

1. Introduction

The development experience of Asia between the 1960s and the 1980s has typically been characterized as one in which one group of economies grew rapidly – the “newly industrializing economies” of East Asia (Hong Kong, China; Republic of Korea; Singapore; and Taipei, China) followed by several economies of Southeast Asia – while another group did not – the economies of South Asia. Interestingly, though there were exceptions, low levels of income inequality appeared to characterize both groups of economies in comparison with developing countries in other regions, especially Latin America. Since at least the 1990s, high rates of economic growth have become more common in the region. However, it is widely believed that inequalities have also grown in many countries.

How correct is this perception, and how broadly does it apply to a region as diverse as developing Asia? To the extent that inequalities have grown, what are the implications for policy? Do increases in inequality really matter? What should be the stance of public policy? These are some of the questions that this special chapter of *Key Indicators 2007* addresses. A crucial contribution of this chapter, however, is that it brings together recent evidence on inequality in incomes and, especially, consumption expenditures.¹ Clearly, incomes or expenditures are by no means all that goes into determining *economic* well-being, i.e., an individual’s access to goods and services.² Educational and health status, having political power or access to justice, among others, are all important factors that contribute to economic well-being. Accordingly, the manner in which these other variables is distributed over a population is relevant to a study of inequality, and we present some evidence on inequality in some of these other variables. However, our focus is on the distribution of economic well-being as captured through data on incomes and expenditures. A detailed examination of issues related to education and health is provided in ADB 2006.

An issue we examine is whether the distribution of economic well-being has become more or less “equal” in

developing Asia over the last 10 years or so. The evidence shows that inequality in the region as a whole – i.e., treating 16 individual developing member countries (DMCs) of the Asian Development Bank (ADB) for which sufficient data exist, as if they constituted one country – has risen. For example, while the Gini coefficient for developing Asia (16 countries) was around 46.8 in 1993 it climbed to 52.4 by 2003. Inequality has also increased within countries in much of developing Asia. Indeed, out of 21 DMCs for which sufficient data are available, inequality is found to have increased over the last 10 years or so in 15 DMCs, and rather sharply in several of these – Bangladesh, Cambodia, People’s Republic of China (PRC), Lao People’s Democratic Republic (Lao PDR), Nepal, and Sri Lanka.³ On the other hand, declining levels of inequality characterize many of the Central Asian republics and the three Southeast Asian countries worst affected by the economic and financial crisis of 1997–98.

Not all increases in inequality that have emerged over the last 10 years or so are large, so that for the most part levels of inequality continue to be lower than the very high levels seen in many countries in Latin America and sub-Saharan Africa. Nevertheless, this chapter argues that developing Asia’s policy makers need to take the increases in inequality seriously. There are several reasons for this.

First, income or expenditure inequality is only one dimension of inequality, as noted above. Indeed, when it comes to inequality in nonincome dimensions – including those in education and health outcomes across socioeconomic population subgroups – inequality remains stubbornly high in many parts of the region, especially in South Asia. Moreover, there is evidence that some of these inequalities (in nonincome dimensions) have worsened (ADB 2006). In the PRC, for example, differences in health outcomes have increased between rural and urban areas (Zhang and Kanbur 2005; Tandon and Zhuang 2007).

Second, the increases in income or expenditure inequality can have important implications for the evolution of economic well-being. In the first place, increasing inequalities may imply a slower pace of poverty reduction. As is now widely recognized, for a given growth rate, a growth process in which inequalities are increasing sharply will be one in which the extent of poverty reduction is lower. More generally, increasing inequalities suggest that relatively poor individuals and households are not benefiting

¹ As will be explained later, data on consumption expenditures can be viewed as a proxy for households’ “permanent” incomes; additionally, data availability and other considerations suggest that data on consumption expenditures can capture economic well-being more completely than data on incomes.

² In most of this chapter, we will use the terms consumption and expenditures interchangeably. Although the two are not identical concepts, as will be pointed out in Section 3, using the two terms interchangeably rarely presents a problem.

³ Data limitations force us to consider a period of less than 10 years for several countries.

from, or participating in, economic growth to the same extent as richer individuals and households. Why is this happening? To what extent is it because of policy biases against the sectors and industries in which the poor are more likely to be engaged in? To what extent do the inequalities we see in *outcomes* (such as incomes, expenditures, health status, and educational attainments) reflect inequalities in *opportunities*? To the extent that a significant part of these increasing inequalities are related to policy biases and/or disparities in access to opportunities (to accumulate human capital, to access a vibrant labor market, etc.) they are a serious problem requiring attention. It is only by examining inequality and its evolution that such issues can begin to be addressed.

Finally, there are compelling reasons why high levels of inequality can damp growth prospects. This is especially important to consider in light of the evidence that distributions are becoming more unequal in Asia. Among other things, high levels of inequality can have adverse consequences for social cohesion and the quality of institutions and policies. In turn, social divisions and low-quality institutions and policies can have adverse implications for growth prospects.

The chapter is organized as follows (Figure 1.1 provides a diagrammatic road map). Section 2 provides a brief review of the evidence on inequalities in the region. The discussion is not limited to income inequality—the focus of this chapter; it also provides a snapshot of inequality in other dimensions as well. This section discusses, too, why policy makers should be concerned about inequality. Section 3 focuses on various conceptual, data, and measurement issues relating to inequality. Section 4 uses grouped or tabulated data on the distribution of incomes/expenditures for 22 DMCs in order to examine recent levels of income inequality (used as a shorthand for inequality that is based either on income data or on expenditure data) as well as recent trends in 21 of these DMCs. The data reveal that inequality has increased in a majority of these DMCs over the last 10 years or so. However, the increases in inequality do not reflect a situation in which the “rich are getting richer and the poor are getting poorer,” but rather one in which the rich are getting richer, *faster*. Put differently, even where inequality has increased, expenditures and incomes have typically increased at all points along the distribution in most countries, so that economic well-being as captured by households’ access to goods and services has improved, and poverty has declined.

Sections 5 and 6 delve more deeply into expenditure and wage inequality, and the factors that account for these, using household survey data and labor force survey data from four DMCs (India, Indonesia, Philippines, and Viet Nam). The sections particularly focus on the case of India, a country in which economic growth has been fairly rapid over the last 20 years but where many influential stakeholders are expressing serious concerns that increases in inequality mean that the poor have been “bypassed” by growth. The analysis reveals that this view is not quite correct. In particular, expenditures and wages are found to have increased at all points of the expenditure and wage distributions. In line with the results for developing Asia more broadly, and covered in Section 4, it is once again a case of both the rich and poor growing richer, but with the rich getting richer faster. Of course, since expenditures and incomes of the poor are meager to begin with, the spirit behind the concerns that growth has bypassed the poor remains.

More generally, the results of these two sections reveal that where inequalities have increased, growing earnings differentials between the college educated and less educated can be important for accounting for the increases in inequality. Growing rural-urban differentials and increasing returns to highly skilled occupations—encompassing managerial, professional, and technical occupations—are also a part of the story, though their importance varies by country context.

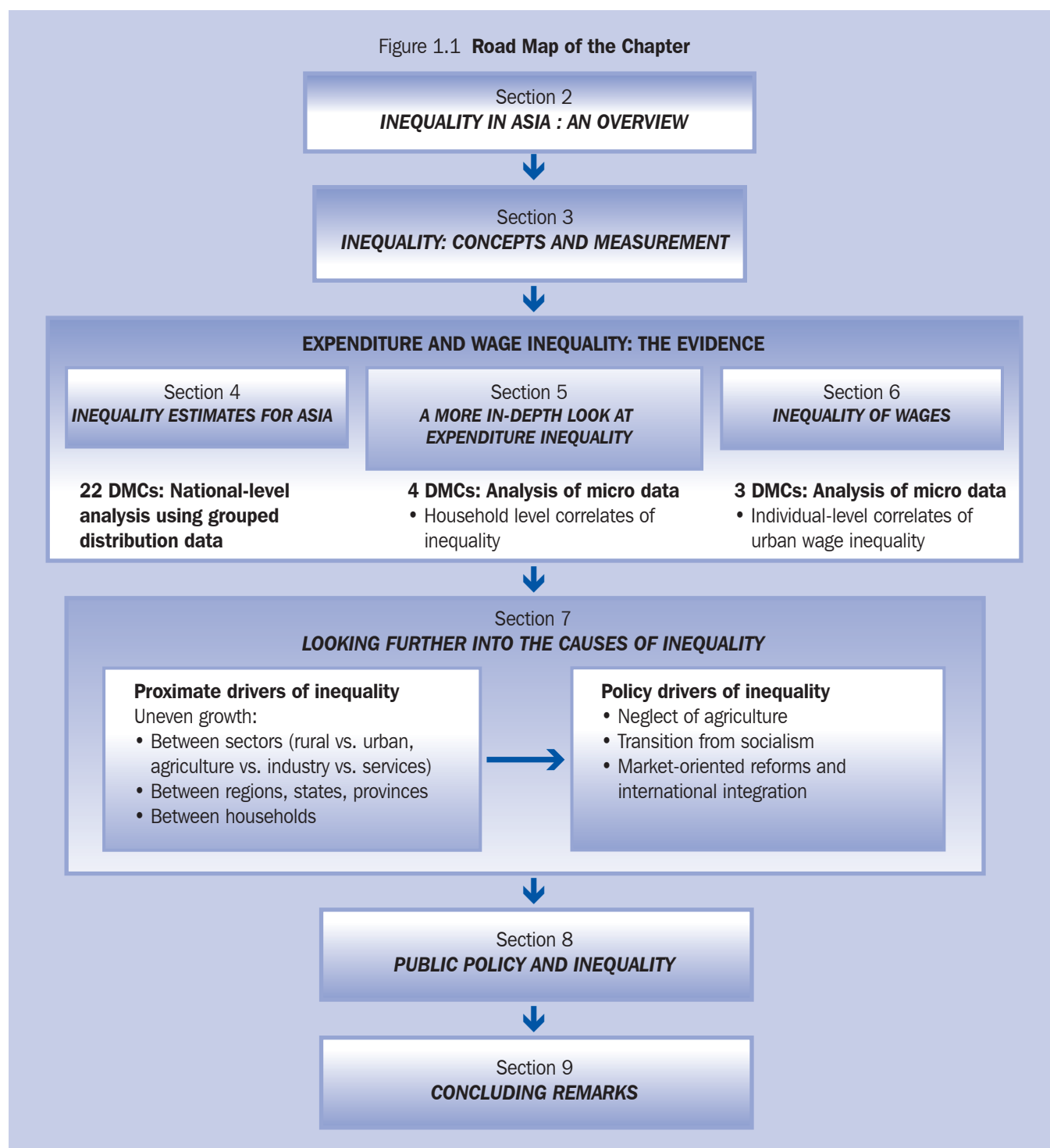
Section 7 looks further into the causes of inequality. It discusses the elements of the policy environment that may explain the patterns of inequality, and factors accounting for inequality, described in Sections 4–6. At one level, an apparent neglect of the agriculture sector, especially in the face of growing degradation of natural resources, has implied relatively stagnant productivity and earnings in the rural economy—on which a large proportion of Asia’s population, and an even larger proportion of Asia’s poor, depend. At another level, market-oriented economic reforms and international integration have resulted in an expansion of new economic opportunities. For various reasons, it appears that it is the better placed among the population who have been able to make the most of these opportunities. The best educated, in particular, have been the most likely to be able to seize these new opportunities.

How should public policy deal with inequality? Section 8 tackles this question in fairly broad terms. Echoing recent work, a key point made is that policy interventions aimed at tackling inequality need to first make an attempt at distinguishing between two types

of inequality: that driven by circumstances beyond the control of individuals; and that driven by effort and reflecting the rewards and incentives that a market economy provides to its citizens for working harder, looking out for new opportunities, and taking the risks entailed in seizing them. From this perspective, it is the circumstance-based inequalities that give rise to inequality in *opportunities* and must form the main target of public policies aimed at reducing inequalities. Admittedly, making a clean distinction between effort

and circumstances is not always straightforward. However, it is relatively easy to identify the most extreme circumstances that severely limit opportunities for many. Circumstance-based inequalities, which arise from social exclusion, lack of access to basic education and health care, and lack of access to income- and productivity-enhancing employment opportunities for the poor, are not only intrinsically unfair, they are also likely to work as serious constraints to poverty reduction and economic growth. Such circumstance-

Figure 1.1 Road Map of the Chapter



based inequalities must be dealt with urgently. At the same time, rapid increases in inequality, even when driven by effort-based inequalities, cannot simply be ignored. Such increases can have adverse effects on social cohesion and growth prospects, as when a concentration of incomes leads to the capture of policy for the benefit of the wealthy.

In what is clearly a controversial area, it is suggested that fighting inequality by focusing public policy on improving delivery of basic health care and education services to the poor, strengthening social protection, and raising significantly the employment opportunities for and incomes of the poor, should be a minimum common agenda to which developing Asia's policy makers, of all political and ideological stripes, should commit themselves.

2. Inequality in Asia: An Overview

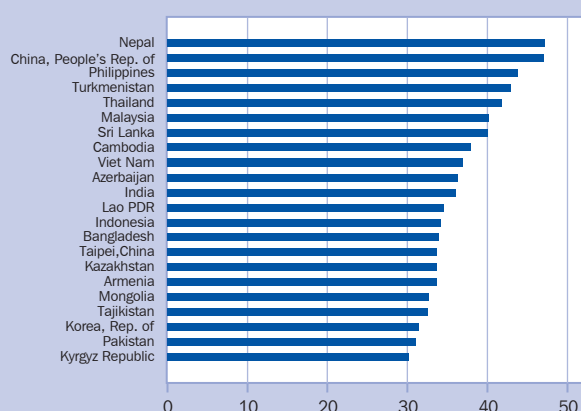
In this section, we first provide a short overview of the evidence on inequalities in the region, covering not only income inequality (a shorthand term for *either* income *or* expenditure inequality) but also several nonincome inequalities. We then discuss briefly why inequality matters and how public policy can approach inequality-related issues.

2.1 Income and Nonincome Inequalities in Developing Asia

Figure 2.1 presents estimates of the Gini coefficient, a popular measure of inequality, which are based primarily on expenditure distributions for 22 DMCs.⁴ A higher number represents greater inequality. As the figure shows, seven DMCs have Gini coefficients of around 40 or more. The remaining DMCs have Gini coefficients lying between 30 and 40. In the international context, these Ginis do not represent particularly high levels of inequality, especially when compared to many Latin American and some sub-Saharan African countries, where Gini coefficients of 50 or more are common (see Subsection 4.1). This does not mean, however, that inequality is not a concern in the region.

⁴ See Section 3 for a discussion on the Gini coefficient and measurement of inequality, more generally. See Section 4 for more details on the estimates presented in Figure 2.1.

Figure 2.1 Gini Coefficients, Developing Member Countries (expenditure and income distributions)



Notes: 1. Gini coefficients are for the following years: Armenia (2003), Azerbaijan (2001), Bangladesh (2005), Cambodia (2004), People's Republic of China (2004), India (2004), Indonesia (2002), Kazakhstan (2003), Republic of Korea (2004), Kyrgyz Republic (2003), Lao PDR (2002), Malaysia (2004), Mongolia (2002), Nepal (2003), Pakistan (2004), Philippines (2003), Sri Lanka (2002), Taipei, China (2003), Tajikistan (2003), Thailand (2002), Turkmenistan (2003), and Viet Nam (2004). 2. Per-household income distributions are used for Korea (urban wage and salaried households only) and Taipei, China. Per-capita expenditure distributions are used for the rest.

Sources: Authors' estimates using grouped data from World Bank PovcalNet, World Institute for Development Economics Research, World Income Inequality Database (Taipei, China), publications of national statistics offices or personal communications (India, Republic of Korea, Turkmenistan, and Viet Nam), and decile-wise distributions generated from unit record data (Bangladesh, Malaysia, and Philippines).

