43.4 | 53.7 | 45.1 | 15.9 | 28.5 |
| Rural | 26.0 | 22.4 | 31.7 | 44.3 | 45.6 | 37.6 | 19.1 | 33.8 |
| Urban | 47.9 | 44.4 | 20.4 | 28.4 | 78.1 | 69.8 | 6.2 | 10.9 |
| Mozambique | 10.2 | 2.8 | 32.2 | 22.6 | 19.4 | 8.7 | 27.4 | 24.9 |
| Rural | 6.4 | 1.3 | 34.1 | 21.6 | 9.2 | 2.7 | 32.7 | 25.3 |
| Urban | 24.5 | 9.4 | 25.2 | 26.7 | 44.3 | 26.0 | 14.4 | 23.8 |
| Zambia | 51.4 | 35.5 | 10.6 | 25.2 | 67.2 | 55.0 | 5.3 | 16.1 |
| Rural | 42.6 | 26.1 | 13.9 | 31.1 | 52.9 | 34.7 | 9.0 | 27.1 |
| Urban | 69.7 | 57.9 | 3.7 | 11.1 | 79.8 | 75.3 | 2.0 | 5.2 |
| **South Asia** | | | | | | | | |
| Bangladesh | 28.8 | 15.9 | 66.5 | 81.0 | 63.9 | 46.8 | 31.6 | 48.9 |
| Rural | 27.8 | 14.9 | 67.8 | 82.3 | 58.3 | 41.5 | 36.8 | 54.5 |
| Urban | 33.7 | 21.1 | 60.1 | 74.2 | 80.7 | 62.5 | 16.2 | 32.4 |
| India | 37.0 | 15.6 | 48.5 | 76.6 | 62.8 | 39.7 | 25.4 | 50.8 |
| Rural | 32.6 | 11.5 | 53.2 | 81.7 | 54.2 | 29.1 | 32.1 | 61.0 |
| Urban | 52.1 | 30.2 | 32.4 | 58.8 | 83.1 | 67.0 | 9.5 | 24.5 |
| Pakistan | 24.8 | 5.6 | 64.4 | 92.5 | 48.3 | 21.7 | 38.2 | 73.3 |
| Rural | 20.8 | 2.3 | 69.9 | 96.6 | 41.4 | 12.4 | 45.5 | 84.1 |
| Urban | 38.1 | 16.9 | 46.5 | 78.6 | 63.0 | 43.8 | 22.7 | 47.7 |
| Sri Lanka | 81.8 | 74.7 | 12.3 | 17.8 | 88.3 | 87.0 | 4.5 | 9.5 |
| Rural | 80.7 | 74.2 | 12.6 | 17.8 | 87.3 | 86.4 | 4.9 | 10.2 |
| Urban | 91.7 | 78.4 | 8.7 | 17.5 | 94.0 | 90.4 | 2.4 | 4.8 |
| **East Asia** | | | | | | | | |
| Vietnam | 61.5 | 50.2 | 10.5 | 23.0 | 72.1 | 56.0 | 4.2 | 14.7 |
| Rural | 56.5 | 43.7 | 12.9 | 28.1 | 81.6 | 70.1 | 4.9 | 16.4 |
| Urban | 73.6 | 64.6 | 4.8 | 11.1 | 74.2 | 59.2 | 2.2 | 9.1 |
| **Central Asia** | | | | | | | | |
| Tajikistan | 95.2 | 92.8 | 4.3 | 6.3 | 97.4 | 94.0 | 1.7 | 4.7 |
| Rural | 95.4 | 92.1 | 4.0 | 7.4 | 97.4 | 93.5 | 1.7 | 5.2 |
| Urban | 94.8 | 94.5 | 5.2 | 3.7 | 97.5 | 95.2 | 1.8 | 3.5 |
| **Latin America** | | | | | | | | |
| Guatemala | 46.1 | 25.8 | 49.3 | 72.5 | 68.5 | 55.2 | 26.5 | 41.0 |
| Rural | 45.5 | 25.6 | 49.3 | 72.3 | 58.6 | 40.7 | 36.9 | 56.0 |
| Urban | 54.6 | 29.8 | 49.7 | 74.7 | 81.5 | 72.2 | 12.7 | 23.5 |
| Nicaragua | 66.9 | 64.6 | 31.6 | 34.5 | 89.6 | 88.3 | 9.1 | 10.3 |
| Rural | 55.7 | 55.1 | 41.9 | 43.6 | 79.0 | 77.4 | 18.8 | 21.5 |
| Urban | 79.3 | 73.6 | 20.1 | 26.0 | 93.1 | 91.1 | 5.9 | 7.4 |
| Peru | 84.3 | 65.2 | 1.9 | 3.1 | 93.0 | 84.9 | 0.7 | 1.4 |
| Rural | 80.9 | 57.6 | 2.2 | 3.3 | 88.3 | 71.5 | 1.4 | 3.0 |
| Urban | 90.1 | 75.6 | 1.3 | 2.7 | 94.5 | 88.4 | 0.4 | 1.0 |