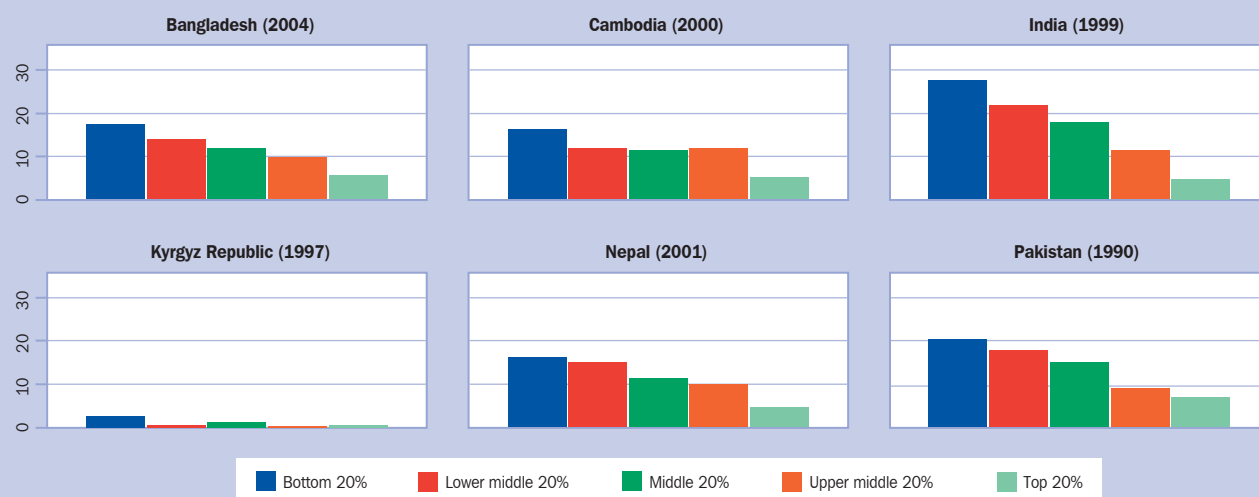
Inequalities in Health and Education

In the first place, moderate levels of income inequality can coexist with high levels of inequality in variables that are essential for well-being. Consider the distribution of severely underweight children across wealth quintiles.⁵ As Figure 2.2 reveals, both India and Pakistan—countries that do not register as having particularly high income inequalities—have very unequal outcomes on this measure of health status. In India, for example, around 5% of children are severely underweight among the richest 20% households. In the case of the poorest 20% of households, this share is as high as 28%. The gaps between the rich and poor on this measure are much lower in Cambodia, a country with a fairly similar (though higher) Gini coefficient for income.

Educational outcomes show a similar pattern. Once again, most South Asian countries have very unequal

⁵ The wealth quintiles (or fifths of population) are based on information on households' asset ownership contained in Demographic and Health Survey (DHS) Program data. For example, information on the presence, availability, or use of a fan, radio receiver, or automobile; quality of housing materials; other attributes related to economic status, etc., are used to construct an index of living standards. Households, and their members, can then be identified in terms of which wealth quintile they belong to. Details of the procedure on how to calculate the index are found in World Bank country reports, available: <http://web.worldbank.org>.

Figure 2.2 **Severely Underweight Children in Selected Asian Countries by Wealth Quintiles, Various Years (% of children)**

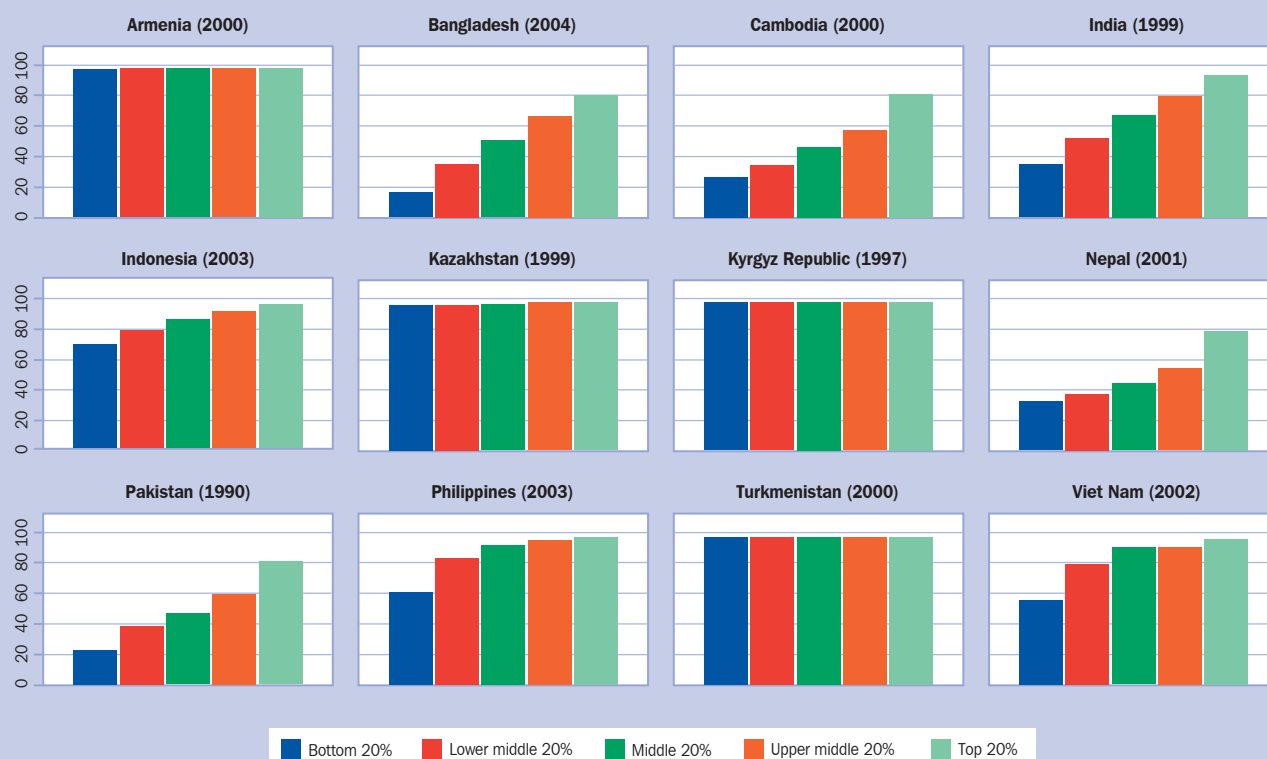


Note: Severely underweight children are those under 5 years of age whose height for age is below 3 standard deviations.
Source: World Bank, Demographic and Health Survey Program.

educational attainments. As Figure 2.3 shows, in sharp contrast to the transitional economies in Central Asia and Viet Nam, but also to Indonesia and the Philippines,

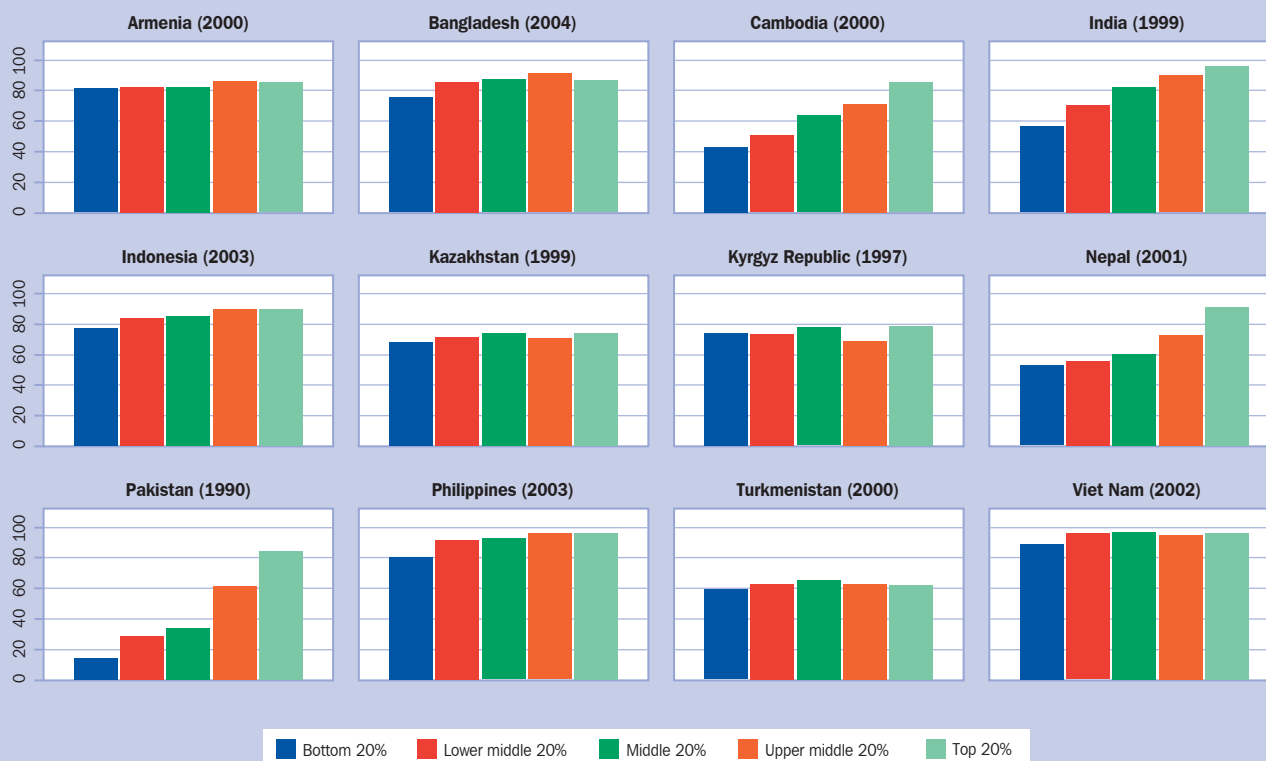
South Asian men (and women, though this is not shown) are much less likely to have acquired primary education if they come from poorer households.

Figure 2.3 **Proportions of Men Who Have Completed Fifth Grade by Wealth Quintiles, Various Years (% of men in the household age 15–49 who have completed fifth grade)**



Source: World Bank, Demographic and Health Survey Program.

Figure 2.4 Proportion of Girls Who Currently Attend School by Wealth Quintiles, Various Years
(% of girls in the household age 6–10 who currently attend school)



Source: World Bank, Demographic and Health Survey Program.

Fortunately, action by governments is changing the situation in some dimensions. In the case of Bangladesh and India, for example, the proportion of *girls*—the more disadvantaged gender—who are currently attending school has improved dramatically. As may be seen from Figure 2.4, the differential between the bars representing the poorest 20% and the richest 20% are narrower than in the case of Figure 2.3.

Nevertheless, the key point remains. Low levels of income inequality do not mean that inequality is similarly low in other important dimensions of well-being. (Further, data such as those used in Figure 2.4 do not take into account the quality of education being delivered, especially to the poor.)

Inequalities in Assets and Access to Infrastructure

Second, low levels of income inequality can also coexist with high levels of inequality in asset ownership and access to infrastructure services. Table 2.1 shows that in several developing Asian countries, landholdings can be fairly concentrated even if incomes/expenditures are not (for example, India and Pakistan). More generally, household wealth (essentially ownership of physical and financial assets) tends to be unambiguously more

unequally distributed than incomes/expenditures (Davies et al. 2006). This may be seen from Table 2.2, which describes the distribution of wealth for an international cross-section of countries, including some DMCs for which adequate information on asset ownership is available.

As we shall see below, a concentration of wealth or of assets implies that for the economically disadvantaged,

Table 2.1 Distribution of Landholdings
(Gini coefficients)

| Economy | Year | Gini Coefficients |
|-------------------------|------|-------------------|
| Bangladesh | 1977 | 41.7 |
| China, People's Rep. of | 1997 | 43.8 |
| India | 1986 | 57.9 |
| Indonesia | 1993 | 45.4 |
| Korea, Rep. of | 1990 | 37.2 |
| Lao PDR | 1998 | 38.7 |
| Malaysia | 1960 | 68.0 |
| Nepal | 1971 | 54.2 |
| Pakistan | 1989 | 55.0 |
| Philippines | 1991 | 54.7 |
| Sri Lanka | 1961 | 62.3 |
| Taipei, China | 1960 | 39.0 |
| Thailand | 1993 | 44.7 |
| Viet Nam | 1994 | 47.4 |

Source: Frankema (2006).

Table 2.2 Global Wealth Distribution in 2000, PPP Values and Income/Expenditure Gini Coefficients, Various Years for Selected Economies

| Economy | Wealth Distribution in 2000, PPP Values | | | | Income/Expenditure Gini Coefficient Estimates | | |
|--------------------------------------|---|--------|--------|-------------|---|-------------|------|
| | Top 10% | Top 5% | Top 1% | Wealth Gini | Year | Type | Gini |
| United States ^a | 19.6 | 23.5 | 36.8 | 80.1 | 2003 | Income | 46.4 |
| Japan ^a | 14.2 | 15.9 | 11.7 | 54.7 | 1998 | Income | 31.9 |
| Germany ^a | 7.0 | 8.9 | 3.9 | 67.1 | 1998 | Income | 25.0 |
| Italy ^a | 5.8 | 5.5 | 5.3 | 60.9 | 2002 | Income | 35.9 |
| China, People's Rep. of ^b | 4.1 | 1.4 | ... | 55.0 | 2004 | Expenditure | 47.3 |
| Spain ^a | 3.7 | 3.2 | 2.3 | 56.5 | 2002 | Income | 31.0 |
| France ^a | 3.5 | 3.9 | 5.6 | 73.0 | 2002 | Income | 27.0 |
| Brazil ^c | 2.4 | 2.3 | 2.3 | 78.3 | 2004 | Income | 57.0 |
| India ^b | 2.3 | 1.2 | ... | 66.9 | 2004 | Expenditure | 36.2 |
| Canada ^a | 2.0 | 2.2 | 2.5 | 66.3 | 2000 | Income | 36.5 |
| Korea, Rep. of ^a | 1.8 | 1.1 | 0.9 | 57.9 | 2004 | Income | 31.6 |
| Taipei, China ^c | 1.7 | 1.8 | 1.9 | 65.4 | 2003 | Income | 33.9 |
| Australia ^a | 1.7 | 1.7 | 1.2 | 62.2 | 2000 | Income | 30.9 |
| Mexico ^c | 1.4 | 1.3 | 1.2 | 74.8 | 2002 | Income | 51.2 |
| Argentina ^c | 1.0 | 1.0 | 0.9 | 74.0 | 2001 | Income | 52.3 |
| Indonesia ^b | 0.9 | 0.7 | 0.7 | 76.3 | 2002 | Expenditure | 34.3 |
| Thailand ^c | 0.5 | 0.4 | 0.2 | 70.9 | 2002 | Expenditure | 42.0 |
| Pakistan ^c | 0.4 | 0.3 | 0.2 | 69.7 | 2004 | Expenditure | 31.2 |
| Bangladesh ^c | 0.3 | 0.2 | 0.2 | 65.8 | 2005 | Expenditure | 34.1 |
| Viet Nam ^c | 0.1 | 0.1 | ... | 68.0 | 2004 | Expenditure | 37.1 |
| Nigeria ^c | ... | ... | ... | 73.5 | 2003 | Expenditure | 43.6 |
| WORLD | 100 | 100 | 100 | 80.2 | | | |

PPP = purchasing power parity.

^a Data from wealth levels sourced from household balance sheets.

^b Wealth levels sourced from survey data.

^c Wealth levels sourced from imputed values.

Sources: Wealth distribution from Davies et al (2006), income/expenditure Gini coefficients from World Institute for Development Economics Research, World Income Inequality Database.

potential economic opportunities can be difficult to seize. Something similar happens when public infrastructure is distributed very unequally across a country. As shown in Table 2.3, taken from Banerjee, Iyer, and Somanathan (2007), a great proportion of the

registered for a majority of the DMCs. In some cases the increases are not very large (perhaps within the margin of statistical error). But in some DMCs, including some of the most populous, the increases in inequality are not trivial.

Income Inequality is Increasing in Many Countries

Finally, even if we were to focus on income inequality in developing Asia—which, as already noted, does not look large relative to those in other parts of the developing world—current levels represent relatively large increases in inequality over the last 10 years or so in many cases. Why should this matter? This question is taken up below.

2.2 Why Does Inequality Matter?

Increasing Inequality and its Impact on Poverty Reduction

Increases in inequality damp the poverty reducing impact of a given amount of growth.⁶ An illustration of this point can be useful. Consider Figure 2.5, which describes changes in the Gini coefficient for 21 DMCs over a roughly 10-year period (a little lower and a little higher in some cases). As may be seen, an increase in inequality is

Table 2.3 Access to Public Goods Across Subnational Regions of Selected Developing Member Countries

| Developing Member Country | Year | % Population with Access to | | | | | | | | | | | | Access to Schools ^a | | |
|---------------------------|------|-----------------------------|----------------|---------------|-------------------|------------------|------------------|------------|----------------|---------------|-------------|----------------|---------------|--------------------------------|----------------|---------------|
| | | Clean Water | | | Health Facilities | | | Sanitation | | | Electricity | | | | | |
| | | Overall | Highest Region | Lowest Region | Overall | Highest Region | Lowest Region | Overall | Highest Region | Lowest Region | Overall | Highest Region | Lowest Region | Overall | Highest Region | Lowest Region |
| China, People's Rep. of | 1999 | 96.3 | 100.0 | 74.7 | ... | 99.5 | 61.1 | ... | ... | ... | ... | ... | ... | ... | 100.6 | 57.79 |
| India ^b | 2001 | 33.7 | 99.8 | 2.0 | 3.2 | 61.0 | 0.0 | ... | ... | ... | 76.0 | 100.0 | 36.0 | 78.0 | 98.0 | 39.0 |
| Indonesia | 2002 | 55.2 | 72.2 | 21.5 | 75.9 | 97.1 | 49.9 | 75.0 | 100.0 | 43.7 | ... | ... | ... | 96.1 | 99.0 | 83.5 |
| Nepal | 2001 | 44.8 | 82.0 | 12.0 | 0.3 ^c | 2.2 ^c | 0.0 ^c | 43.7 | 93.2 | 11.2 | 32.2 | 97.4 | 5.9 | 1.4 | 4.8 | 0.4 |
| Pakistan | 1998 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 71.0 | 75.0 | 64.0 |
| Thailand | 2001 | 98.9 | 99.8 | 97.1 | ... | ... | ... | 98.9 | 100.0 | 96.6 | 98.3 | 99.9 | 97.2 | 73.8 | 63.4 | 88.6 |
| Viet Nam | 2001 | ... | ... | ... | 99.0 | 100.0 | 96.6 | ... | ... | ... | 79.3 | 98.9 | 50.5 | 99.9 | 100.0 | 99.3 |

^a Access to schools is measured by primary school enrollment rates for Indonesia and Pakistan; combined primary, secondary, and high school enrollment for the People's Republic of China; percentage of villages having any educational institution in India; number of schools per 1,000 population in Nepal; lower secondary enrollment in Thailand; and percentage of communes with access to a primary school in Viet Nam.

^b All numbers for India refer to the percentage of villages with access to specified public goods.

^c Number of health centers per 1,000 population.

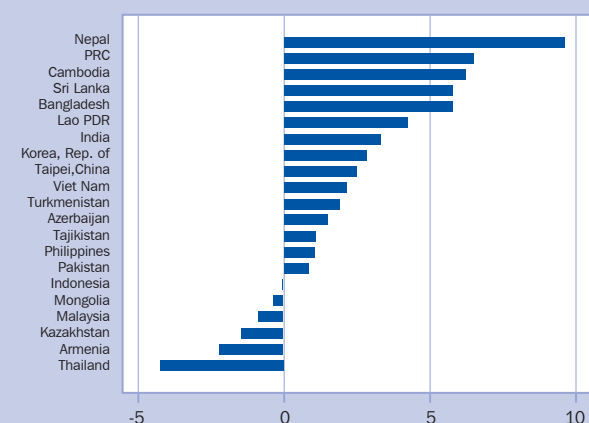
Note: The relevant subnational regions are provinces for People's Republic of China, Indonesia, Pakistan, and Viet Nam; states for India; regions for Thailand; and districts for Nepal. Highest (lowest) refers to the highest (lowest) figure that was recorded for a subnational region.

Source: Table 1 of Banerjee, Iyer, and Somanathan (2007).

population in lagging subnational regions in Asian DMCs have no access to electricity, sanitation, or clean water. This is true especially for the South Asian countries, India and Nepal.

⁶ More generally, for a given growth rate, the extent of poverty reduction depends on two proximate factors: the initial level of inequality and the changes in inequality over time. The higher the initial level of inequality, or the increase in inequality, the lower will be the extent of poverty reduction (Ravallion 2004a).

Figure 2.5 Changes in Gini Coefficient for Expenditure/Income Distributions, 1990s–2000s (percentage points)



Notes: Years over which changes are computed are as follows: Armenia (1998–2003); Azerbaijan (1995–2001); Bangladesh (1991–2005); Cambodia (1993–2004); People's Republic of China (1993–2004); India (1993–2004); Indonesia (1993–2002); Kazakhstan (1996–2003); Republic of Korea (1993–2004); Lao PDR (1992–2002); Malaysia (1993–2004); Mongolia (1995–2002); Nepal (1995–2003); Pakistan (1992–2004); Philippines (1994–2003); Sri Lanka (1995–2002); Taipei, China (1993–2003); Tajikistan (1999–2003); Thailand (1992–2002); Turkmenistan (1998–2003); and Viet Nam (1993–2004). Income distributions for Republic of Korea and Taipei, China; Expenditure distributions for the rest of the countries.

Source: Same as Figure 2.1.

Figure 2.6 shows, for the 10 DMCs in which the Gini coefficient increased (and in which \$1-a-day poverty rates were not negligible to begin with), both the actual changes in \$1-a-day poverty rates that took place, and the changes in poverty rates that would have taken place with the same growth (in mean per capita expenditures) as actually took place, had inequality remained at its previously lower level.⁷

As the figure shows, poverty reduction would have been higher—sometimes considerably so—had the economies in question been able to achieve the growth in mean per capita expenditure that they did *but* with their previous and more equal distributions.

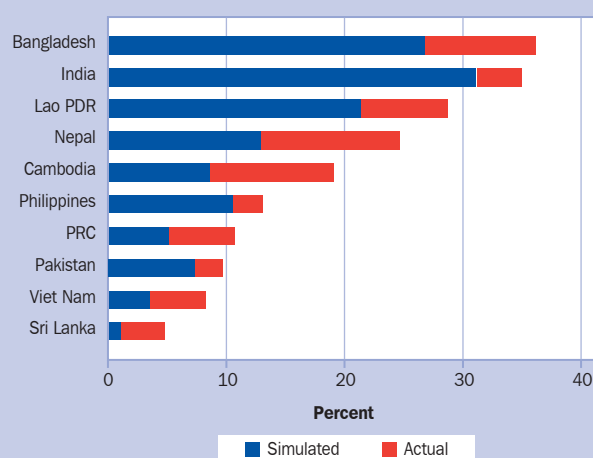
Of course, both the growth in mean per capita expenditure and how its distribution evolves are outcomes resulting from a complex interplay of many different factors, including the effects of specific policies that have been adopted. Policy trade-offs between achieving higher growth and maintaining or even lowering inequality may well be serious enough that achieving the same growth rates without worsening distribution may not be a realistic option. The point of this illustration is only to show how worsening inequality may detract from the goal of poverty reduction.

⁷ Or more accurately, the changes in poverty rates that would have resulted given the initial distribution.

Inequality, Economic Growth, and the Evolution of Economic Well-being

More generally, examining the evolution of inequality is useful since it can provide us with valuable information on how different members of society are engaged with the overall growth process. There is often a tendency among both scholars and development practitioners to equate economic development with the rate of growth of per capita incomes. Even if we accept incomes or expenditures as an appropriate measure of economic well-being, as does this chapter, the behavior of average incomes may tell us little about the economic well-being of different subgroups of the population.⁸ Consider once again the experience of the DMCs described in Figure 2.5 at left. Underlying many of the cases of increasing Gini coefficients is a growth process in which those at the top of the distribution (top 20%) have seen their

Figure 2.6 \$1-a-day Poverty Rates, Actual versus Simulated



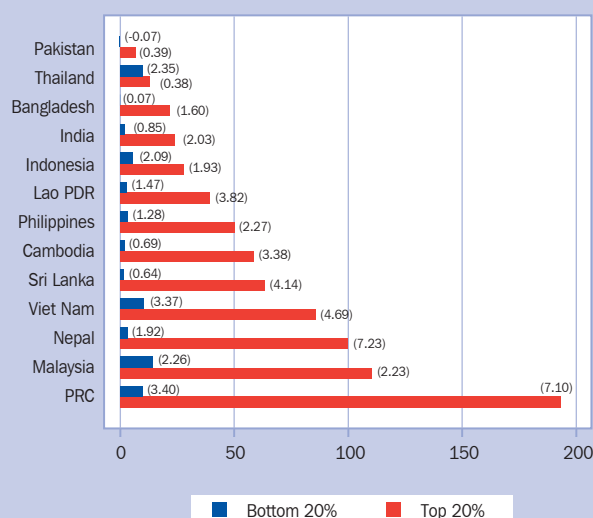
Notes: Poverty rates are for the following years: Bangladesh (2005); Cambodia (2004); People's Republic of China (2004); India (2004); Lao PDR (2002); Nepal (2003); Pakistan (2004); Philippines (2003); Sri Lanka (2002); and Viet Nam (2004). Simulated poverty rates are computed using expenditure distributions for the following years: Bangladesh (1991); Cambodia (1993); People's Republic of China (1993); India (1993); Lao PDR (1992); Nepal (1995); Pakistan (1992); Philippines (1994); Sri Lanka (1995); and Viet Nam (1993).

Source: Same as Figure 2.1.

⁸ The practice of equating economic well-being, or economic development more broadly, with per capita income has been challenged by a number of scholars. Nobel prize winner Amartya Sen, for example, has described development in terms of the concept of “capabilities” – it is the expansion of these capabilities that goes to the heart of what economic development is about. However, it is possible to challenge the view that equates economic development with increases in income per capita while at the same time maintaining the importance of incomes, and the command they bring over material goods and services. Rawls' (1971) proposal to measure economic development in terms of the goods and services available to society's poorest members would fall under this type of challenge, as would Roemer's (2006) view that economic development be measured by the extent to which a society equalizes opportunities.

expenditures/incomes grow considerably faster than those at the bottom (bottom 20%). The differentials in expenditure levels, shown in Figure 2.7, are especially stark in terms of changes in levels of expenditure (the bars) as opposed to growth rates (numbers in parentheses). In fact, level increases in expenditures have been higher for the top 20% than the bottom 20% even in those countries where Gini coefficients have declined (for example, Indonesia and Malaysia).

Figure 2.7 **Changes in Per Capita Expenditures, 1990s–2000s, Bottom 20% and Top 20% (1993 PPP dollars)**



Note: Years over which changes are computed are as follows: Bangladesh (1991–2005); Cambodia (1993–2004); People's Republic of China (1993–2004); India (1993–2004); Indonesia (1993–2002); Lao PDR (1992–2002); Malaysia (1993–2004); Nepal (1995–2003); Pakistan (1992–2004); Philippines (1994–2003); Sri Lanka (1995–2002); Thailand (1992–2002); and Viet Nam (1993–2004).

Source: Same as Figure 2.1.

A little bit of reflection on these figures raises a number of questions. First, what explains the patterns we see? For example, why is it that the differential rates of growth in per capita expenditures between the top 20% and bottom 20% were much larger in the PRC than in Thailand? Examining inequality and its evolution is useful because it motivates analysis of such questions, the results of which will hopefully catalyze policy efforts to improve the economic well-being of those at the bottom of the distribution.

Second, to what extent do the differential rates of growth really matter? Consider again the case of the PRC, only now contrasting it with India. Inequality in

terms of the Gini coefficient has not only been higher in the PRC than in India (in both 1993 and 2004), it has also increased more dramatically in the PRC (recall Figure 2.5 above). But what if we were to focus on the absolute gains among the poorest 20% of the population? That is, in which country has economic well-being (or standards of living) increased more for the poorest 20%? One only needs to compare the bars and growth rates of per capita expenditures of the poorest 20% for the PRC and India in Figure 2.7 to see that the answer is the PRC. From this perspective, although inequality has grown faster in the PRC, mean expenditures of the poor have increased more there than in India.

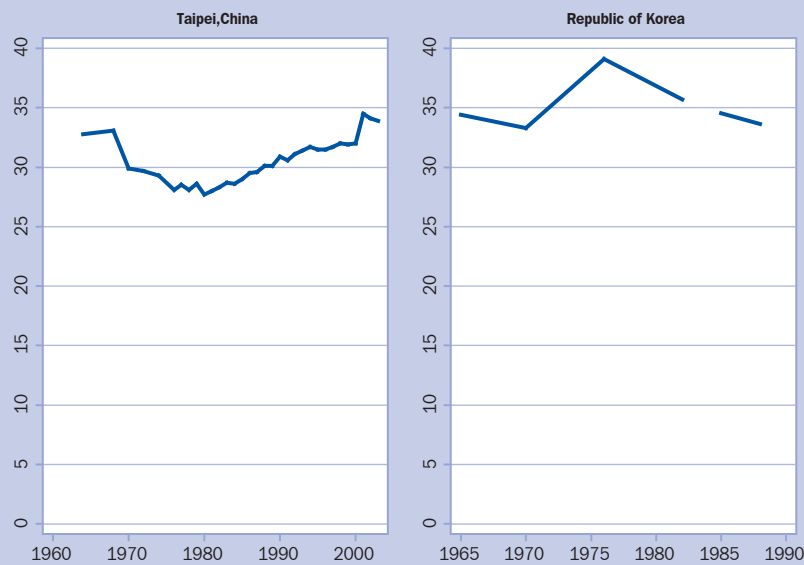
Indeed, some observers may go further and treat the rapid increase in inequality in the PRC as a natural outcome of rapid growth in a developing economy. Such a view would certainly be consistent with the idea of the “Kuznets curve” (or the “inverted-U hypothesis”) in which inequality first rises and then falls with economic growth. However, this view presents two problems. First, as a large number of studies have demonstrated, the evidence for the Kuznets curve is weak. A rapid and sustained rise in inequality is not an inevitable result of high economic growth, as can be seen from Figure 2.8. This shows that the *income-based* Gini coefficient for two newly industrialized economies—Republic of Korea and Taipei, China—never touched 40 during their phase of rapid growth between the 1970s and 1990s, and even declined over some periods. Conversely, a reduction in inequality as a result of continuous economic growth beyond a “turning point” is also not a foregone conclusion (see Box 2.1 for more details on the Kuznets curve).

Second, there are reasons to believe that particularly high levels of inequality may adversely impact future growth and development prospects. In the context of the evidence on increasing inequality in many developing Asian countries, it is worth spending a little time on this.

Does a High Level of Inequality Help or Hinder Growth Prospects?

A dominant view in post-World War II development circles was that high inequality facilitated the growth process (and, as discussed in Box 2.1, that growth itself could be expected to lead to greater inequality). Box 2.2 describes thinking on growth and distribution issues over the years.

Figure 2.8 Trends in Inequality, Republic of Korea and Taipei, China
(Gini coefficients, 1960s–2000s)



Note: The Gini coefficients are based on income surveys.

Sources: World Institute for Development Economics Research, World Income Inequality Database, drawing on Taipei, China's Directorate-General of Budget, Accounting and Statistics; Fields (1989); Korea National Statistical Office.

An important rationale for the view that inequality facilitated growth was provided by Nicholas Kaldor.⁹ Large-scale investments in infrastructure were seen to be critical in jumpstarting industrialization and economic growth. In the context of weakly functioning capital markets, some concentration of income and wealth could help spur investment if the marginal propensity to save was higher among the rich (i.e., capitalists) than the poor (i.e., workers).¹⁰ This was because a larger share of national income in the hands of the rich would imply a higher savings rate for an economy, and consequently higher investments, capital accumulation, and growth. A second reason to connect higher inequality with higher economic growth has to do with the role of incentives. An economic regime that does not reward effort or provide incentives for entrepreneurship is likely to be one with low inequality; it may also be one with low growth.