**TABLE A4.5 Adult Education (population age 18 and over): Subjacent, Medial, and Ultra Poverty (percent)**

| | Subjacent poor | | | | Medial poor | | | | Ultra poor | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Completed primary education | | No schooling | | Completed primary education | | No schooling | | Completed primary education | | No schooling | |
| Countries | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| **Sub-Saharan Africa** | | | | | | | | | | | | |
| Burundi | 24.0 | 17.4 | 60.9 | 71.3 | 20.9 | 16.8 | 55.8 | 78.4 | 14.0 | 8.0 | 61.7 | 82.3 |
| Rural | 23.5 | 16.9 | 61.7 | 71.6 | 20.5 | 16.5 | 56.1 | 78.9 | 13.4 | 7.6 | 61.8 | 82.5 |
| Urban | 46.9 | 34.6 | 28.6 | 57.0 | 42.8 | 33.5 | 35.6 | 50.7 | 43.4 | 27.0 | 50.9 | 69.2 |
| Ghana | 61.5 | 34.6 | 30.8 | 54.5 | 49.8 | 28.4 | 42.6 | 62.3 | 34.4 | 14.1 | 53.6 | 76.2 |
| Rural | 55.3 | 27.9 | 35.7 | 60.2 | 47.0 | 24.9 | 45.8 | 67.2 | 31.7 | 12.9 | 57.0 | 78.1 |
| Urban | 77.8 | 51.2 | 17.9 | 40.4 | 58.2 | 37.6 | 32.7 | 49.0 | 47.2 | 19.4 | 37.1 | 68.0 |
| Malawi | 52.6 | 29.0 | 25.1 | 47.5 | 50.9 | 29.5 | 26.2 | 48.1 | 43.2 | 21.9 | 33.1 | 56.2 |
| Rural | 46.9 | 24.0 | 28.4 | 51.7 | 43.6 | 24.0 | 32.1 | 53.8 | 35.9 | 15.2 | 38.4 | 62.4 |
| Urban | 86.9 | 68.2 | 2.6 | 8.5 | 79.9 | 59.8 | 2.2 | 13.7 | 67.4 | 49.2 | 13.4 | 29.2 |
| Rwanda | 35.5 | 31.6 | 24.7 | 36.3 | 28.1 | 25.2 | 29.0 | 41.2 | 21.3 | 18.0 | 36.8 | 48.9 |
| Rural | 34.2 | 29.7 | 25.6 | 37.6 | 26.9 | 24.1 | 29.6 | 41.7 | 20.7 | 17.3 | 37.0 | 49.5 |
| Urban | 51.6 | 55.5 | 13.7 | 19.3 | 54.9 | 45.4 | 16.6 | 32.1 | 37.2 | 32.9 | 31.8 | 33.4 |
| Mozambique | 10.8 | 3.0 | 31.3 | 25.2 | 10.7 | 2.3 | 36.2 | 20.8 | 8.1 | 3.1 | 29.3 | 21.0 |
| Rural | 5.5 | 1.2 | 33.3 | 25.0 | 8.0 | 1.1 | 38.8 | 20.4 | 4.7 | 1.4 | 29.9 | 18.3 |
| Urban | 29.5 | 10.8 | 24.2 | 26.2 | 22.9 | 8.0 | 24.4 | 22.7 | 20.1 | 9.0 | 27.1 | 30.8 |
| Zambia | 59.8 | 46.4 | 8.6 | 18.3 | 56.3 | 40.7 | 7.7 | 22.6 | 45.2 | 28.5 | 13.1 | 29.2 |
| Rural | 45.9 | 32.6 | 13.8 | 26.2 | 47.6 | 30.2 | 10.7 | 29.4 | 39.3 | 22.4 | 15.4 | 33.2 |
| Urban | 76.4 | 65.4 | 2.3 | 7.5 | 71.3 | 60.3 | 2.6 | 9.9 | 63.4 | 50.4 | 5.7 | 14.8 |
| **South Asia** | | | | | | | | | | | | |
| Bangladesh | 34.3 | 20.7 | 60.9 | 75.2 | 23.9 | 12.7 | 71.0 | 85.2 | 20.4 | 5.5 | 77.7 | 92.0 |
| Rural | 33.1 | 19.8 | 62.6 | 76.6 | 22.8 | 11.7 | 72.0 | 86.4 | 21.4 | 4.2 | 77.4 | 93.4 |
| Urban | 40.6 | 25.6 | 51.8 | 68.0 | 29.6 | 18.6 | 65.4 | 78.2 | 16.3 | 11.2 | 78.9 | 85.8 |
| India | 40.4 | 17.7 | 44.7 | 73.9 | 32.7 | 13.0 | 53.2 | 80.1 | 24.6 | 9.0 | 62.5 | 85.6 |
| Rural | 35.8 | 13.2 | 49.4 | 79.4 | 28.0 | 9.1 | 58.4 | 84.9 | 21.0 | 6.2 | 67.0 | 89.4 |
| Urban | 57.2 | 34.9 | 27.4 | 53.0 | 47.4 | 25.5 | 37.0 | 64.6 | 33.0 | 15.9 | 52.2 | 76.2 |
| **East Asia** | | | | | | | | | | | | |
| Vietnam | 65.2 | 53.0 | 8.5 | 19.2 | 54.9 | 45.3 | 14.2 | 29.7 | 49.7 | 43.2 | 16.5 | 33.3 |
| Rural | 61.5 | 47.6 | 10.2 | 23.0 | 46.8 | 36.4 | 17.5 | 36.8 | 34.0 | 27.0 | 30.3 | 56.1 |
| Urban | 75.5 | 66.5 | 3.7 | 9.4 | 73.1 | 63.8 | 7.1 | 13.9 | 63.0 | 55.0 | 4.8 | 13.6 |
| **Latin America** | | | | | | | | | | | | |
| Nicaragua | 80.6 | 78.3 | 18.4 | 20.9 | 74.5 | 70.9 | 23.9 | 28.3 | 56.2 | 53.8 | 42.1 | 45.3 |
| Rural | 69.1 | 71.4 | 29.1 | 27.3 | 64.8 | 63.0 | 32.4 | 36.1 | 47.9 | 46.5 | 49.9 | 52.0 |
| Urban | 87.1 | 81.9 | 12.3 | 17.6 | 83.2 | 77.2 | 16.4 | 22.2 | 70.2 | 64.0 | 29.0 | 35.8 |

**TABLE A4.6 Net Primary School Enrollment (percentage of children ages 6-11 attending school): Above and Below $1 a Day**

| | Less than $1 a day | | | $1 a day and above | | |
|---|---|---|---|---|---|---|
| **Countries** | **Boys** | **Girls** | **All** | **Boys** | **Girls** | **All** |
| **Sub-Saharan Africa** | | | | | | |
| Burundi | 42.7 | 33.4 | 38.2 | 59.2 | 55.3 | 57.2 |
| Rural | 42.6 | 33.1 | 37.9 | 57.0 | 52.8 | 54.9 |
| Urban | 55.3 | 59.3 | 57.3 | 87.2 | 84.6 | 85.8 |
| Ghana | 77.4 | 73.9 | 75.7 | 90.8 | 88.1 | 89.5 |
| Rural | 73.5 | 70.2 | 72.0 | 88.8 | 86.7 | 87.8 |
| Urban | 89.4 | 84.2 | 86.9 | 94.9 | 91.0 | 92.9 |
| Malawi | 77.0 | 75.9 | 76.5 | 80.1 | 81.2 | 80.6 |
| Rural | 76.3 | 75.2 | 75.7 | 78.7 | 80.8 | 79.8 |
| Urban | 82.1 | 81.1 | 81.6 | 94.7 | 85.6 | 90.0 |
| Rwanda | 71.8 | 72.5 | 72.1 | 82.8 | 83.1 | 83.0 |
| Rural | 71.6 | 71.8 | 71.7 | 80.2 | 81.4 | 80.8 |
| Urban | 74.6 | 83.5 | 79.6 | 92.4 | 89.5 | 91.0 |
| Zambia | 51.4 | 53.4 | 52.4 | 63.6 | 68.3 | 65.9 |
| Rural | 46.3 | 47.7 | 47.0 | 52.1 | 58.6 | 55.2 |
| Urban | 63.3 | 66.5 | 64.9 | 75.6 | 76.6 | 76.1 |
| **South Asia** | | | | | | |
| Bangladesh | 67.5 | 70.8 | 69.1 | 82.5 | 85.2 | 83.8 |
| Rural | 68.7 | 71.0 | 69.9 | 81.4 | 85.3 | 83.3 |
| Urban | 60.4 | 69.7 | 64.9 | 86.5 | 85.1 | 85.8 |
| India | 65.8 | 58.3 | 62.2 | 83.9 | 78.4 | 81.3 |
| Rural | 64.0 | 55.1 | 59.8 | 81.4 | 74.6 | 78.3 |
| Urban | 72.9 | 70.5 | 71.7 | 91.8 | 90.8 | 91.3 |
| Pakistan | 41.7 | 28.6 | 35.3 | 71.3 | 55.8 | 63.8 |
| Rural | 37.8 | 20.9 | 29.6 | 67.7 | 47.7 | 58.1 |
| Urban | 56.4 | 55.7 | 56.1 | 81.8 | 77.9 | 79.9 |
| Sri Lanka | 90.7 | 93.5 | 92.4 | 97.3 | 97.6 | 97.4 |
| Rural | 91.7 | 93.4 | 92.8 | 97.3 | 97.5 | 97.4 |
| Urban | 84.8 | 94.6 | 89.8 | 97.0 | 98.5 | 97.7 |
| **East Asia** | | | | | | |
| Vietnam | 88.7 | 87.0 | 87.8 | 96.7 | 95.7 | 96.2 |
| Rural | 87.4 | 85.7 | 86.5 | 97.0 | 95.2 | 96.1 |
| Urban | 94.0 | 93.1 | 93.6 | 94.7 | 99.4 | 97.0 |
| **Central Asia** | | | | | | |
| Tajikistan | 68.1 | 70.4 | 69.3 | 76.4 | 73.8 | 75.2 |
| Rural | 67.8 | 68.5 | 68.2 | 75.8 | 74.0 | 75.0 |
| Urban | 69.0 | 76.5 | 72.8 | 78.2 | 73.4 | 75.8 |
| **Latin America** | | | | | | |
| Guatemala | 50.4 | 39.6 | 44.8 | 70.3 | 64.9 | 67.6 |
| Rural | 53.8 | 40.7 | 46.8 | 66.6 | 61.5 | 64.1 |
| Urban | 20.3 | 22.0 | 21.0 | 77.1 | 71.3 | 74.3 |
| Nicaragua | 77.8 | 78.6 | 78.2 | 91.8 | 92.1 | 91.9 |
| Rural | 72.2 | 74.1 | 73.1 | 88.1 | 91.6 | 90.0 |
| Urban | 84.6 | 84.3 | 84.4 | 93.0 | 92.3 | 92.7 |
| Peru | 90.0 | 88.8 | 89.4 | 96.1 | 94.6 | 95.4 |
| Rural | 86.9 | 88.0 | 87.5 | 93.5 | 93.4 | 93.4 |
| Urban | 95.4 | 90.9 | 93.5 | 97.1 | 95.2 | 96.2 |