There are other mechanisms, however, that suggest that high levels of inequality will damp growth. Many

of the specific mechanisms highlighted by recent literature either work through “wealth effects” or political economy arguments.¹¹ In the case of wealth effects, the underlying factor linking high inequality with lower growth is the idea that tomorrow’s wealth or incomes depend non-trivially on today’s. Those with little wealth or low incomes are unable to invest in wealth- or income-enhancing activities and remain poor. In principle, they may be able to borrow to finance investment. But imperfect financial markets, coupled with other market failures—all of which can be safely assumed to be widespread in developing countries—can seriously constrain the ability of otherwise creditworthy individuals to borrow in order to finance investments in education or business opportunities, or even to insure themselves from the risks associated with potentially profitable ventures. In this way, the prospects for a large group of individuals to raise their future incomes

are compromised. Seen from the perspective of wealth effects, what is of interest is that redistributing assets (and reducing the collateral requirements for financing investment), far from having adverse distortionary effects, will be growth enhancing (see below).

As for political economy considerations, one class of arguments links higher inequality to the pressure to redistribute (on account of the political power of the “median voter,” for example). Redistribution, in turn, lowers growth. This may be because redistribution is executed through transfers that are distortionary (for example, redistribution may be financed by a tax on capital which, in turn, damps investment and growth). Alternatively, the process of bargaining that accompanies the call for redistribution, ranging from peaceful but prolonged street demonstrations all the way to violent civil war, may be costly.

Another class of political economy arguments works through the adverse effects of inequality on the

⁹ Kaldor’s work in this area appeared in a series of papers in the 1950s. It should be noted that even though Kaldor hypothesized that inequality would spur growth, he was nevertheless concerned that growing inequality would exacerbate the conditions that subjected the capitalist system to periodic crises.

¹⁰ Nevertheless, there was concern about possibly adverse consequences from concentration of income and wealth. It was partly such concerns that led a number of developing countries to develop a large public sector that could accumulate resources to finance infrastructure and other industrial investments.

¹¹ Many other mechanisms have been discussed in the literature as a whole. Some of the mechanisms emphasize how high initial levels of inequality can perpetuate themselves. For example, suppose there are two types of goods, luxury goods produced using capital-intensive technologies and basic goods produced using labor-intensive technologies. If high inequality increases the demand for luxury goods relative to basic goods, the demand for factors of production will be skewed toward capital and against labor. In this way, the returns to labor will remain relatively low and inequality will be perpetuated. See Fields (2001) for a discussion of the channels through which inequality might be harmful for growth.

Box 2.1 The Kuznets Curve

According to the Kuznets curve hypothesis, the level of inequality traces out an inverted-U shape along the development process. Initially, inequality increases with growth. After a “turning point,” continued growth is associated with declines in inequality. Why should inequality trace out an inverted-U in this manner? Simon Kuznets suggested that economic growth was accompanied by shifts (in employment as well as production) from low inequality traditional/rural/agricultural activities to high inequality modern/urban/industrial activities. He believed that it was such a process of intersectoral shifts that may have generated the inverted-U.

The hypothesis has strong and optimistic policy implications for developing countries. In particular, increases in inequality may be viewed as a natural outcome of the growth and development process. In due time, increases in inequality—and the social costs they may bring—will be reversed.

What is the empirical evidence for the hypothesis? This can be asked not only for the experience of today’s developing economies, but also the economies of the West as they developed (Kuznets based the hypothesis on his analysis of top income shares in the United States (US) from 1913 to 1948 along with data on distribution in five (now industrial) countries at a single point of time). Unfortunately, recent empirical work has not been kind to the Kuznets hypothesis. Consider first a re-examination of the evidence documenting the decline of inequality in the West by Thomas Piketty (2006).

Decline of Inequality in the West

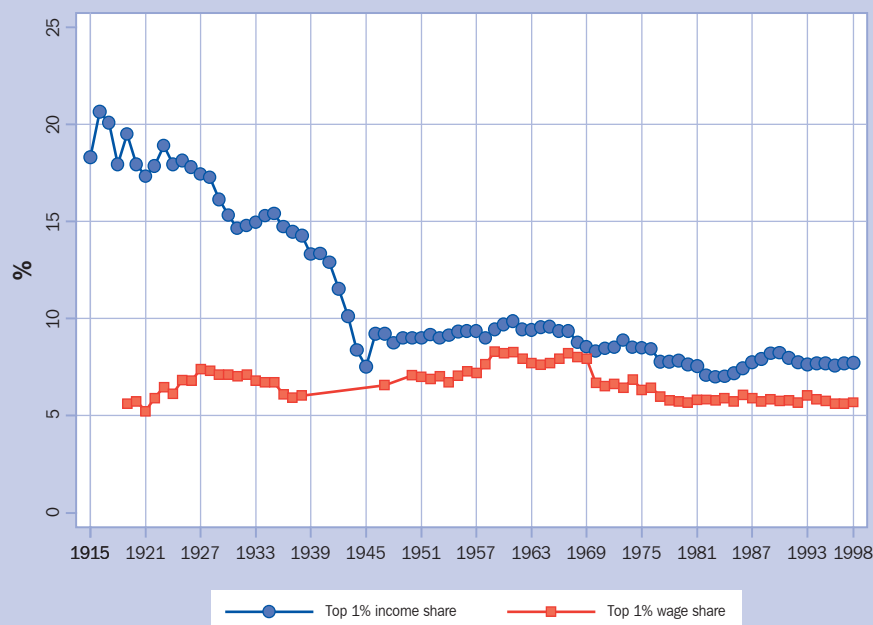
At the time of his 1954 address to the American Economic Association annual congress, Kuznets largely relied on the 1913–1948 series on top income shares in the US. The data showed a clear decline in the shares of top incomes, and hence inequality. In conjunction with the widespread belief among economists that inequality had risen during the 19th century, a turning point was considered to have taken place at some time around 1900.

While the fact that changes in inequality trace out an inverted-U remains fairly uncontroversial, does this also hold true for the evidence that intersectoral shifts were behind the inverted-U? As Piketty notes, Kuznets was fully cognizant of the fact that the actual empirical evidence on such shifts driving the pattern of inequality seen in the data was meager: “... perhaps 5% empirical information and 95% speculation, some of that possibly tainted by *wishful thinking*” (Kuznets 1955, p. 2; italics added).¹

So what was driving the decline in inequality in the West? A key factor that Kuznets could not have picked up with the data available to him

was that the declines in inequality were driven not so much by the dynamics of wage inequality, but by what was happening to capital incomes. In particular, World War I, the Great Depression, and World War II (along with high inflation in various years during this period) represented major shocks between 1914 and 1945 that hit capital incomes hard. Since the ownership of capital was concentrated, inequality declined as a result. By contrast, wage inequality fluctuated within a relatively narrow band and the rural–urban migration process hypothesized by Kuznets played little part in the declines in income inequality. As Piketty states, “low-wage rural workers slowly disappeared, but they were replaced by low-wage urban workers at the bottom of the distribution, so that overall wage inequality hardly changed” (p. 66). Indeed, as may be seen from Box Figure 2.1.1, based on administrative tax data from France, the evolution of wage inequality as measured by the wage share of the top 1% cannot be responsible for the decline in income inequality as measured by the income share of the top 1% between 1915 and 1945.

Box Figure 2.1.1 The Fall of Top Capital Incomes in France, 1915–1998



Source: Figure 3 and Table A1 of Piketty (2003).

Developing Country Evidence on the Kuznets Curve

Evidence on whether or not there is an inverted-U shape relationship between inequality and income levels in developing countries comes from the work of Deininger and Squire (1998) who assembled time-series data on inequality and per capita national incomes for 48 economies (developing and industrial). The inverted-U pattern is found in only 10% of the cases (the Philippines being the only developing Asian economy in this group). An ordinary-U pattern is found in 10% of the cases (India being the only developing Asian economy in this group). No statistically significant relationship is found between inequality and incomes in the remaining 80% of economies (including, from developing Asia, Bangladesh; People’s Republic of China; Hong Kong, China; Indonesia; Republic of Korea; Malaysia; Pakistan; Singapore; Sri Lanka; Taipei, China; and Thailand).

¹ Cited by Piketty. He goes on to quote Kuznets that “the future prospect of the underdeveloped countries within the orbit of the free world” was at stake. In this way, the inverted-U hypothesis may well have been a byproduct of the Cold War.

Box 2.2 Thinking on Inequality and Growth: Perspectives over the Years

How has thinking on inequality and growth evolved over the years? Kanbur (2000) presents a very useful discussion on the phases that have characterized the dominant thinking on one of the most debated issues in economics—the relationships and interactions between inequality and growth (or distribution and development, as he puts it). Broadly speaking, Kanbur identifies four distinct phases.

First Phase

In the first phase, which arose around World War II and held sway in the aftermath of the war (1940s and 1950s), thinking on inequality and growth was influenced heavily by an imperative for jumpstarting the process of industrialization and economic growth in developing countries. This was not on account of lack of concern for poverty. In fact, industrialization and economic growth were seen as the best antidote to poverty.

The first phase was characterized by a relative neglect of distributional consequences. Indeed, industrialization, and more broadly the process of economic growth, were viewed as naturally resulting in increased inequalities. The following quote by Lewis captures well the dominant thinking of the time:

“Development must be inequalitarian because it does not start in every part of an economy at the same time. Somebody develops a mine, and employs a thousand people. Or farmers in one province start planting cocoa, which grows in only 10% of the country. Or the Green Revolution arrives to benefit those farmers who have plenty of rain or access to irrigation, while offering nothing to the other 50% in the drier regions” (Lewis 1983).

Indeed, as already noted in the text, in addition to the fact that growth would give rise to greater inequality in the beginning (but decline subsequently as argued by Kuznets), higher levels of inequality were themselves seen as having beneficial implications for growth prospects.

Second Phase

In the second phase of dominant thinking (mid-1950s to mid-1970s), concerns about possible conflicts between growth and inequality appeared, as did calls for the need for managing the processes of growth and the distribution of that growth across the population.

Source: Kanbur (2000).

Experiences such as that of Brazil, where it was argued that despite rapid growth poverty might have increased, were instrumental in raising concerns about the distributional implications of growth. Similarly, the Government of India's Third Five-Year Plan covered explicitly issues related to distribution. Reflecting these experiences, Chenery et al. (1974) emphasized the point that growth might not benefit the poor because of its distribution patterns. As a result, the distributional consequences of the growth process had to be managed.

Third Phase

Kanbur argues that as soon as the new consensus was consolidating, a new thinking was emerging and would go on to mark the third phase (mid-1970s to early 1990s). Essentially, this new thinking downplayed the existence of trade-offs between growth and distribution. Distortions in policies (for example, overvalued exchange rates, large public-sector enterprises) were not only inefficient, they were also inequitable. As a result, policy reforms to tackle these distortions could generate not only higher growth, but could tackle inequality and poverty as well. An influential body of work that informed this new emerging thinking was the emerging story of the “East Asian miracle” in which context the original four “Tigers” (Hong Kong, China; Republic of Korea; Singapore; and Taipei, China) experienced not only rapid growth, but growth that was widely shared. These achievements took place in the context of policies that were deemed to be far less “distorted” than seen elsewhere in the developing world.

Fourth Phase

Interestingly, the focus of policy and academic attention on the East Asian miracle gave way to an emergence of a revisionist view of the miracle. This view challenged not only the stance of policy (especially in the case of the Republic of Korea and Taipei, China), but also highlighted the role that initial conditions, especially the *distribution* of land and human capital, played in fostering and sustaining economic growth in these economies.

More generally, a fourth phase of thinking on growth and inequality issues appears to be emerging. This phase is characterized by a return to concerns that “trade-offs between growth and equity are ever present and need to be negotiated by each society in the context of their social political frameworks” (Kanbur 2000).

quality of institutions and/or policies. If high levels of inequality give high-income individuals greater ability to tilt economic outcomes and policies toward themselves, growth prospects may well diminish. At a relatively benign level, bribery may result in some wasted resources as a wealthy individual (or group of individuals) lobbies government for the award of a contract. Much more pernicious is the situation where individuals with great wealth or high income use their economic resources to alter institutions and policies in their favor, with possibly damaging consequences for future growth.

Empirical Evidence

Faced with opposing tendencies, it becomes important to look at empirical studies on the connections between

inequality and growth. Many studies have used the cross-country regression framework to look for empirical evidence on the effects of inequality and growth. Box 2.3 provides a brief overview of this literature.

Based in part on some of this evidence, it seems reasonable to think of the relationship between inequality and growth in the following way: both very low levels of inequality, as well as very high levels, are likely to be incompatible with high growth. Figure 2.9—based on Cornia and Court (2001) (with some minor adaptations)—illustrates the point. Increases in inequality from very low levels—from a Gini coefficient of around 15, as typically found in subsistence economies and some former socialist countries—to around 30 are found to be positively associated with growth. As the Gini coefficient increases beyond 45, a fairly typical

Box 2.3 Does Inequality Hamper Growth? Results of Cross-Country Regressions

In so far as the overall relationship between inequality and growth is concerned, the results from cross-country regressions have been mixed. The initial set of studies using data from a large number of countries found a negative (and statistically significant) association between income inequality and economic growth (for example, Alesina and Rodrik 1994). An alternative econometric specification by Barro (2000) found, however, a more nuanced relationship. Inequality's effect on growth differed across developing and industrial countries. In particular, while high levels of inequality were associated with higher growth in the sample of industrial countries, inequality was associated with lower growth in countries with per capita GDP of about \$3,200 (in 2000 US dollars) or less. A subsequent set of studies, however, found inequality to be positively associated with growth (for example, Forbes 2000).

Crucially, the studies exploited the “panel” dimension of cross-country data (i.e., they focused on exploiting within-country variations in inequality and growth) and in a methodological sense represented an advance over earlier studies. However, even with this approach, inequality may still impact growth negatively. Deininger and Olinto (1999), for example, find that asset inequality—as measured by inequality in the distribution of land—is negatively associated with growth.

A sharp critique of studies using the cross-country regression framework to examine the relationship between inequality and growth has emerged from the work of Banerjee and Duflo (2003). In a nutshell, they argue that the basic linear regression framework (and its variants such as used by Forbes and others) is incapable of teasing out the complex (and nonlinear) nature of the relationship that theory tells us exists between inequality and growth. For example, as can be inferred from the discussion above, inequality's impact on growth is not a direct one; rather, it works through factors such as imperfect capital markets.

Using a very different empirical approach—an approach that is more appropriate to account for the nonlinearities in the relationship between inequality and growth—Banerjee and Duflo find that changes in inequality in any direction are associated with reduced growth. They point out that, while such a relationship is consistent with a simple political economy interpretation, it could also be driven by measurement errors in the data on inequality. In order to uncover the true nature of the relationship between inequality and growth, they recommend switching from the cross-country regression framework to an analysis of changes in inequality within countries.

level found in Latin American and sub-Saharan African countries, growth prospects suffer.¹² In between is what Cornia and Court call the “efficient inequality range.” It is important to emphasize (as Cornia and Court do) that the precise shape of the inequality-growth relationship depicted in Figure 2.9 varies across countries. Different societies have different tolerances of inequality.

Some important results have been uncovered by the cross-country literature—for example, the finding by some researchers that higher *asset* inequality as opposed to income inequality is more strongly associated with lower growth. However, concerns over the quality of data on inequality and the necessity of forcing the data from very different countries (and thus from different economic, political, and social contexts) to fit a common and highly aggregative relationship between inequality and growth have led some researchers to argue for more analysis of *individual* country case studies that examine the links between inequality and growth. Such analysis should not only be in terms of the overall strength of the relationship, if any, but should also shed light on the specific channels through which inequality may (or may not) affect growth prospects.

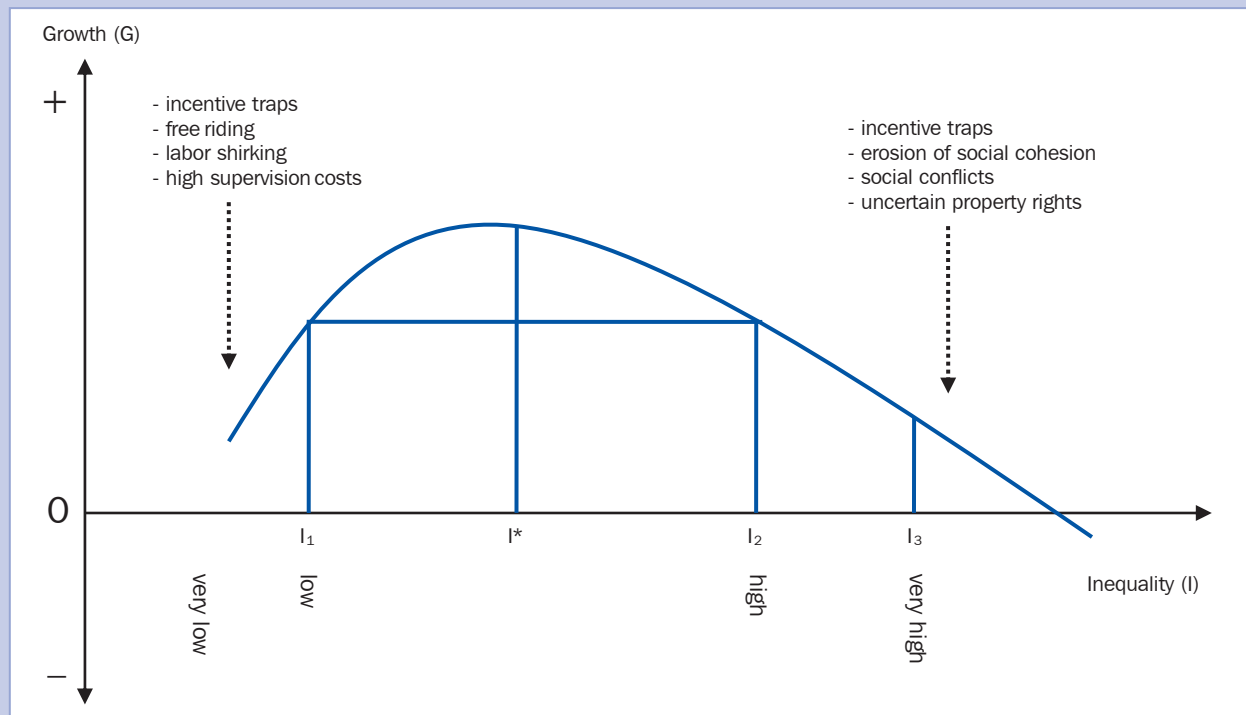
A detailed discussion of available evidence along these lines on the role played by inequalities in income, wealth, or social status in influencing investment decisions, and hence growth, is provided in World Bank (2005). The studies covered provide fairly compelling evidence that: (i) imperfections in

the market for credit, insurance, land, and human capital are pervasive features of the developing country landscape; and (ii) these market imperfections lead poorer individuals, households, and enterprises to underinvest. Furthermore, there can be a flip-side to the underinvestments by those constrained by market imperfections: more than optimal investments by the unconstrained. For example, a study of two social groups operating in the knitted garment industry in Tirupur in south India, the Gounders (a small and wealthy agricultural community that has moved into garment production due to a shortage of agricultural opportunities) and “outsiders” (who have moved to Tirupur to exploit its recognized location as a center for garment exports), reveals that even though the outsiders are more productive, it is the locally well-connected Gounders who are able to invest more on account of their access to local finance (Banerjee and Munshi 2004). A similar situation probably applies to the fairly common finding across many developing countries that small firms are more productive than large firms. In this case, “markets are somehow not allocating the right amount of land to those who currently farm the smaller plots” (World Bank 2005, p. 99).

Case studies that try to gauge empirically the nature and strength of the relationship between inequality and growth as it works through political economy channels are fewer, especially in the *contemporary* developing country context (and at least in so far as work by economists, and the common tools they employ, is concerned). However, this is beginning to change. Additionally, once we allow for historical

¹² The specific numbers reported here are from Cornia, Addison, and Kiiski (2004), cited in Birdsall (2007).

Figure 2.9 Inequality and Growth



Source: Cornia and Court (2001).

evidence, there are some compelling accounts of how high inequalities can adversely affect the quality of institutions and policies, and thereby damp growth.

A prominent example of the historical evidence is provided by the work of Engerman and Sokoloff (2002) who argue that very large differences in inequality across the economies of the Americas appear to have contributed to systematic and significant differences in the evolution of institutions there.¹³ Greater equality, as well as greater homogeneity among the population, in the northern US and Canada “led, over time, to more democratic political institutions, to more investment in public goods and infrastructure, and to institutions that offered relatively broad access to economic opportunities. In contrast, where there was extreme inequality [i.e., most other colonial societies in the

Americas], political institutions were less democratic, investments in public goods and infrastructure were more limited, and the institutions that evolved tended to provide highly unbalanced access to economic opportunities and thereby greatly advantaged the elite” (p. 4).¹⁴

While factor endowments play a key role in generating the initial inequality that perpetuates itself and leads to the introduction of growth-retarding institutions and policies in Engerman and Sokoloff’s analysis, historical accidents have generated the initial inequalities in Banerjee and Iyer’s (2005) study of the long-term impact of land revenue-collection systems introduced by British colonial rulers in 19th-century

¹³ Engerman and Sokoloff also argue that a fundamental determinant of the differences in extent of inequality characterizing the various parts of the Americas had to do with factor endowments. For example, very unequal colonial societies such as those in the Caribbean and Brazil were characterized by climate and soil conditions very well suited for growing crops such as sugar. These crops were highly valued on world markets and were most efficiently produced on large slave plantations. The elites in these colonies had every incentive, as well as the ability, to “establish a basic legal framework that ensured them a disproportionate share of political power and to use that power to establish rules, laws, and other policies that give them greater access to economic opportunities than the rest of the population.”

¹⁴ Easterly (2006) provides some corroborating evidence – based on the cross-country regression framework – that factor endowments can play an important role in causing inequality, which in turn, lowers growth. Acknowledging the problems plaguing previous research on inequality and growth using the cross-country regression framework, Easterly utilizes data on agricultural endowments to help solve the measurement error and endogeneity problems. The logic of using agricultural endowments is based on the work of Engerman and Sokoloff (2002). In particular, Easterly argues that countries with an abundance of land suited to growing wheat relative to sugarcane would have been less prone to becoming more unequal. Easterly finds that agricultural endowments predict inequality exactly as Engerman and Sokoloff’s work suggests and, moreover, that increasing inequality leads to lower growth. Additionally, and once again paralleling Engerman and Sokoloff, Easterly finds high inequality to be a barrier to the spread of “good-quality institutions.”

India. In particular, Banerjee and Iyer compare various human development outcomes in 1981 across two types of areas, one where British colonial rulers established landlord-based systems for collecting land revenue, and the other where non-landlord systems (in which taxes were in effect collected from peasants directly) operated. Landlord-based systems, which were deemed to be exploitative of the peasant population and had a history of class conflict, were abolished in the early 1950s. Nevertheless, census data from as late as 1981 reveal systematic differences between the two areas in several dimensions pertaining to human development. Areas with a history of landlord-based systems lagged others in terms of the provision of schools and health-care centers. They had lower literacy rates and higher infant mortality rates, and interestingly, higher rates of violent crime.¹⁵ Banerjee and Iyer interpret these results as suggesting that a history of class conflict made areas with a history of landlord-based systems less cohesive and therefore less effective in securing public goods.

More contemporary evidence of how inequalities (and poverty) can lead to conflict (and thereby undermine growth) comes from Nepal where a “people’s war” was started by Maoist insurgents in 1996. At least two separate studies that have analyzed the determinants of the intensity of conflict across Nepal’s districts have uncovered a possible role for social and economic inequalities in explaining why some districts have been more adversely affected by the conflict than others (Murshed and Gates 2005, Do and Iyer 2006). Do and Iyer’s study, for example, finds that a lack of economic opportunities (measured in terms of higher poverty rates or lower literacy rates) is significantly associated with a higher intensity of violent conflict. In particular, their results suggest that a 10 percentage point increase in poverty is associated with 23–25 additional conflict-related deaths.

2.3 Inequality and Public Policy

What does the foregoing discussion (covering not only a snapshot of estimates of inequality in developing Asia, but also reasons why high inequality can be detrimental for economic well-being and prospects for growth) suggest should be the stance of public policy vis-à-vis inequality? While this is the subject matter for Section 8 of this chapter, two points are worth noting here.

¹⁵ These results persist despite attempts by the authors to control for omitted factors that may be driving the result that landlord-based systems display worse human development outcomes.

High Levels and Increases in Inequality Should Not Be Ignored

As many Asian countries experience growing inequality (in incomes or expenditures), they would do well to recognize some of the pitfalls that both theory and the international development experience point to, for societies where inequalities become very high. At a minimum, high or growing inequality is indicative that relatively poorer individuals are drawing proportionately fewer benefits from, or participating less in, growth. In other words, it suggests the possibility that growth is not particularly broad-based. Additionally, there is a danger that growing inequality may lead to a deterioration in social cohesion and/or in the quality of institutions and policies, and ultimately in the prospects for economic growth.

Inequality: The Role of Effort versus Circumstances

In dealing with inequalities, it is useful to consider whether the inequalities (or increases in inequalities) are driven by differences in effort or by differences in circumstances outside the control of individuals (Roemer 2006). While it would be unfair to hold individuals responsible for the circumstances they find themselves in, it would be acceptable to hold them responsible for their effort.¹⁶ Put differently, not all inequality is undesirable. Key challenges for public policy are in identifying which features of the economic and social landscape create circumstances that trap individuals into cycles of poverty and low incomes, and in designing policy interventions that can alter these circumstances without damping the rewards that accrue to effort.

3. Inequality: Concepts and Measurement

As noted earlier, a key issue examined in this chapter is whether the distribution of economic well-being, captured through data on income and consumption expenditure distributions, has become more or less

¹⁶ Distinguishing between circumstances and effort, and even defining them precisely, can be difficult. Nevertheless, it provides a useful starting point for thinking about how policy should deal with inequality. For example, the inequalities in basic health and educational outcomes discussed at the outset of this section are bound to represent, to a large degree, inequalities due to circumstances. Such inequalities are doubly pernicious in that they not only detract from well-being today, but also often trap individuals in poverty.

“equal” in developing Asian countries over the last 10 years or so. Before turning to the data and evidence, however, it is useful to discuss some conceptual issues relating to the meaning and measurement of inequality. This discussion is provided in subsection 3.1. Subsection 3.2 covers some practical considerations relating to the types and quality of the available data on distribution and their implications for the analysis of inequality.

3.1 The Measurement of Inequality: Conceptual Issues¹⁷

The term inequality has many different meanings. In this chapter, it is used primarily to describe how an indicator of economic well-being is distributed over a particular population. A *measure* of inequality in turn provides a single “numerical representation” of the interpersonal

the disparity that allows one individual certain material choices denied to another (Ray 1998). There are many measures of inequality available. Box 3.1 describes some of the more commonly used measures in the literature on inequality (a more detailed discussion of these is provided later).

Which specific measure (or measures) of inequality should one use to compare inequality across distributions? In the first instance, the answer depends crucially on how we conceptualize inequality. An example is useful to illustrate this point. Consider two simple measures of inequality: (i) the difference between the highest and lowest income in a given population (also known as the range), and (ii) the ratio of the highest and lowest income (a variant of the quintile ratio described in Box 3.1). To simplify matters further,

Box 3.1 Inequality: Some Common Measures of Inequality

Measures of inequality can differ from one another in terms of the concepts of inequality on which they are based. They can also differ on the basis of their sensitivity to incomes at different points along the income distribution. Differences in concepts of inequality are discussed in the text. Here we describe some popular measures of inequality and the portions of the overall distribution they focus on. The discussion is carried out in terms of income inequality; the treatment of expenditure inequality would be identical.

The **quintile income ratio** compares the income earned by the top 20% of the population with that of the lowest 20%. More generally, income ratios can be computed for different “quantiles,” a generic term that refers to any specific population proportion. For example, income ratios may be computed on the basis of deciles (one tenth of the population ranked by income), quartiles (one quarter of the population), etc.

As should be clear, income ratios only use specific segments of the complete distribution. A quintile income ratio, for example, uses information on only incomes of the top 20% and bottom 20%.

The **Gini coefficient** is one of the most commonly used measures of inequality and ranges from 0 to 1 (or 0 to 100 when expressed in percentage terms, as is done in this chapter). With perfect equality, the Gini coefficient would equal zero. With perfect inequality, it would equal one (or 100). Numerically, the Gini coefficient can be computed as follows:

$$\text{Gini} = \frac{-(n+1)}{n} + \frac{2}{n^2 \mu_x} \sum_{i=1}^n i \cdot x_i$$

where x_i is the income of recipient/individual i , μ_x is the average income, and n is the total number of recipients/individuals.

Sources: Fields (2001); ADB (2004).

Generalized entropy (GE) measures are derived from the notion of entropy in information theory. As discussed in more detail in the text, they satisfy five important properties for comparing inequality across distributions (see text for details). The formulas for computing these are:

$$\text{GE}(\alpha) = \begin{cases} \frac{1}{\alpha(1-\alpha)} \frac{1}{n} \sum_{i=1}^n \left[1 - \left(\frac{x_i}{\mu_x} \right)^\alpha \right] & \text{for } \alpha \neq 0, 1 \\ \frac{1}{n} \sum_{i=1}^n \frac{x_i}{\mu_x} \ln \left(\frac{x_i}{\mu_x} \right) & \text{for } \alpha = 1 \\ \frac{1}{n} \sum_{i=1}^n \ln \left(\frac{x_i}{\mu_x} \right) & \text{for } \alpha = 0 \end{cases}$$

The parameter α represents the weight given to income differences at different points of the income distribution. The GE measure is more sensitive to changes in income at the lower end of the distribution for lower values of α . Higher values of α make the GE measure more sensitive to changes in income at the upper end of the distribution. The parameter α can take any real value. However, the typical values used are 0, 1, and 2. A value of 0 makes the GE measure put more weight on income differences at the lower end of the distribution, while a value of 2 makes it put more weight on income differences at the upper end of the distribution. A value of 1, also known as the Theil index, puts equal weights on income differences across the entire distribution.

differences in income for a given population (Cowell 1995). More broadly, a measure of inequality quantifies

suppose that our population consists of only two people whose incomes we observe at two points of time, say, in 1995 and 2005. In 1995, the first person’s income is \$100 per month while the second’s is \$1,000. Suppose that 10 years later both persons’ incomes have doubled so that

¹⁷ Excellent and detailed discussions on the measurement of inequality are contained in Cowell (1995) and Fields (2001).

the first person's income becomes \$200 and the second's \$2,000. Has inequality increased, decreased, or stayed the same? It depends on the perspective of the analyst. In the context of our example, it depends on whether the analyst cares more about *relative* inequality (i.e., concerned with proportionate differences in incomes), or *absolute* inequality (i.e., concerned with absolute differences in incomes). If it is the former, inequality as measured by the proportionate differences in incomes will reveal inequality to be unchanged ($\$1,000/\$100 = \$2,000/\$200 = 10$). But if the analyst is concerned with the absolute differences in high and low incomes, inequality has clearly increased (the difference between the two incomes in 1995 being \$900 and that in 2005 being \$1,800).

More generally, an important consideration on which inequality measures differ from one another is the extent to which they satisfy five properties (or "axioms").¹⁸ These properties are: (i) income scale independence, (ii) population independence, (iii) anonymity, (iv) the transfer principle, and (v) decomposability.

The first of these properties is one we have already encountered. Formally, the property of income scale independence requires that inequality be unchanged for proportionate changes in all incomes. Measures of relative inequality satisfy this property; measures of absolute inequality do not.

It is important to note that a measure of inequality that does not satisfy income scale independence is not "wrong" (or "right"). As Fields (2001, p. 16) points out, "absolute inequality and relative inequality are not alternative measures of the same underlying concept; they measure fundamentally different concepts." While most economists would prefer to analyze inequality using measures that satisfy scale independence (i.e., they prefer measures of relative inequality), the issue is tied to value judgments about distributive justice.

A very practical and real-world context in which the distinctions between absolute and relative concepts of inequality can matter is provided by debate on how the economic gains from globalization are shared. Ravallion (2004b) argues that a key driver of the debate on how much poor people have shared in the benefits of globalization is the different concepts of

inequality adopted—explicitly or implicitly—by the main protagonists of the debate: relative inequality by proponents of globalization and absolute inequality by opponents of globalization. Box 3.2 provides a more detailed discussion.