**TABLE A4.7 Net Primary School Enrollment (percentage of children ages 6-11 attending school): Subjacent, Medial, and Ultra Poverty**

| | Subjacent poor | | | Medial poor | | | Ultra poor | | |
|---|---|---|---|---|---|---|---|---|---|
| **Countries** | **Boys** | **Girls** | **All** | **Boys** | **Girls** | **All** | **Boys** | **Girls** | **All** |
| **Sub-Saharan Africa** | | | | | | | | | |
| Burundi | 47.19 | 35.39 | 41.71 | 45.78 | 36.55 | 41.1 | 36.5 | 29.3 | 32.9 |
| Rural | 46.86 | 34.73 | 41.24 | 45.62 | 36.28 | 40.89 | 36.5 | 29.1 | 32.7 |
| Urban | 66.58 | 66.16 | 66.36 | 60.65 | 58.08 | 59.26 | 39.4 | 51.6 | 45.1 |
| Ghana | 82.0 | 75.1 | 78.6 | 80.4 | 75.0 | 78.0 | 58.8 | 67.2 | 62.4 |
| Rural | 79.1 | 72.2 | 75.8 | 76.2 | 71.1 | 73.9 | 56.2 | 63.1 | 59.2 |
| Urban | 89.4 | 82.2 | 85.7 | 93.6 | 85.6 | 89.9 | 73.5 | 90.9 | 81.0 |
| Malawi | 75.8 | 74.9 | 75.3 | 78.7 | 76.5 | 77.6 | 76.7 | 77.5 | 77.1 |
| Rural | 75.3 | 74.7 | 75.0 | 78.2 | 75.5 | 76.8 | 74.8 | 75.8 | 75.3 |
| Urban | 80.7 | 76.0 | 77.9 | 81.9 | 82.3 | 82.1 | 83.3 | 88.2 | 85.1 |
| Rwanda | 77.2 | 80.0 | 78.8 | 75.6 | 74.9 | 75.3 | 67.5 | 67.8 | 67.7 |
| Rural | 76.3 | 79.0 | 77.8 | 75.6 | 74.3 | 75.0 | 67.6 | 67.5 | 67.5 |
| Urban | 86.3 | 91.8 | 89.4 | 75.5 | 83.4 | 80.5 | 65.3 | 75.6 | 70.4 |
| Zambia | 61.3 | 62.8 | 62.1 | 56.4 | 54.6 | 55.5 | 46.2 | 49.7 | 47.9 |
| Rural | 56.8 | 55.0 | 55.8 | 50.5 | 49.0 | 49.8 | 42.4 | 45.4 | 43.9 |
| Urban | 66.7 | 73.5 | 70.2 | 67.0 | 64.2 | 65.6 | 58.6 | 64.1 | 61.3 |
| **South Asia** | | | | | | | | | |
| Bangladesh | 73.0 | 76.3 | 74.6 | 64.5 | 68.5 | 66.4 | 57.4 | 59.8 | 58.7 |
| Rural | 73.2 | 76.5 | 74.7 | 66.5 | 69.0 | 67.7 | 58.6 | 58.3 | 58.4 |
| Urban | 71.6 | 75.5 | 73.5 | 53.3 | 65.4 | 58.9 | 51.9 | 66.9 | 59.7 |
| India | 70.9 | 63.9 | 67.6 | 60.9 | 52.6 | 56.9 | 51.2 | 43.1 | 47.5 |
| Rural | 68.8 | 60.7 | 64.9 | 59.2 | 49.0 | 54.4 | 49.0 | 40.9 | 45.2 |
| Urban | 80.3 | 78.5 | 79.5 | 67.3 | 65.3 | 66.3 | 56.5 | 48.8 | 53.1 |
| **East Asia** | | | | | | | | | |
| Vietnam | 92.9 | 89.7 | 91.4 | 83.4 | 85.8 | 84.6 | 64.5 | 67.8 | 66.3 |
| Rural | 92.3 | 89.1 | 90.8 | 81.1 | 84.0 | 82.6 | 36.8 | 52.0 | 46.1 |
| Urban | 96.4 | 93.4 | 95.0 | 91.0 | 92.0 | 91.5 | 92.9 | 96.0 | 94.4 |
| **Latin America** | | | | | | | | | |
| Nicaragua | 88.4 | 85.4 | 86.9 | 82.4 | 86.0 | 84.2 | 71.3 | 72.3 | 71.9 |
| Rural | 81.3 | 80.8 | 81.1 | 79.8 | 84.6 | 82.2 | 66.3 | 68.9 | 67.7 |
| Urban | 94.1 | 87.9 | 90.8 | 84.7 | 87.2 | 86.0 | 79.8 | 79.4 | 79.6 |