The second and third properties are less controversial. The population independence axiom enables us to compare inequality across populations of different sizes by postulating that the inequality of two populations, one of which is simply a scale replica of the other, be identical. The anonymity property enables us to focus solely on incomes (or whichever welfare indicator is being analyzed) by requiring that the measure of inequality depend only on incomes and no other characteristic.

The fourth and fifth properties are more weighty. According to the transfer principle, transferring some income from a richer person to a poorer person, without changing their ranks in the income distribution, should register as a fall in inequality. The decomposability property of an inequality measure concerns the relationship between inequality in a given population and that in its consequent parts (or among subgroups of the population). For example, consider the relationship between inequality at the national, rural, and urban levels. An inequality measure that satisfies decomposability will display the property that measured inequality at the national level can be decomposed into inequality *within* each of the rural and urban sectors and inequality *between* the rural and urban sectors. As we see later on, decomposability is a rather attractive property, especially when one analyzes the proximate causes of inequality in a given population.

Table 3.1, drawing on Cowell (1995), lists how various inequality measures compare in terms of four of the properties discussed above (income scale independence, population independence, the transfer principle, and decomposability. Anonymity is satisfied by all.) As popular as the Gini coefficient is, it does not satisfy the decomposability property, except in unusual circumstances.¹⁹ Decomposability is, however, satisfied by the GE class of inequality measures. In fact, inequality measures that satisfy all five properties are said to belong to the GE class of measures.

¹⁸ Even within the context of similar conceptualizations of inequality, different measures can lead to different conclusions about how inequality compares across distributions. As is made clearer below, measures of inequality can differ based on their sensitivity to incomes at different points along the distribution of income.

¹⁹ The Gini coefficient is decomposable if the population subgroups being analyzed do not overlap in terms of their incomes or expenditures. While methods have been devised for decomposing the Gini, the component terms of total inequality can lack intuitive appeal.

Box 3.2 Absolute Inequality versus Relative Inequality and the Globalization Debate

To what extent do the world's poor share in the gains from international economic integration? As Ravallion (2004b) notes, one can get sharply conflicting answers to this question. While some claim that the gains from integration have bypassed the poor and led to increased inequality, others claim that the poor share fully (leaving inequality unchanged).

Why these contrasting views? Some of the reason has to do with the type of data that the protagonists bring to the debate. Proponents of globalization tend to rely on "quantitative" data while opponents draw on a broader range of evidence, including qualitative data. However, Ravallion argues that the main cause depends not on the data used, but on differences of opinion on what constitutes a just distribution of globalization's gains. In particular, many proponents of globalization tend to argue their case on the basis of a relative concept of inequality, with opponents tending to rely on an absolute concept. There are other differences as well, for which see Ravallion (2004b).

How do these differences play out when analyzing the data? The two charts in Box Figure 3.2.1, analogous to those used by Ravallion, provide an answer to this question. Both charts plot growth in mean income/expenditure (a proxy for economic growth) over the 1990s and 2000s for 21 DMCs, against growth in a measure of inequality. In the chart on the left, the measure of inequality is absolute: the absolute differences in the 75th percentile and 25th percentile incomes/expenditures. In the chart on the right, the measure is relative: the ratio of 75th percentile to 25th percentile incomes/expenditures.

Thus, the chart on the left shows how economic growth has been correlated with growth in a measure of *absolute* inequality, while that

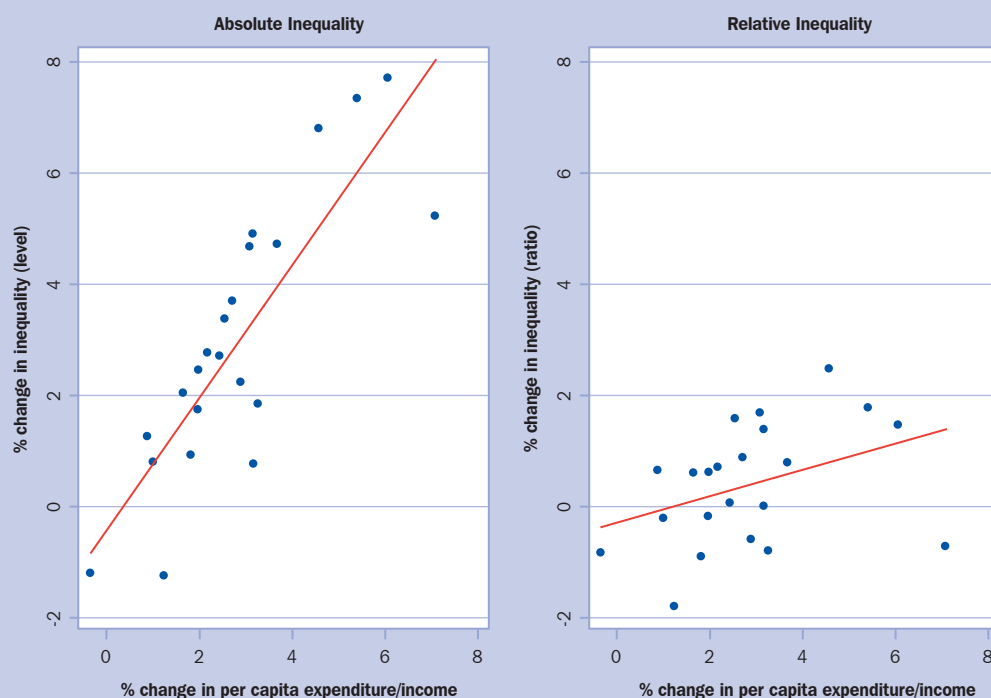
on the right shows economic growth's correlation with growth in a measure of *relative* inequality.

As can be seen from the figure, economic growth is very closely associated with growth in absolute inequality. However, the association between economic growth and growth of relative equality is much weaker. Compare, for example, the straight lines representing the (linear) statistical relationship between economic growth and growth in inequality. The line on the left is much steeper than the line on the right, indicating that for a given increase in the rate of economic growth, absolute inequality will grow faster than relative inequality.

For the statistically minded, it can be noted that in the regression of changes in (log) inequality on changes in (log) mean income/expenditure, the coefficient on growth of the mean is 1.20 when inequality is measured in absolute terms versus only 0.24 when inequality is measured in relative terms. Moreover, while the former coefficient is statistically significantly different from zero at the 1% level, the latter fails to be significant at even the 5% level (although it is significant at the 10% level).

The key point from all this is as follows. If we believe that integration with the global economy has been a key driver of economic growth since the early 1990s, then a person who uses a relative concept of inequality will see the data suggesting that international integration has, at most, a weak effect on inequality. Someone who uses an absolute concept of inequality will, however, see the same underlying data as suggesting that international integration has sharply increased inequality.

Box Figure 3.2.1 Inequality and Growth



Source: Same as Figure 2.1.

Table 3.1 Properties of Common Inequality Measures

| Inequality Measure | Income Scale Independence | Population Independence | Transfer Principle | Decomposability |
|----------------------|----------------------------|-------------------------|--------------------|-----------------|
| Variance | No (increases with income) | No | Yes ^a | Yes |
| Logarithmic Variance | Yes | Yes | No | No |
| Gini Coefficient | Yes | Yes | Yes | No |
| Generalized Entropy | Yes | Yes | Yes ^a | Yes |

a Transfer principle is satisfied in strong form i.e., the reduction in inequality arising from a transfer from a richer to a poorer person depends only on the “distance” between the two individuals. See Cowell (1995) for details.

Source: Adapted from Cowell (1995), p. 66.

There is a preference among many economists in favor of inequality measures that satisfy the five properties (or at least four of the five—witness the popularity of the Gini coefficient, a measure that does not satisfy decomposability). How do the preferences of economists for the axiomatic structure defining inequality measures compare with those of public perceptions of inequality? We have partially considered this issue in Box 3.2 on relative versus absolute inequality. Box 3.3 describes the results of a study that directly tackles this issue.

A fair question to ask is why there is a need for alternative measures of inequality that satisfy the given axioms. For example, why are there alternative measures within the GE class? The reason, and one that

differences across the entire distribution. Thus, for example, if incomes at the top of the distribution become more unequal, it is the GE(2) measure that will most clearly pick this up. The GE(1) measure would register a smaller change in inequality, and the GE(0) measure may barely pick it up at all. As for the Gini coefficient, this measure of inequality is more sensitive to income differences in the middle of the distribution.

A very useful tool in the measurement and analysis of inequality is the *Lorenz curve*—a graphical device that depicts the distribution of income or expenditures. Box 3.4 provides more details (Appendix 1 provides a more technical discussion on graphical and mathematical descriptions of distribution data.).

Box 3.3 The Axiomatic Approach to Inequality Measurement and Public Perceptions

How do the preferences of economists match up with those of non-economists? Amiel and Cowell (1992) elicited the views of approximately 1,100 university students in several industrial countries on inequality by asking them to compare across hypothetical income distributions and judge which ones they deemed to be more or less unequal.

Focusing on university students enabled the authors to examine how much support the five axioms that were used in defining inequality measures (described in the text) received from a population subgroup consisting of individuals who were nonexperts but reasonably well-informed and “accustomed to working through simple numerical problems and reflecting upon logical propositions” (p. 5).

On a question relating to income scale independence (the students were asked to compare two distributions, one of which had double the

incomes of the other), 35% of the respondents viewed the distribution with doubled incomes as the more unequal. This is inconsistent with income scale independence and therefore consistent with a preference for an absolutist rather than relative concept of inequality.

Nevertheless, a large enough percentage of responses is broadly compatible with income scale independence. More troubling from the perspective of the axiomatic approach are the responses to decomposability and, especially, the transfer principle, with which many respondents do not agree.

The overall results of the study led Amiel and Cowell to conclude that “perhaps it is time that economists themselves re-examine some of the axioms that are invoked virtually without question in most theoretical and empirical work on inequality” (p. 22).

Source: Amiel and Cowell (1992).

applies broadly (i.e., not just to measures within the GE class), is that different measures of inequality differ in their sensitivity to incomes at different points along the distribution of income.

In particular, and as noted in Box 3.1, the GE measure with parameter zero, i.e., GE(0), is more sensitive to income differences at the lower end of the distribution. Conversely, the GE(2) measure puts more weight on income differences at the upper end of the distribution, while the GE(1) measure puts equal weights on income

As may be inferred from Box 3.4, Lorenz curves can be useful for comparing and ranking inequality across two (or more) distributions. In particular, when the Lorenz curve associated with one distribution lies uniformly above that of another distribution, the first distribution is said to *Lorenz dominate* the second distribution and is associated with lower inequality in terms of the Lorenz dominance criterion.

How do inequality rankings based on Lorenz dominance relate to inequality rankings in terms of

Box 3.4 The Lorenz Curve

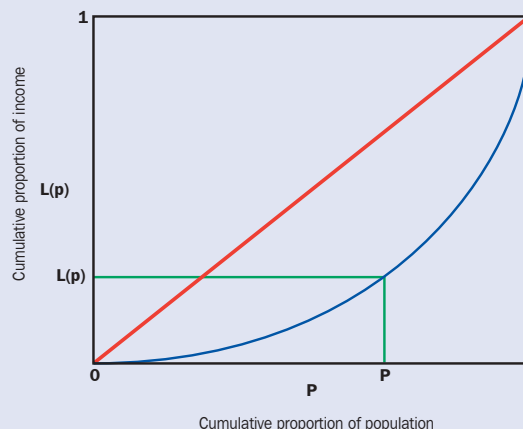
The **Lorenz** curve is a powerful and intuitive construct describing the inequality in a given income distribution. It represents the cumulative proportion of income (or expenditure) that accrues to each cumulative proportion of the population, beginning with the lowest income (expenditure) group. If q represents the income share of the poorest p percentage of the population, then the Lorenz curve depicts the relationship $q = L(p)$.

If incomes were distributed equally, the Lorenz curve would be a straight 45° line where the poorest $p\%$ of the population receives $p\%$ of the total income. Inequality in a given income distribution is measured by using the deviation of the Lorenz curve from the equal distribution line. There exists a close relationship between the Gini coefficient and the Lorenz curve. In fact the Gini measure is equal to twice the area between the equal distribution line and the Lorenz curve.

In order to make use of the Lorenz curve, it is necessary to empirically determine the shape and location of the Lorenz curve. Usually data on income shares in different size classes are used for this purpose. A simple and direct approach is to simply draw a piecewise linear curve joining the points corresponding to different size classes. A more sophisticated approach is to econometrically fit a smooth curve that satisfies various properties expected of a Lorenz curve. A number of parametric specifications have been used in the literature. In fact, a

substantial portion of the analysis contained in Section 4 is based on the fitting of generalized quadratic and Beta specifications of the Lorenz curve.

Box Figure 3.4.1 Lorenz Curve



measures such as the Gini coefficient and the generalized entropy measures described above? It turns out that inequality measures that satisfy the properties of income scale independence, population independence, anonymity, and the transfer principle—as do the Gini coefficient and the generalized entropy measures—will yield inequality rankings that are consistent with rankings based on Lorenz dominance. Thus the distribution whose Lorenz curve lies uniformly above another distribution will register lower inequality in terms of the Gini coefficient as well as the GE measures.²⁰ Inequality comparisons when Lorenz curves cross, however, cannot be undertaken using Lorenz comparisons alone. The Lorenz dominance criterion produces a ranking only of those distributions whose Lorenz curves do not intersect and thus provides a *partial ordering* of all the income distributions.

3.2 Measurement of Inequality: Data Issues

Having covered conceptual issues in the measurement of inequality, we now turn to some important issues

relating to the data from which the analysis of inequality can be carried out.²¹

The Welfare Indicator: Income or Consumption Expenditure?

Data on incomes and on expenditures are probably among the best available proxies for households' access to goods and services, and thus of economic well-being. But which type of data is better for analyzing distributional issues? Often a choice is made on the basis of which is more readily available. (Data describing the distribution of incomes across a nationally representative cross-section of the population are relatively scarce in, for example, some developing Asian countries.) Table 3.2 shows the availability of distribution data

Table 3.2 World Income Inequality Database Surveys that are Income Surveys

| Subregion | % |
|---|-------|
| East and Southeast Asia (including Pacific Islands) | 73.3 |
| South Asia | 33.3 |
| Europe and Central Asia | 54.8 |
| Latin America and Caribbean | 63.3 |
| Middle East and North Africa | 50.0 |
| Sub-Saharan Africa | 23.1 |
| North America | 100.0 |
| Western Europe | 100.0 |

Source: World Institute for Development Economics Research, World Income Inequality Database.

²⁰ These inequality measures are said to be strongly Lorenz-consistent. Inequality measures such as the income shares of the richest (or poorest) $x\%$ are said to be weakly Lorenz-consistent. This means that when one Lorenz curve dominates another, a weakly Lorenz-consistent inequality measure will show that distribution is having a lower or equal level of inequality. See Chapter 2 of Fields (2001) for details.

²¹ An issue we do not deal with in this chapter is how sampling variability affects the precision of estimates of inequality. Appendix 2 discusses this important, but technically complex issue.

on incomes and expenditures contained in the World Income Inequality Database of the World Institute for Development Economics Research, one of the most comprehensive international datasets on inequality, by region of the world. As can be seen from the tables, distribution data on income are scarcer in the case of South Asian countries.

Even when data on both income and expenditure distributions are available, conceptual considerations may apply for preferring one type of data over another. The extensive discussion of household surveys of living standards in Deaton (1997) and Deaton and Zaidi (2002) provides important reasons for preferring data on expenditure distributions to income distributions in the developing country context. Briefly, they are as follows. First, as a number of studies have shown (in both developing and industrial countries) consumption tends to be less variable than income as a result of consumption-smoothing possibilities. Given that a large proportion of the workforce in many developing countries relies on agriculture (a sector in which incomes can fluctuate widely from year to year), data on expenditure will be a more reliable indicator of living standards than data on income. Rankings of households by expenditure will therefore also be more stable than rankings by income. Deaton and Zaidi note that “even limited smoothing gives consumption [i.e., consumption expenditure] a practical advantage over income in the measurement of living standards because observing consumption over a relatively short period, even a week or two, will tell us a great deal more about annual living standards ... than will a similar observation on income” (p. 14). These arguments have led some researchers to consider consumption expenditure to be a better proxy for “permanent income” than household income.