**TABLE A4.8 Land Ownership in Rural Areas: Above and Below $1 a Day**

| Countries | Less than $1 a day | | | $1 a day and above | | |
|---|---|---|---|---|---|---|
| | Own no land | Own less than 0.5 hectare | Average size of land in area | Own no land | Own less than 0.5 hectare | Average size of land in area |
| | *(percent)* | *(percent)* | *(100m²)* | *(percent)* | *(percent)* | *(100m²)* |
| **Sub-Saharan Africa** | | | | | | |
| Ghana | 67.0 | 74.2 | 141.9 | 63.3 | 74.0 | 304.9 |
| Malawi | 12.6 | 41.4 | 73.1 | 15.0 | 36.1 | 88.4 |
| Rwanda | 3.3 | 62.0 | 57.5 | 3.7 | 44.8 | 92.1 |
| Mozambique | 3.7 | 4.1 | 220.0 | 5.3 | 6.9 | 180.3 |
| Zambia | 10.0 | 10.0 | 1302.8 | 19.1 | 19.1 | 1420.1 |
| **South Asia** | | | | | | |
| Bangladesh | 57.6 | 85.1 | 23.8 | 35.8 | 62.0 | 90.0 |
| Pakistan | 76.9 | 87.8 | 27.9 | 64.2 | 76.5 | 112.2 |
| **East Asia** | | | | | | |
| Vietnam | 30.7 | 87.7 | 25.9 | 27.1 | 84.3 | 32.8 |
| **Latin America** | | | | | | |
| Guatemala | 39.7 | 53.2 | 258.8 | 48.8 | 59.6 | 247.0 |
| Nicaragua | 53.6 | 91.9 | 63.9 | 69.9 | 92.2 | 109.5 |
| Peru | 7.1 | 26.4 | 220.4 | 9.4 | 25.0 | 578.8 |

**TABLE A4.9 Land Ownership Status in Rural Areas: Subjacent, Medial, and Ultra Poverty**

| | Subjacent poor | | | Medial poor | | | Ultra poor | | |
|---|---|---|---|---|---|---|---|---|---|
| Countries | Own no cultivable land | Own less than 0.5 hectare cultivable land | Average size of land in area | Own no cultivable land | Own less than 0.5 hectare cultivable land | Average size of land in area | Own no cultivable land | Own less than 0.5 hectare cultivable land | Average size of land in area |
| | *(percent)* | *(percent)* | *(100m²)* | *(percent)* | *(percent)* | *(100m²)* | *(percent)* | *(percent)* | *(100m²)* |
| **Sub-Saharan Africa** | | | | | | | | | |
| Ghana | 68.6 | 76.5 | 126.8 | 68.0 | 76.3 | 183.0 | 60.4 | 62.8 | 92.3 |
| Malawi | 13.5 | 37.8 | 78.8 | 12.1 | 42.1 | 69.8 | 10.9 | 50.9 | 62.4 |
| Rwanda | 3.3 | 53.3 | 72.7 | 2.6 | 59.4 | 58.7 | 3.9 | 68.4 | 48.9 |
| Mozambique | 3.5 | 4.3 | 214.0 | 3.6 | 3.8 | 220.0 | 3.9 | 3.9 | 226.4 |
| Zambia | 16.0 | 16.0 | 1334.2 | 10.5 | 10.5 | 1356.7 | 7.9 | 7.9 | 1264.5 |
| **South Asia** | | | | | | | | | |
| Bangladesh | 51.1 | 80.5 | 30.8 | 61.1 | 88.2 | 19.5 | 74.9 | 94.4 | 8.3 |
| **East Asia** | | | | | | | | | |
| Vietnam | 28.5 | 86.2 | 28.0 | 32.8 | 89.8 | 23.1 | 57.9 | 100.0 | 9.2 |
| **Latin America** | | | | | | | | | |
| Nicaragua | 61.2 | 11.6 | 91.4 | 56.9 | 14.7 | 93.1 | 48.9 | 46.1 | 91.4 |

**TABLE A4.10 Access to Electricity, and Ownership of Radio and Television: Above and Below $1 a Day**

| | Less than $1 a day | | | $1 a day and above | | |
|---|---|---|---|---|---|---|
| **Percentage with:** | **Electricity** | **Radio** | **Television** | **Electricity** | **Radio** | **Television** |
| **Sub-Saharan Africa** | | | | | | |
| Ghana | 17.1 | 38.7 | 6.8 | 46.8 | 53.2 | 25.1 |
| Rural | 6.7 | 36.9 | 2.7 | 24.0 | 48.2 | 14.9 |
| Urban | 47.2 | 43.7 | 18.7 | 84.2 | 61.3 | 41.7 |
| Malawi | 2.5 | 4.9 | 0.1 | 6.6 | 7.2 | 2.0 |
| Rural | 0.2 | 4.5 | 0.1 | 1.5 | 6.7 | 0.5 |
| Urban | 15.8 | 7.1 | 0.0 | 55.7 | 12.3 | 16.9 |
| Rwanda | 1.3 | 25.8 | 0.1 | 12.8 | 57.5 | 4.7 |
| Rural | 0.5 | 24.3 | 0.0 | 1.9 | 51.2 | 0.9 |
| Urban | 16.7 | 57.2 | 1.3 | 53.5 | 81.3 | 18.9 |
| Zambia | 8.6 | 38.0 | 9.6 | 27.3 | 55.7 | 27.9 |
| Rural | 0.9 | 29.8 | 1.7 | 4.9 | 40.1 | 7.4 |
| Urban | 31.6 | 63.0 | 33.6 | 55.9 | 75.7 | 54.1 |
| Mozambique | 1.2 | 21.5 | 1.7 | 6.9 | 34.6 | 7.5 |
| Rural | 0.3 | 18.8 | 1.4 | 1.1 | 27.0 | 2.9 |
| Urban | 5.3 | 33.6 | 3.1 | 3.1 | 66.5 | 27.1 |
| **South Asia** | | | | | | |
| Bangladesh | 15.4 | 9.7 | 4.0 | 48.3 | 17.6 | 29.7 |
| Rural | 7.8 | 9.5 | 1.4 | 33.3 | 20.2 | 16.0 |
| Urban | 58.5 | 10.6 | 18.9 | 94.3 | 9.7 | 71.8 |
| India | 40.3 | 22.1 | 11.9 | 67.7 | 35.9 | 37.9 |
| Rural | 31.4 | 20.8 | 5.6 | 56.5 | 35.1 | 25.2 |
| Urban | 72.1 | 26.8 | 34.4 | 94.2 | 37.9 | 67.9 |
| Pakistan | 51.3 | 15.0 | 12.0 | 72.8 | 41.6 | 39.0 |
| Rural | 43.0 | 13.4 | 5.6 | 64.2 | 37.6 | 26.7 |
| Urban | 80.9 | 20.6 | 34.3 | 93.7 | 51.1 | 68.9 |
| Sri Lanka | 30.6 | 55.0 | 20.2 | 61.8 | 78.0 | 56.1 |
| Rural | 29.5 | 54.7 | 17.7 | 58.1 | 77.1 | 52.9 |
| Urban | 42.3 | 57.4 | 44.7 | 86.1 | 83.9 | 76.8 |
| **East Asia** | | | | | | |
| Vietnam | 66.0 | 36.5 | 43.7 | 80.8 | 48.2 | 64.4 |
| Rural | 54.7 | 34.5 | 33.4 | 76.1 | 46.5 | 58.2 |
| Urban | 96.8 | 41.7 | 70.8 | 98.9 | 54.6 | 88.0 |
| **Central Asia** | | | | | | |
| Tajikistan | 98.2 | ... | 60.4 | 98.7 | ... | 77.8 |
| Rural | 98.0 | ... | 53.5 | 98.5 | ... | 72.6 |
| Urban | 98.7 | ... | 75.7 | 99.0 | ... | 87.6 |
| **Latin America** | | | | | | |
| Guatemala | 31.9 | 29.1 | 3.9 | 74.4 | 25.4 | 55.4 |
| Rural | 30.5 | 30.5 | 2.6 | 58.6 | 28.5 | 35.2 |
| Urban | 47.8 | 13.9 | 19.2 | 94.0 | 21.5 | 80.6 |
| Nicaragua | 56.9 | 42.6 | 42.5 | 91.3 | 28.2 | 79.7 |
| Rural | 31.2 | 54.2 | 21.9 | 68.1 | 38.4 | 54.5 |
| Urban | 83.7 | 30.6 | 64.1 | 98.3 | 25.1 | 87.2 |
| Peru | 29.1 | 96.4 | 29.8 | 77.6 | 93.3 | 80.5 |
| Rural | 11.9 | 99.6 | 13.5 | 27.5 | 96.4 | 44.9 |
| Urban | 66.5 | 90.9 | 57.5 | 95.0 | 92.4 | 91.3 |

... means no data.

**TABLE A4.11 Access to Electricity, and Ownership of Radio and Television: Subjacent, Medial, and Ultra Poverty**

| | Subjacent poor | | | Medial poor | | | Ultra poor | | |
|---|---|---|---|---|---|---|---|---|---|
| Percentage with: | Radio | Television | Electricity | Radio | Television | Electricity | Radio | Television | Electricity |
| **Sub-Saharan Africa** | | | | | | | | | |
| Ghana | 41.9 | 11.3 | 22.4 | 37.8 | 3.6 | 14.5 | 30.6 | 0.8 | 6.9 |
| Rural | 37.4 | 4.7 | 8.7 | 38.3 | 1.1 | 6.0 | 32.5 | 0.7 | 2.5 |
| Urban | 54.3 | 29.4 | 59.8 | 36.7 | 10.3 | 37.8 | 22.6 | 0.9 | 24.6 |
| Malawi | 6.4 | 0.2 | 2.9 | 3.5 | 0.0 | 2.3 | 3.4 | 0.0 | 1.6 |
| Rural | 6.6 | 0.2 | 0.0 | 2.6 | 0.0 | 0.5 | 2.1 | 0.0 | 0.0 |
| Urban | 5.2 | 0.0 | 25.2 | 8.1 | 0.0 | 11.3 | 8.3 | 0.0 | 8.0 |
| Mozambique | 24.0 | 1.8 | 1.8 | 21.4 | 1.7 | 0.8 | 17.6 | 1.2 | 0.8 |
| Rural | 20.3 | 1.3 | 0.7 | 19.0 | 1.6 | 0.1 | 16.0 | 1.0 | 0.0 |
| Urban | 43.8 | 4.8 | 8.0 | 34.5 | 2.6 | 4.5 | 22.5 | 1.9 | 3.4 |
| Rwanda | 37.6 | 0.1 | 2.6 | 28.8 | 0.1 | 0.8 | 17.3 | 0.0 | 0.9 |
| Rural | 35.3 | 0.0 | 0.9 | 27.2 | 0.0 | 0.3 | 16.4 | 0.0 | 0.5 |
| Urban | 70.0 | 1.1 | 26.8 | 61.9 | 2.9 | 12.1 | 40.3 | 0.0 | 11.6 |
| Zambia | 51.0 | 18.3 | 16.3 | 41.6 | 12.3 | 10.9 | 30.8 | 4.6 | 4.1 |
| Rural | 39.8 | 3.8 | 1.6 | 32.5 | 1.9 | 1.2 | 25.2 | 0.9 | 0.6 |
| Urban | 71.2 | 44.6 | 43.1 | 64.7 | 38.6 | 35.4 | 55.2 | 20.6 | 19.5 |
| **South Asia** | | | | | | | | | |
| Bangladesh | 11.9 | 5.9 | 20.6 | 9.0 | 2.8 | 11.8 | 1.7 | 0.4 | 5.7 |
| Rural | 11.7 | 1.9 | 11.8 | 8.8 | 1.1 | 4.8 | 1.6 | 0.0 | 1.1 |
| Urban | 12.8 | 28.3 | 70.8 | 10.4 | 13.0 | 53.6 | 2.4 | 1.9 | 26.2 |
| India | 25.5 | 14.0 | 43.1 | 18.1 | 9.3 | 36.4 | 9.7 | 4.6 | 33.2 |
| Rural | 24.1 | 6.9 | 34.1 | 16.4 | 3.7 | 27.0 | 8.8 | 2.1 | 27.5 |
| Urban | 30.8 | 41.6 | 78.2 | 23.4 | 27.9 | 67.4 | 12.0 | 10.9 | 47.8 |
| **East Asia** | | | | | | | | | |
| Vietnam | 38.1 | 48.0 | 68.8 | 32.0 | 34.1 | 60.7 | 27.7 | 26.8 | 60.7 |
| Rural | 36.6 | 38.7 | 59.4 | 28.0 | 20.3 | 46.6 | 22.5 | 14.9 | 30.1 |
| Urban | 42.6 | 76.0 | 97.1 | 42.5 | 69.5 | 97.1 | 32.8 | 38.4 | 93.0 |
| **Latin America** | | | | | | | | | |
| Nicaragua | 30.3 | 63.3 | 81.2 | 40.5 | 49.4 | 65.7 | 52.1 | 24.0 | 34.4 |
| Rural | 42.6 | 38.8 | 55.7 | 57.1 | 29.3 | 40.2 | 56.7 | 11.3 | 16.9 |
| Urban | 23.0 | 78.0 | 96.5 | 26.4 | 66.5 | 87.4 | 44.0 | 46.3 | 65.3 |