Second, gathering accurate data on incomes for the self-employed is difficult. This tends to hold in both industrial and developing countries. For example, Deaton (1997) describes the findings from a study that compared income data from the United States’ Current Population Survey (CPS) with income data from tax sources. The study found estimates of nonfarm self-employment income from the CPS to be 21% lower than those derived from tax sources. Estimates for farm self-employment income were 66% lower! However, the CPS estimates of income for wages and salaries were almost identical to those from the tax sources. With a large proportion of the workforce self-employed in many developing countries (and engaged in traditional agriculture in many cases), one can imagine that the problem of gathering accurate data on income becomes that much more difficult, as considerable effort needs to be made to measure own-account transactions, and

assumptions need to be made about issues such as the depreciation of income-generating assets (including farm animals)—all in the context of households where high-quality written accounts are almost certainly unavailable.²²

Finally, households may be more willing to comply with a survey, and answer more *honestly* questions, on their consumption expenditures rather than their incomes. This is an issue to which we will return. For now it may be observed that this view is one that has guided India’s National Sample Surveys (NSSs), which have not even attempted to gather information on household incomes other than in some experimental surveys of the 1950s.

It should be noted, however, that the superiority of distributional data on consumption expenditures over incomes in the developing country context is not settled. Atkinson and Bourguignon (2000), for example, point to some problems with the use of expenditure data rather than income data. A key issue is how to treat expenditures on durable goods. Conceptually, consumption and expenditures present a distinction, and this distinction is most pronounced in the case of durable goods. Ideally, what one would like to evaluate is the distribution of consumption and not necessarily the distribution of expenditures across households. Durable goods pose a problem since the actual act of purchasing (which can be quite idiosyncratic in terms of timing) versus consuming services from it do not take place concurrently or even necessarily within the time period over which a survey on household consumption expenditures is based. In principle, it should be possible to value the services obtained from durable goods, but in practice it is difficult.

The approach taken in this chapter is to use distribution data on consumption expenditures and adopt data on income if the former are not available. (However, in Section 6 we work with income data from labor force surveys.)

Sources of Data

The most common source of data on distributions for developing Asian countries are household income

²² It may be noted that if self-employment and employment in the agriculture sector were not so prevalent, a switch to collecting data on incomes could be recommended on the basis of cost considerations alone. In the US, for example, the cost of collecting information on a per household basis is five times as high for the Consumer Expenditure Survey, which provides information on household consumption, as for the CPS, which collects information on household incomes (Deaton and Zaidi 2002).

and/or expenditure surveys (HIES). As noted above, virtually every DMC carries out nationally representative household expenditure surveys; many DMCs also carry out income surveys.

A second source of data on distributions can be labor force surveys. In addition to determining the labor force status of surveyed individuals, labor force surveys usually provide information on incomes. However, these surveys have an important drawback: Income from ownership of property and financial assets, and remittances and other transfers are not collected. Moreover, incomes from only one type of employment—wage and salaried employment—may be recorded. In the case of India, for example, the “Employment-Unemployment” component of the NSS only records weekly earnings of wage and salaried workers. Earnings of the self-employed—a majority of the employed even in 1999/2000 (at 52.9% [Anant et al. 2006, p. 230])—are completely missed.

A third source of data on income distributions—one that is used fairly extensively in the analysis of inequality in industrial countries but that seems to be rarely used in developing Asia—is income tax records. A major problem with tax return data is that the taxpaying population can be very small compared to the population of income earners. Exemptions from paying tax in India, for example, are set relatively high so that only about 3% of income earners pay taxes. Of course, this does not imply that distributional issues cannot be examined using tax return data. One can always use as a measure of inequality the share of top (i.e., taxable) incomes to independent estimates of total incomes, as did Simon Kuznets in his seminal work on inequality. Moreover, top incomes can play an important role in public debates. Although, in principle, household income surveys should be able to track the top incomes in the country, in practice they do not, something discussed in more detail below.

Data Quality

The issue of data quality, including the accuracy of the information collected from the various sources of income and consumption expenditure data discussed above, is clearly one of critical importance. In what follows, we highlight two specific aspects of data quality that concern household surveys. The first has to do with the definitions used for collecting income and consumption data. The second, with the accuracy of the data collected. Readers interested in issues of data

quality pertaining to income tax returns are referred to Atkinson (2002).²³

Definitions of Income and Consumption ²⁴

The first issue relates to how comprehensive and conceptually sound the definitions of income and consumption used in household surveys are. Unlike the case of national account data, where an internationally agreed-on framework on concepts and definitions exists, the measurement of household income and consumption is subject to different approaches across countries. Some progress, however, has been made in developing a common international standard by the work of the Canberra Group on Household Income Statistics, formed with the aim of improving national statistics on household income distribution and inequality, and of making these more comparable internationally.²⁵ Though based largely on the experiences of industrial countries, the recommendations of the Canberra Group are also relevant for developing countries. Table 3.3 lists in the left-hand column the recommendation of the Canberra Group on the preferred concept of income (total income as well as disposable income) for the production of income distribution statistics. Some minor adaptations have been made for the developing country context. For example, the column includes in-kind wages and salary payments under the “employee income” heading, as these can be important in developing countries. As can be easily inferred, a standard labor force survey that collects information on wages and salary earnings only (as in India) will miss out many components of household income.

As regards the concept of consumption, a fairly comprehensive set of guidelines on definitions is provided by Deaton and Zaidi (2002), drawing on the experience of developing country national statistics offices vis-à-vis household consumption expenditure

²³ As far as the quality of data from tax returns is concerned, one obvious difficulty is that taxpayers have financial incentives to “present their affairs” in ways that reduce their tax liabilities. Though a problem, it does not mean that the data are worthless. It simply means that, as with all economic variables, income tax returns measure true incomes with some error (Atkinson 2002).

²⁴ The following discussion is based on the “User’s Guide to the World Income Inequality Database” version 2.0a (June 2005). This guide as well as the accompanying dataset are both henceforth referred to as World Institute for Development Economics Research, World Income Inequality Database.

²⁵ See the Final Report and Recommendations of the Canberra Group (2001) for details, available: <http://www.lisproject.org/links/canberra/finalreport.pdf>.

Table 3.3 Preferred Concepts on Income and Consumption for Distribution Data

| The Income Concept recommended by the Canberra Group on Household Income Statistics for International comparisons of income distribution | The Consumption Aggregate recommended by Deaton and Zaidi for welfare measurements |
|---|---|
| <p>1. Employee Income Cash wages and salaries In-kind wages and salaries</p> <p>2. Income From Self-Employment Profit/loss from unincorporated enterprise Imputed income from self-employment (including imputed incomes from home production) Goods and services produced for barter, less cost of inputs Goods produced for home consumption, less cost of inputs</p> <p>3. Income Less Expenses From Rentals, Except Rent of Land</p> <p>4. Property Income Interest received less interest paid Dividends</p> <p>5. Current Transfers Received Social insurance benefits from employers' schemes Social insurance benefits in cash from government schemes Universal social assistance benefits in cash from government Means-tested social assistance benefits in cash from government Regular inter-household cash transfers received</p> <p>6. Total Income/Gross Income (sum of 1 to 5)</p> <p>7. Current Transfers Paid Employees' social contributions Taxes on income</p> <p>8. Disposable Income (6 less 7)</p> | <p>1. Food Consumption Food purchased from market Home produced Received as gift or in-kind payment</p> <p>2. Nonfood Consumption Daily use items Clothing and housewares Health expenses Education expenses Transport</p> <p>3. Durable Goods The use-value (rental value) of durables</p> <p>4. Housing Rents paid If dwelling is owned by household or received free of charge, an estimate of the rental equivalent (imputed rent) Utilities (water, electricity, garbage collection, etc.) To be excluded: Taxes paid, purchase of assets, repayments of loans and lumpy expenditures If durables are included with their purchase value or/and taxes paid, purchase of assets, repayments of loans and lumpy expenditures, the concept to be referred to is expenditures.</p> |

Sources: Table 1 of World Institute for Development Economics Research, World Income Inequality Database, with some minor adaptations; Deaton and Zaidi (2002).

surveys, as well as the experiences gained from the World Bank's Living Standards Measurement Study.²⁶ The right-hand column of Table 3.3 describes the components of consumption as distinct from expenditure. As may be expected from our earlier discussion on the advantages and disadvantages of income versus consumption data for the analysis of inequality, the treatment of durable goods in the latter tends to create one of the biggest conceptual difficulties. As noted earlier, what one would like ideally is to measure consumption. While expenditures lead to consumption, this does not necessarily happen at the same time. In the context of a household survey that collects information on expenditures over a specific time period, there can be a serious mismatch between the time at which expenditures are incurred on a durable good especially, and the period over which the household consumes the flow of services from that good. In principle, it should be possible to value the services obtained from durable goods, but in practice this is a difficult task. Strictly speaking then, household surveys that include the purchase of durable goods are collecting data on expenditures and not consumption. This also applies to taxes paid and the repayments of loans and lumpy expenditures. These items are ones on which households are making expenditures. But they are not "consumed" by households.

Accuracy of Income and Consumption Expenditure Data

A second issue concerns the accuracy of the data collected from household surveys of income and expenditure. We have already discussed some of the problems that plague the collection of income data in countries where employment in traditional agriculture and self-employment account for a large fraction of total employment. Here we discuss two other issues. First, we discuss two aspects of survey questionnaires that can impact the quality of the data collected. This discussion is carried out in the context of consumption expenditure surveys. Second, we discuss the problems of (deliberate) nonresponse and underreporting in income and consumption expenditure surveys.

Questionnaire design. Experience with household surveys of consumption expenditure indicate that two aspects of the questionnaire used to canvass expenditure information from sample households can exert an important influence on the data collected. These are: (i) the number of items of consumption/expenditure that households are asked about, and (ii) the length of the reference/reporting/recall period over which households are asked to report their consumption/expenditures.

Number of consumption/expenditure items. Why should the number of items of consumption/expenditure canvassed in a survey of household expenditures

²⁶ See <http://www.worldbank.org/LSMS/> for details.

matter? One reason relates to the time and costs involved in executing a survey. Asking a household two questions only, for example: “How much did you spend on food [over the last week]?” and “How much did you spend on items other than food [over the last week]?” will probably take no longer than a minute or two. There are two problems with this approach, however. First, for a variety of reasons including public-policy related interest in specific items of expenditures, such as food items with high nutritional value, health care, and education, we would like to learn not only about total expenditure but also about specific items or groups of items. Second, even if our interest was solely on capturing total expenditure by household, a more accurate *and higher* figure will usually be obtained by breaking down total expenditure into specific items (or at least relatively fine subgroups) of expenditure and asking the household about these. The process of breaking down, or disaggregating, total expenditure can be an important aid to the memory of the respondent.

Table 3.4 below compares the average monthly per capita expenditures (MPCE) obtained from long and short questionnaires on consumption expenditures administered to separate, but nationally representative, households in India during 2004 for the 61st round of the NSS consumer expenditure survey (long questionnaire) and employment-unemployment survey (short questionnaire). MPCE obtained from the long questionnaire were higher on average in both rural and urban areas.²⁷

| Table 3.4 Average Monthly Per Capita Expenditures: Long versus Short Questionnaire, 2004, India | | |
|--|-----------------------------|------------------------------|
| Sector | Long Questionnaire (Rupees) | Short Questionnaire (Rupees) |
| Rural | 579 | 550 |
| Urban | 1,105 | 1,068 |
| Note: The questionnaires used a 30-day recall period for all items except for clothing, footwear, education, medical (“institutional”—i.e., relating to hospitalization, etc.) expenditures, and durable goods, which used a 365-day recall period. Source: NSS Round 61 reports, schedule 1 and schedule 10. | | |

Where does one draw the line—i.e., how do we balance the need to keep the time requirements and costs of a survey manageable with the need to get more detailed and accurate information? An unresolved issue is how much gain in accuracy is obtained through ever finer disaggregation of consumption items. Deaton (1997) reports the results from a pilot survey of 8,000 households in Indonesia. The sample households were

subjected to both a short questionnaire on consumption (15 and 8 food and nonfood items, respectively) as well as a long questionnaire (218 and 102 food and nonfood items, respectively). The pilot questionnaire showed the former took only 10 minutes compared with 80 minutes for the latter. Clearly, survey costs and times could be dramatically lowered by using the short questionnaire instead of the long one. But how about the accuracy of the total consumption expenditure figures? Not only the mean but also the distribution of total food expenditures were similar across both questionnaires. However, nonfood expenditures were around 15% higher from the long questionnaire. While the findings may suggest that a long questionnaire is not worth the time and cost, Deaton cautions prudence: similar pilot tests carried out in other countries have suggested a clear trade-off between short and long questionnaires in terms of the accuracy of the expenditure estimates obtained.

Length of reporting/recall period. The length of this period matters in at least two ways. First, all else being equal, the shorter the reporting period the more likely are respondents to accurately recall the expenditures made. For longer periods of time, there is a tendency to forget expenditures made. As a result, longer reporting periods are believed to yield lower estimates of expenditures. Indeed, the results of pilot surveys of household expenditures carried out by India’s National Sample Survey Organization between 1994 and 1998 to test household responses to a 7-day versus 30-day recall period (the standard reporting period used in India) are entirely consistent with the view that respondents’ memory becomes less reliable as the recall period lengthens. In the pilot surveys, in which sample households were randomly assigned questionnaires with either a 7- or 30-day recall period, standardized per capita expenditures with the shorter recall period were 13–18% higher on average in both urban and rural areas (Sharma 2004).

There is a second way in which the length of the reporting period matters—and with very direct implications for estimates of inequality, and therefore poverty.²⁸ Consider a very short recall period: suppose a survey asks households to report their expenditures on the previous day. It is quite possible that some respondents will (accurately) report having made no expenditures. This is not necessarily because they are poor. It could simply be a matter of timing. Now given proper sampling design (i.e., including a large enough sample) households reporting no expenditures will

²⁷ There are four major quinquennial NSS surveys used in the foregoing discussion: Round 43 (1987/88), Round 50 (1993/94), Round 55 (1999/2000), and Round 61 (2004/05). From this point onwards, we simply use 1987, 1993, 1999, and 2004 to refer to each of these surveys, respectively.

²⁸ Given the particular value of mean income/consumption, a higher degree of inequality will usually be associated with a higher rate of poverty.

be balanced out by households reporting very high expenditures (again, not necessarily because they make high expenditures every day but because of timing). In such a scenario, estimates of mean expenditure may well be unbiased. However, estimates of the dispersion in expenditures across households will probably be unreasonably high. More generally, while moving to short reporting periods may attenuate measurement errors due to recall bias, it may exaggerate the variance in reported expenditures.

An interesting illustration of how the length of the reporting period can affect the estimates of means, inequality, and poverty comes from the 50th round of the consumer expenditure survey carried out by India's National Sample Survey Organization. In this survey, expenditures on five groups of items typically purchased at low frequency (clothing, footwear, education, medical expenditures, and durable goods) were collected from all households using both a 30-day and a 365-day recall period.²⁹ Expenditures on all other goods were collected using a uniform recall of 30 days. How did the values of total (i.e., all consumption items, low frequency and otherwise) *monthly* per capita expenditures (MPCE) compare across the two recall periods?³⁰ Table 3.5 reports the estimates of average MPCE as well as the Gini coefficient and headcount ratio (using the national poverty line) for the “uniform recall period” (URP) and “mixed recall period” (MRP).³¹

An interesting set of differences emerges for the two recall periods. The average MPCE increases, while the Gini coefficient declines, with the 365-day recall period for low-frequency items. Given these results, one would expect poverty rates to be lower with the 365-day recall period. In fact, this is exactly what we find. Indeed, the switch in recall periods leads to a (substantial) 5–6 percentage point differential in estimated poverty rates.

Table 3.5 30-day Recall versus 365-day Recall for Low Frequency Consumption Items, Round 50 (current Rupees), India

| Sector | Average MPCE | | Poverty Headcount Ratio | | Gini | |
|--------|--------------|--------|-------------------------|------|------|------|
| | URP | MRP | URP | MRP | URP | MRP |
| Rural | 280.15 | 284.75 | 37.1 | 31.6 | 29.0 | 26.0 |
| Urban | 456.13 | 462.96 | 33.2 | 28.9 | 34.0 | 32.0 |

MPCE = monthly per capita expenditures.