**TABLE A4.12 Characteristics of Indigenous Groups in Peru among Subjacent, Medial, and Ultra Poor**

| Indigenous population, national=25.2% | Subjacent poor | Medial poor | Ultra poor |
|---|---|---|---|
| **Indigenous population (%) by poverty groups** | 47.9 | 64.8 | 85.3 |
| **Net primary school enrollment rate for boys (6–11 years) (%)** | | | |
| Spanish language mother tongue | 91.5 | 80.5 | 84.0 |
| Indigenous | 100.0 | 87.3 | 83.6 |
| Total | 93.4 | 83.5 | 83.6 |
| **Net primary school enrollment rate for girls (6–11 years) (%)** | | | |
| Spanish language mother tongue | 87.3 | 89.5 | 82.1 |
| Indigenous | 86.3 | 100.0 | 88.6 |
| Total | 86.7 | 93.1 | 86.8 |
| **Net primary school enrollment rate for all children (6–11 years) (%)** | | | |
| Spanish language mother tongue | 89.5 | 84.8 | 82.8 |
| Indigenous | 93.1 | 92.0 | 85.8 |
| Total | 90.1 | 87.7 | 85.2 |
| **Adult male (>=18 years) completed primary education (%)** | | | |
| Spanish language mother tongue | 85.1 | 92.6 | 76.5 |
| Indigenous | 83.2 | 83.4 | 73.8 |
| Total | 84.4 | 88.2 | 74.5 |
| **Adult female (>=18 years) completed primary education (%)** | | | |
| Spanish language mother tongue | 73.4 | 75.4 | 54.8 |
| Indigenous | 53.1 | 63.1 | 49.3 |
| Total | 66.6 | 68.5 | 50.5 |
| **No schooling adult male (>=18 years) (%)** | | | |
| Spanish language mother tongue | 1.2 | 1.2 | 5.8 |
| Indigenous | 1.3 | 2.9 | 3.3 |
| Total | 1.2 | 2.0 | 4.0 |
| **No schooling adult female (>=18 years) (%)** | | | |
| Spanish language mother tongue | 4.0 | 2.3 | 7.2 |
| Indigenous | 3.7 | 3.0 | 2.5 |
| Total | 3.9 | 2.7 | 3.4 |
| **Household size by ethnicity** | | | |
| Spanish language mother tongue | 7.7 | 7.4 | 6.3 |
| Indigenous | 6.4 | 7.1 | 7.4 |
| Total | 7.1 | 7.2 | 7.2 |
| **Total dependency ratio (%)** | | | |
| Spanish language mother tongue | 142.1 | 178.4 | 147.1 |
| Indigenous | 135.2 | 155.0 | 185.9 |
| Total | 138.9 | 163.3 | 180.2 |
| **Electricity (%)** | | | |
| Spanish language mother tongue | 34.9 | 42.6 | 21.2 |
| Indigenous | 34.1 | 18.5 | 11.2 |
| Total | 34.5 | 27.0 | 12.7 |

*NOTES:* The ethnic groups are based on maternal language. The indigenous consist mainly of Quechua and Aymara tribal language speakers. Household-level analysis is based on the maternal language of the head.

**TABLE A4.13 Characteristics of Indigenous Groups in Guatemala among Subjacent, Medial, and Ultra Poor**

| Indigenous population, national=38.9% | Subjacent poor | Medial poor | Ultra poor |
|---|---|---|---|
| **Indigenous population (%) by poverty group** | 74.7 | 73.9 | 77.5 |
| **Net primary school enrollment rate for boys (6–11 years) (%)** | | | |
| Spanish language mother tongue | 65.3 | 93.1 | 0.0 |
| Indigenous | 59.8 | 57.8 | 56.7 |
| Total | 61.7 | 74.4 | 45.3 |
| **Net primary school enrollment rate for girls (6–11 years) (%)** | | | |
| Spanish language mother tongue | 47.7 | 76.2 | 0.0 |
| Indigenous | 47.3 | 55.6 | 100.0 |
| Total | 47.4 | 61.3 | 100.0 |
| **Net primary school enrollment rate for all children (6–11 years) (%)** | | | |
| Spanish language mother tongue | 56.8 | 88 | 0.0 |
| Indigenous | 52.5 | 56.7 | 77.5 |
| Total | 53.8 | 68.8 | 68.6 |
| **Adult male (>=18 years) completed primary education (%)** | | | |
| Spanish language mother tongue | 56.2 | 31.0 | 19.8 |
| Indigenous | 43.8 | 45.7 | 30.2 |
| Total | 47.1 | 40.4 | 28.9 |
| **Adult female (>=18 years) completed primary education (%)** | | | |
| Spanish language mother tongue | 49.2 | 47.2 | 55.7 |
| Indigenous | 18.3 | 17.7 | 12.1 |
| Total | 28.1 | 27.1 | 17.6 |
| **No schooling adult male (>=18 years) (%)** | | | |
| Spanish language mother tongue | 43.8 | 59.6 | 80.2 |
| Indigenous | 48.8 | 54.3 | 69.8 |
| Total | 47.5 | 56.2 | 71.1 |
| **No schooling adult female (>=18 years) (%)** | | | |
| Spanish language mother tongue | 50.8 | 52.8 | 44.3 |
| Indigenous | 80.2 | 76.9 | 73.1 |
| Total | 70.9 | 69.2 | 69.5 |
| **Household size by ethnicity** | | | |
| Spanish language mother tongue | 8.2 | 8.0 | 5.0 |
| Indigenous | 7.4 | 6.7 | 8.5 |
| Total | 7.6 | 7.1 | 7.7 |
| **Total dependency ratio (%)** | | | |
| Spanish language mother tongue | 153.8 | 233.2 | 124.1 |
| Indigenous | 169.4 | 195.8 | 188.4 |
| Total | 165.4 | 205.7 | 174.0 |
| **Electricity (%)** | | | |
| Spanish language mother tongue | 41.7 | 43.9 | 56.9 |
| Indigenous | 31.5 | 24.1 | 0.0 |
| Total | 34.1 | 29.2 | 12.8 |

*NOTES:* The ethnic groups are based on reported ethnicity and maternal language. The indigenous consist mainly of the Mayan and non-Mayan (Garifuna and Xinka) ethnic groups. Household-level analysis is based on ethnicity and maternal language of the head.

**TABLE A4. 14 Characteristics of Scheduled Tribes and Castes among Subjacent, Medial, and Ultra Poor**

| **Scheduled tribe population (%), national=8.9**<br>**Scheduled caste population (%), national=19.2**<br>**Other "backward caste" population (%), national=35.2**<br>**Other caste population (%), national=36.7** | **Subjacent poor** | **Medial poor** | **Ultra poor** |
|---|---|---|---|
| **Distribution of social group population (%)** | | | |
| Scheduled tribe by poverty group | 12.1 | 16.9 | 25.4 |
| Scheduled caste by poverty group | 26.2 | 28.0 | 28.3 |
| Other "backward caste" by poverty group | 38.6 | 35.6 | 31.1 |
| Other caste by poverty group | 23.1 | 19.4 | 15.2 |
| **Net primary school enrollment rate for boys (6–11 years) (%)** | | | |
| Scheduled tribe | 62.9 | 57.7 | 38.3 |
| Scheduled caste | 71.6 | 59.6 | 60.5 |
| Other "backward castes" | 70.5 | 63.1 | 48.3 |
| All others | 74.7 | 61.2 | 59.0 |
| Total | 70.9 | 60.9 | 51.2 |
| **Net primary school enrollment rate for girls (6–11 years) (%)** | | | |
| Scheduled tribe | 54.9 | 46.8 | 34.5 |
| Scheduled caste | 63.1 | 50.0 | 40.4 |
| Other "backward castes" | 62.0 | 52.1 | 46.1 |
| All others | 71.5 | 62.1 | 52.0 |
| Total | 63.9 | 52.6 | 43.1 |
| **Net primary school enrollment rate for all children (6–11 years) (%)** | | | |
| Scheduled tribe | 59.4 | 52.5 | 36.7 |
| Scheduled caste | 67.5 | 55.0 | 51.6 |
| Other "backward castes" | 66.4 | 57.7 | 47.2 |
| All others | 73.2 | 61.6 | 55.6 |
| Total | 67.6 | 56.9 | 47.5 |
| **Adult male (>=18 years) completed primary education (%)** | | | |
| Scheduled tribe | 28.0 | 19.4 | 13.0 |
| Scheduled caste | 33.1 | 28.4 | 23.3 |
| Other "backward castes" | 41.4 | 36.2 | 30.0 |
| All others | 51.7 | 42.7 | 34.9 |
| Total | 40.4 | 32.7 | 24.6 |

| | | | |
|---|---|---|---|
| **Adult female (>=18 years) completed primary education (%)** | | | |
| Scheduled tribe | 10.3 | 6.0 | 3.4 |
| Scheduled caste | 11.9 | 10.1 | 9.0 |
| Other "backward castes" | 16.8 | 13.1 | 8.8 |
| All others | 28.3 | 22.1 | 18.2 |
| Total | 17.7 | 13.0 | 9.0 |
| **No schooling adult male (>=18 years) (%)** | | | |
| Scheduled tribe | 57.9 | 67.4 | 76.1 |
| Scheduled caste | 53.0 | 58.4 | 65.0 |
| Other "backward castes" | 43.5 | 48.7 | 53.9 |
| All others | 32.4 | 43.3 | 53.5 |
| Total | 44.7 | 53.2 | 62.5 |
| **No schooling adult female (>=18 years) (%)** | | | |
| Scheduled tribe | 83.6 | 89.5 | 94.5 |
| Scheduled caste | 81.3 | 84.3 | 85.2 |
| Other "backward castes" | 74.8 | 80.2 | 84.3 |
| All others | 60.4 | 66.8 | 74.8 |
| Total | 73.9 | 80.1 | 85.6 |
| **Household size by ethnicity** | | | |
| Scheduled tribe | 5.1 | 5.7 | 5.6 |
| Scheduled caste | 5.3 | 5.8 | 5.5 |
| Other "backward castes" | 5.7 | 6.2 | 5.7 |
| All others | 5.9 | 6.5 | 6.1 |
| Total | 5.6 | 6.1 | 5.7 |
| **Total dependency ratio (%)** | | | |
| Scheduled tribe | 87.2 | 111.4 | 120.3 |
| Scheduled caste | 101.6 | 124.7 | 135.3 |
| Other "backward castes" | 103.6 | 126.5 | 146.6 |
| All others | 104.2 | 130.2 | 139.6 |
| Total | 101.2 | 124.2 | 135.6 |
| **Electricity (%)** | | | |
| Scheduled tribe | 33.4 | 27.7 | 32.0 |
| Scheduled caste | 38.6 | 33.1 | 33.4 |
| Other "backward castes" | 44.9 | 38.7 | 31.4 |
| All others | 50.5 | 44.5 | 38.7 |
| Total | 43.1 | 36.4 | 33.2 |

# NOTES

**1** The developing world consists of six regions: East Asia and the Pacific, South Asia, Sub-Saharan Africa, Latin America and the Caribbean, Europe (eastern) and Central Asia, and the Middle East and North Africa (in decreasing order by total population).

**2** We have adopted the World Bank's definition of the extreme poor people of the world as those who live on less than one international dollar per day ($1.08 to be more precise) per person, measured at the 1993 purchasing power parity (PPP) exchange rates for consumption. See Appendix 1 for details on the method of deriving the PPP exchange rates.

**3** Although the poverty gap ratio and the distribution-sensitive squared poverty gap ratio could be used to measure the depth and the severity of poverty, respectively, we used the head count measure of poverty because its interpretation is straightforward.

**4** To be more precise, subjacent poverty is defined as the proportion of the population living on between $0.81 and $1.08 a day; medial poverty as between $0.54 and $0.81 a day; and ultra poverty as below $0.54 a day. All are measured at the 1993 PPP exchange rates.

**5** "Africa makes a fool of our idea of justice. It makes a farce of our idea of equality. It mocks our pieties; it doubts our concern; and questions our commitment." Bono.

**6** Poverty traps have been found to be present in Madagascar (Barrett et al. 2006), Kenya (Barrett et al. 2006), South Africa (Adato, Carter, and May 2006), and Cote d'Ivoire (Barrett, Bezuneh, and Aboud 2001), but have not been found to be present in Russia (Loshkin and Ravallion 2004), China (Jalan and Ravallion 2004), and Mexico (Antman and McKenzie 2005), although the researchers did find considerable persistence of poverty over time.

**7** Household data were not available for China so it was not included in the countries considered in Chapter 3. However, Vietnam was included, as were Laos and Timor-Leste.

**8** India, Bangladesh, Pakistan, and Sri Lanka are considered in Chapter 3.

**9** A lack of access to household data prohibits us from examining Nigeria in Chapter 3, but a number of other significant Sub-Saharan African countries are included (such as Zambia and Mozambique).

**10** Peru, Nicaragua, and Guatemala are considered in the country-level analysis conducted in Chapters 3 and 4.

**11** Spearman rank correlation = 0.79, p-value=0.000, sample size is 89 countries. Interestingly, the rank correlations of the GHI with all four international poverty measures (poverty headcount ratio at $1 and $2 a day, poverty gap at $1 and $2 a day) exceed the rank correlations of these poverty indicators

with any of the index components (see Wiesmann 2006).

**12** A more detailed explanation of the hunger indicators, including measurement reliability issues, can be found in Smith, Alderman, and Aduayom (2006).

**13** Poverty estimates for Ethiopia were not included because they were deemed to be unrealistically low. Those for Laos were not included because expenditures data are not available for this analysis.

**14** Calorie consumption could not be estimated for Vietnam and Peru because data on quantities of food consumed were not available in the household survey datasets for these countries.

**15** The reader should keep in mind that although it is true that rural dwellers are more physically active than urban dwellers and thus will tend to have a higher actual energy requirement, this study uses the requirement for light activity to distinguish the hungry from those who are not hungry, a minimum normative requirement below which a person is defined to be food-energy deficient regardless of his or her actual activity level.

**16** It is worth noting that the strongest deviation from 100 percent overlap is for Nicaragua, where only 57 percent of poor people are hungry, and this is most likely due to overestimation of poverty rates as a result of an overly high PPP.

**17** Only hunger data were calculated for Laos and Ethiopia, and data on key characteristics were not available for Kenya, Senegal, and Timor-Leste.

**18** Pakistan, Sri Lanka, Tajikistan, Peru, and Guatemala were omitted because the number of observations in ultra poverty was too small for analysis.

**19** UNAIDS/UNICEF/USAID 2002.

**20** The net enrollment rate (NER) is the ratio of enrollment by children of the official targeted age (we used ages 6-11 for the five-year primary school cycle) in a given level of schooling (such as primary) to the total number of children of the official targeted age. The NER excludes under-age and over-age children. As age of children was not included in the Mozambique dataset, it could not be included in this analysis.

**21** Household survey data on the ownership of cultivable land were available for only 12 countries.

**22** No electricity data were available for Burundi, which is why it is missing in the tables and figures for electricity.

**23** UNFPA 2004, p. 48.

**24** Recently, some cross-country regression analyses suggest that the world income distribution is developing in a way that is consistent with poorer countries remaining poor and middle-income and rich countries becoming richer (Azariadis and Stachurski 2005, for example). However, others provide evidence that is more in line with convergence (Kraay and Raddatz 2007). From the current analysis, it appears that the jury is still out on whether poverty begets poverty on a national level.

**25** Azariadis and Stachurski 2005.

**26** Sen 2000.

**27** Rodrik 2003.

**28** Ravallion 2001, Fields 2001, Dollar and Kraay 2002, Kraay 2006.

**29** World Bank 2000b, Ravallion and Chen 1997.

**30** Also see Besley and Cord 2007; Grimm, Klasen, and McKay 2007.

**31** Besley and Burgess 2003.

**32** Ravallion, Chen, and Sangraula 2007.

**33** Collier 2007.

**34** Messer, Cohen, and Marchione 2001.

**35** World Bank 2002c.

**36** Blattman and Lundberg 2007, World Bank 2002c.

**37** Baquet and van Herp 2000.

**38** Bucagu 2000, UNDP 1999.

**39** Messer, Cohen, and Marchione 2001.

**40** World Bank 1998a, p. 13.

**41** World Bank 2002c.

**42** Rwelamira and Kleynhans 1996.

**43** Green 1994, Criel 1998.

**44** UNDP 1999.

**45** Collier 2007, Messer and Cohen 2006.

**46** Collier 2007.

**47** Ravallion, Chen, and Sangraula 2007.

**48** World Bank 2005a.

**49** World Bank 1995a.

**50** Sachs 2001.

**51** Baker 2004.

**52** UNDP 2001.

**53** World Bank 2005c.

**54** World Bank 1995c.

**55** TANGO International 2003a.

**56** Alwang et al. 2005.

**57** Jalan and Ravallion 2002.

**58** Kabeer 2005.

**59** World Bank 2003b.

**60** Figueroa and Barron 2005.

**61** Hill and Christiaensen 2006.

**62** World Bank 2003c.

**63** World Bank 2002b.

**64** Khandker, Balcht, and Koolwal 2006.

**65** World Bank 1994.

**66** World Bank 1996a.

**67** Redding and Venables 2004.

**68** Robinson 1999.

**69** Barrett et al. 2006.

**70** World Bank 2005a.

**71** Alderman 1996, Jalan and Ravallion 1999, Dercon and Krishnan 2000.

**72** Narayan-Parker et al. 2000.

**73** Jalan and Ravallion 1999.

**74** Dercon 2004.

**75** World Bank 2005a.

**76** World Bank 2003a.

**77** Bouis et al. 1998.

**78** Hoddinott and Kinsey 2001.

**79** Behrman, Gaviria, and Szekely 2001.

**80** World Bank 2002a.

**81** World Bank 2003a.

**82** Barrett et al. 2006, p. 259.

**83** Mango et al. 2004 and Randrianjatovo 2004, cited in Barrett et al. 2006.

**84** Krishna 2004.

**85** Kabeer 2002.

**86** World Bank 2004, p. 37.

**87** World Bank 2003b.

**88** World Bank 2004.

**89** Hoogeveen 2005.

**90** Gomart 2003.

**91** World Bank 1996b.

**92** World Bank 2003a.

**93** HelpAge International 2002, p. 3.

**94** Ainsworth and Filmer 2002.

**95** Ghana National Commission on Children 1997.

**96** There is a large literature on the relationship between height and earnings, height and cognitive development, and height and progress through schooling. Hoddinott and Kinsey (2001) review this literature.

**97** Becker and Tomes 1986.

**98** Quisumbing 2006a (many of the following examples are drawn from the literature review in this paper).

**99** TANGO International 2003b, World Bank 2002a.

**100** World Bank 2003b.

**101** King and Lillard 1987, Deolalikar 1993, King and Bellew 1991, Behrman and Knowles 1999.

**102** Neri et al. 2000, Jacoby and Skoufias 1997, Behrman, Gaviria, and Szekely 2001.

**103** Patrinos and Psacharapolous 1992.

**104** Banerjee et al. 2005.

**105** Quisumbing 2006b.

**106** Fafchamps and Quisumbing 2005.

**107** Subbarao and Coury 2004.

**108** Siaens, Subbarao, and Wodon 2003.

**109** Case, Paxson, and Ableidinger 2002.

**110** Beegle, De Weerdt, and Dercon 2006.

**111** Subbarao and Coury 2004.

**112** Ntozi et al. 1999, Ramphele 2001.

**113** Harper, Marcus, and Moore 2003, p. 545.

**114** Banerjee and Duflo, forthcoming.

**115** World Bank 2005c.

**116** World Bank 2004.

**117** Baulch and McCulloch 1998, Wodon 1999.

**118** Gang, Sen, and Yun 2006.

**119** World Bank 2003b.

**120** Lanjouw, 2007.

**121** World Bank 2002a.

**122** World Bank 1996a.

**123** Gomart 2003.

**124** Quisumbing, Estudillo, and Otsuka 2004.

**125** Bardhan and Udry 1999.

**126** Banerjee and Duflo, forthcoming.

**127** World Bank 1995c, p. 8.

**128** World Bank 1995a.

**129** World Bank 2005a, 2003a.

**130** Banerjee and Duflo. forthcoming.

**131** Carter and Barrett 2006.

**132** World Bank 2005a.

**133** Lybbert et al. 2004.

**134** Adato, Carter, and May 2006.

**135** Azariadis and Stachurski 2005.

**136** Dercon 1996.

**137** Morduch 1995, Rosenzweig and Binswanger 1993, Fafchamps and Pender 1999.

**138** Barrett et al. 2006.

**139** Dercon 2002.

**140** Hoddinott 2006.

**141** Carter et al. 2007.

**142** Bardhan and Udry 1999.

**143** Barrett and Foster 2007, p. 254.

**144** de Weerdt 2004.

**145** Rao and Ibanez 2003.

**146** Besley, Pande, and Rao 2005.

**147** Agarwal 1994.

**148** World Bank 1996a.

**149** World Bank 2005c.

**150** World Bank 1995a.

**151** World Bank 2004.

**152** World Bank 1996a.

**153** Mahbub ul Haq Human Development Center 2000.

**154** World Bank 2002a.

**155** Haddad et al. 1996.

**156** Kakwani and Subbarao 2005.

**157** World Bank 2005c.

**158** Shepherd 2007, p. 19.

**159** Kabeer 2005.

**160** World Bank 2006b.

**161** World Bank 2004.

**162** Hall and Patrinos 2005.

**163** Hall and Patrinos 2005.

**164** Borooah 2005.

**165** World Bank 2003b.

**166** Sainath 2000.

**167** Durlauf 2006.

**168** Conley and Udry 2003.

**169** Hoff and Pandey 2004.

**170** World Bank 2005a.

**171** It calculates two alternative specifications of the Lorenz curve—the General Quadratic (Villasenor and Arnold) and the Beta model (Kakwani) and gives the specification that is best for the data.

**172** In fact, the FAO measure currently captures a narrow aspect of food security as defined by heads of state and other high-level representatives of the international community at the World Food Summit in 1996: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO 1996b, Paragraph 1).

**173** Eradicating extreme poverty and hunger and reducing child mortality are part of the Millennium Development Goals. As specific targets, these goals include halving the proportion of people who suffer from hunger and the proportion of people living below $1 a day between 1990 and 2015, and reducing the under-five mortality rate by two-thirds in the same period (United Nations 2001).

**174** The PPP exchange rates and base year CPIs are taken from Sillers (undated). The survey year CPIs are from IMF (2007).

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