MRP = mixed recall period.

URP = uniform recall period.

Note: Data cover the 17 major states: Andhra Pradesh, Assam, Bihar, Delhi, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

Source: Authors' estimates using unit-level data from the National Sample Survey consumer expenditure survey.

Which of the two sets of estimates is preferred? It is difficult to say. Based on our earlier discussion, a longer recall period should have resulted in lower estimates of mean expenditure (as a result of measurement errors or recall bias). Instead, what we see is a slightly larger estimate of mean consumption expenditures using the longer recall period. This suggests that either recall bias is not at work, or it is there (and working in the right direction—i.e., a longer recall being associated with a greater memory loss and therefore lower reported expenditures) but it is being swamped by something else.³² A look at expenditure patterns by decile group suggests an answer. The data, presented in Figure 3.1, show a very interesting pattern: average MPCE (computed using the 365-day recall for low-frequency items and 30-day recall for the remaining items) increases for all decile groups except the richest.³³ If the frequency of expenditures on low-frequency items increases with household income/wealth, so that (in the limit) many (poorer) households make zero expenditures on these in a relatively short time period (such as a month), then we have an explanation of why the move to a longer recall period will yield not only lower dispersion of consumption expenditures but also a higher mean expenditure.

One general lesson from all the above is that questionnaire design matters. But there is another lesson. When comparing two sets of data on consumption expenditure (or for that matter income), we must pay very careful attention to whether the data have been collected in a consistent manner. In the case that we have been considering, i.e., the case of the NSS consumer expenditure data, an analyst who ignores the nuances of changing questionnaire design does so at his or her own peril. A simple way to illustrate this is to compare Gini coefficients and poverty rates across

²⁹ In what follows we completely ignore any biases that creep in from administering 30- and 365-day recalls to the same households. See Deaton and Koziel (2005) on this issue, especially in the context of the 55th round of the NSS consumer expenditure survey where households were administered 7-day and 30-day recalls for various high-frequency consumption items, including all food items.

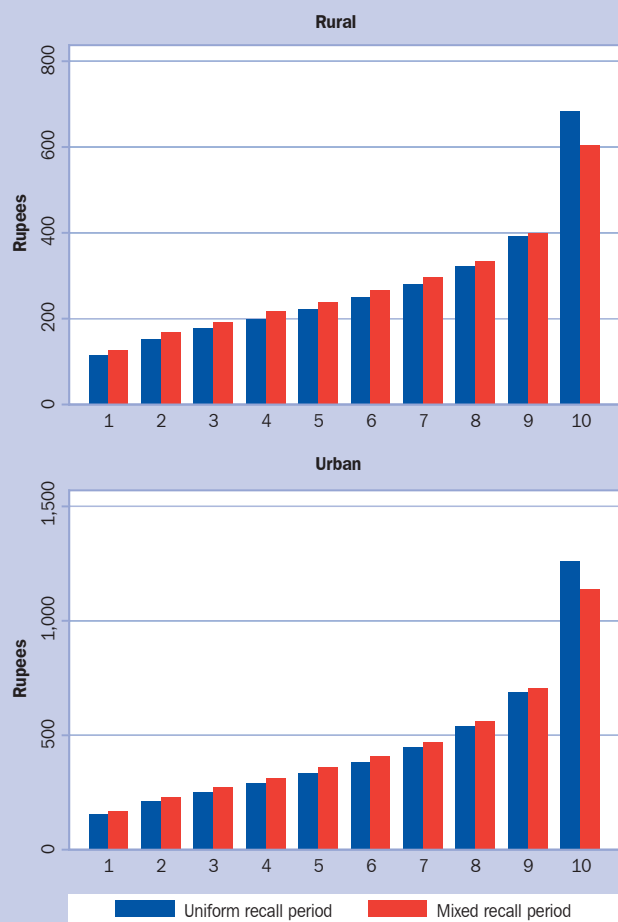
³⁰ The 365-day expenditures on the five groups of items (i.e., items of low-frequency consumption) are converted into equivalent 30-day expenditures by dividing the reported 365-day expenditures by 12.17 (i.e., 365/30).

³¹ MPCE based on URP is computed by simply summing up all expenditures recorded using the 30-day recall for each household. MPCE based on MRP is computed by first dividing the 365-day recall expenditures made on the five groups of low-frequency consumption by 12.17 (i.e., 365/30) and then adding the 30-day expenditures made on the remaining consumption items to this.

³² It may also be working in the wrong direction, but this seems implausible.

³³ Looking at the average MPCE by item (example, clothing, footwear, durables, etc.) shows that this pattern repeats.

Figure 3.1 Monthly Per Capita Expenditures by Decile Group (URP versus MRP, 1993), India



Source: Authors' estimates using unit-level data from 1993 National Sample Survey consumption expenditure survey.

three rounds of the NSS, including the 50th round. Given the structure of the questionnaires across these three rounds, it is possible to come up with two sets of estimates for 1993, one based on a uniform 30-day recall period for all goods including low-frequency items, and the other based on a mixed recall (365 days for low-frequency items and 30 days for the rest).³⁴ The former is *nominally* comparable with poverty and inequality estimates for 1987 while the latter is *nominally* comparable with those for 1999. As can be seen from Table 3.6, an analyst who inadvertently compared 1987 numbers with the MRP-based estimates of 1993, or who inadvertently compared the URP-based estimates of 1993 with the 1999 estimates, would conclude that India had experienced either dramatic declines in poverty between 1987 and 1993 or between 1993 and 1999.

³⁴ This is because the 1987 survey used a uniform 30-day recall for all goods while the 1999 survey used a 365-day recall for the five low-frequency groups of consumption items.

Table 3.6 Poverty Headcount Ratios and Gini Coefficients, India

| Sector | Poverty Headcount Ratio | | | | Gini Coefficient | | |
|--------|-------------------------|----------|----------|------|------------------|----------|----------|
| | 1987 | 1993 URP | 1993 MRP | 1999 | 1987 | 1993 URP | 1993 MRP |
| Rural | 39.5 | 37.1 | 31.6 | 26.9 | 30.0 | 29.0 | 26.0 |
| Urban | 39.6 | 33.2 | 28.9 | 24.4 | 35.0 | 34.0 | 32.0 |

MRP = mixed recall period.

URP = uniform recall period.

Note: Data covers the 17 major states: Andhra Pradesh, Assam, Bihar, Delhi, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

Source: Authors' estimates using unit-level data from National Sample Survey consumer expenditure surveys.

Yet in all probability, either of these two conclusions would be wrong. Taking into account the changes in questionnaire design and coming up with nominally comparable sets of estimates would show an absence of any dramatic decline in poverty. Similar caution is needed in comparing inequality estimates across years.

Nonresponse and Underreporting. We now turn to a final issue concerning the accuracy of data collected by household/labor force surveys. What would happen if sampled households decided either not to respond to a survey (or some crucial items in the survey) or to misreport their expenditures or incomes? Let us first consider the problem of nonresponse. Nonresponse can be of two types: failure to respond to specific items on the questionnaire (item nonresponse) or failure to respond to the entire questionnaire (unit nonresponse). There are methods by which item nonresponse can be dealt with—for example, imputing values for missing answers on the basis of responses to other questions. Unit nonresponse is trickier. In trying to understand the implications of unit nonresponse it is useful to consider why households did not respond in the first place. There can be several reasons. If the sampling frame used for a survey is not up to date, it is possible that a dwelling designated for a visit by surveyors could be abandoned, vacant, or even nonexistent. Another reason could be that the household in the dwelling refuses to participate. We refer to this as noncompliance. (In some countries this may not be an option, legally. However, even in such cases noncompliance does happen.)

The crucial question is what explains noncompliance. If households choose not to comply on a purely random basis, the implications for the quality of the data collected are fairly benign. However, if noncompliance is systematically related to a key aspect of the survey—in this case the amount of household income or expenditure—then noncompliance could lead to systematic biases in the survey results. The rich are particularly prone to noncompliance. They may be unwilling to participate in surveys because they are suspicious of how their income or expenditure data will

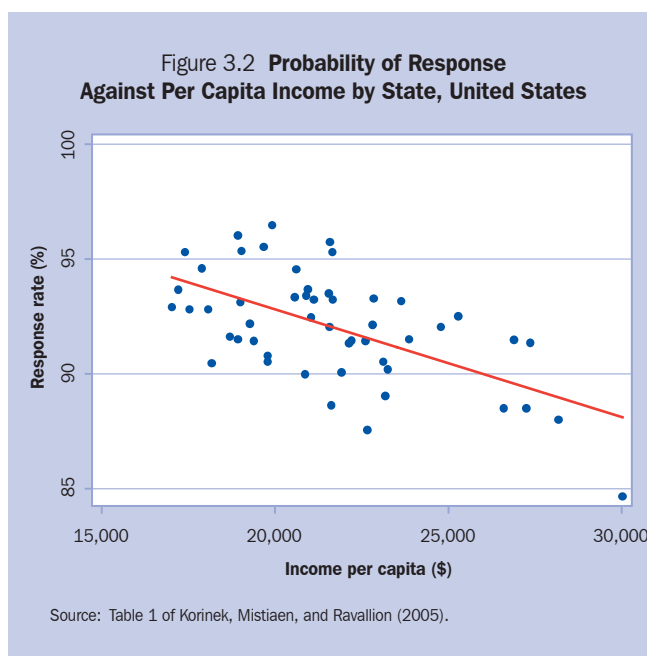
be used, or simply because the opportunity cost of their time is very high.

Clearly, noncompliance that is related to the economic status of the household may have serious implications for measures of inequality. Whether measured inequality is an underestimate or overestimate of true inequality will depend on the specific nature of the relationship between household income (or household economic status, more generally) and the household's decision on whether to comply.³⁵

Korinek, Mistiaen, and Ravallion (2005) examined the implications of selective compliance on measurement of inequality and (i) developed a methodology to model how income levels influence the decision to comply, and (ii) corrected the data on distribution for noncompliance by reweighing the raw data.³⁶ They implemented their methods using income distribution data from the US CPS, where information is available on whether the households originally sampled responded to the survey, and if not, why.³⁷

Since the issue of noncompliance is almost surely one that is also very relevant to the case of survey data from developing Asia, it is useful to very briefly describe these authors' findings with the US data.³⁸ First, they find a negative income effect on survey compliance. This negative relationship is consistent with the broader pattern existing between state per capita incomes and state-specific compliance rates (see Figure 3.2).

More specifically, Korinek, Mistiaen, and Ravallion find that ignoring selective compliance by income levels understates the proportion of the population in the richest quantiles and slightly overstates the population shares in lower quantiles. In terms of the Gini coefficient, these authors find that their correction for selective compliance by income levels increases the Gini coefficient from 44.8 to 49.6.



A variant of the problem of nonrandom nonresponse—or selective response by income—is that of underreporting. Especially in the context of the practice in some Asian countries, whereby noncompliance is illegal, a household may choose to underreport their income (or expenditure).

It is difficult to be sure how prevalent the problems of underreporting are. However, it does appear that at least one of the two problems (i.e., nonresponse and underreporting) exists in a nontrivial manner. One way to gauge whether underreporting and/or noncompliance (or even a sample design that misses the richest households) are serious issues is to compare survey results with independent information on incomes. Szekely and Hilgert (1999), for example, compare the top 10 household incomes and top 10 individual incomes reported in household income surveys for 16 Latin American countries with the *average* wages of a “typical manager” as reported by Price Waterhouse for the corresponding years. The authors find that on average the total income of the 10 richest households in the survey is very similar to the average wages of the typical manager. In fact, in 10 countries, the average income of the managers is *higher* than the income of the 10 richest households. This suggests strongly that rich households are either underreporting their incomes or not complying with the surveys.

As Table 3.7 below, based on labor force surveys from India, Indonesia, Philippines, and Thailand shows, something very similar appears for data from Asia. Especially if we focus on say, the fifth-highest salary reported in the labor force surveys (thereby allowing for the possibility that the top salary, or perhaps the top few salaries, recorded may be miscoded), we find

³⁵ While many possibilities exist, it is generally believed that noncompliance will either be a monotonic function of income (i.e., the likelihood of noncompliance increases the richer the household) or it will take the shape of an inverted U. The latter will happen if noncompliance is high among the very poor and very rich.

³⁶ This is done by using the empirical relationship between aggregate compliance rates across geographic areas and the observed income distribution within those areas.

³⁷ The CPS documents nonresponses (or noninterview households) of three types: A housing unit where an interview was to take place but was (i) vacant, or (ii) demolished, or (iii) an interview could not take place because the household refused to cooperate or nobody was at home.

³⁸ Unfortunately, reporting of information on nonresponse rates appears to be very uncommon in surveys carried out in the Asia-Pacific region.

Table 3.7 Top 10 Annual Salaries from Labor Force Surveys versus Average Salaries from Corporate Sources (in US\$)

| Economy | Year | Labor Force Surveys | | | Mercer Data (annual total cash), 2004 | | | | | |
|-------------|------|---------------------------------|----------------|----------------------|---------------------------------------|------------|-------------------|-----------------------|-----------|---------------------------|
| | | Ave. of Top 10 Highest Salaries | Highest Salary | Fifth-Highest Salary | Top Management | Management | Professionals | | Staff | |
| | | | | | | | Senior Accountant | Production Supervisor | Secretary | Skilled Production Worker |
| India | 2004 | 35,089 | 149,674 | 20,993 | 57,699 | 30,977 | 16,814 | 8,246 | 7,260 | 3,521 |
| Indonesia | 2004 | 43,960 | 100,684 | 33,561 | 56,756 | 28,644 | 14,923 | 7,094 | 5,443 | 2,182 |
| Philippines | 2004 | 12,271 | 16,283 | 11,631 | 53,329 | 28,249 | 12,380 | 8,550 | 6,031 | ... |
| Thailand | 2005 | 34,518 | 45,375 | 31,879 | 77,557 | 38,592 | 19,815 | 9,733 | 7,661 | 3,526 |

Note: Top management data are the average of salaries of the following: head of organization, top finance officer, top human resources officer, top logistics officer, top information technology officer, and head of production. Management data are the average of the salaries of a sales manager and a finance manager.

Sources: Unit level data: National Sample Survey Round 61 Schedule 10 for India; Sakernas 2004 For Indonesia; Labor Force Survey First Quarter 2004 for the Philippines; and Labour Force Survey 2005 for Thailand.

Source of Mercer data: Mercer Human Resource Consulting (2005).

that these are well below the average salary being paid to top management and often even below the average salary being paid to management.

It is clear that a challenge confronts statistical agencies and researchers in Asia in better capturing rich households.

The discussion has so far used analysis pertaining to income surveys. Is it possible that expenditure surveys are less likely to suffer from underreporting or noncompliance on the basis of economic status? As noted earlier in the discussion on whether to use expenditure or income in household surveys of standards of living, there is a presumption among at least some researchers and statistical agencies that collecting consumption data is likely to arouse less suspicion. While this may be true on average, the overall problem is unlikely to be completely absent. The correlations between incomes and expenditures are high enough,³⁹ so that those wishing to suppress information on their income are also not likely to want to disclose information on their expenditure. Moreover, detailed consumer expenditure surveys can take fairly long to complete (as noted earlier), so that a higher opportunity cost of time for the rich will still encourage them not to comply.

How can one check the accuracy of expenditure data collected by household surveys? A starting point is to compare them with expenditure data from an independent source, such as the private consumption expenditures reported in national account statistics (NAS). It turns out that there are large discrepancies between the two sources of data in almost all countries, including several industrial countries. Survey estimates of consumption are not only lower than NAS estimates of consumption, but the discrepancies seem to have

grown during the 1990s in many countries (Ravallion 2001). One notable example is India, where the ratio of the survey estimate of consumption to the NAS estimate declined from 0.67 in 1987/88 to 0.55 in 1993/94 and finally to 0.5 in 1998/99 (Panagariya forthcoming). Considerable divergence, though not to the same extent as in India, can also be found in the PRC, other countries in South Asia, the United States, and countries in Latin America. Interestingly, Ravallion (2001) finds that the degree of discrepancy with the NAS is generally significantly larger for income surveys than for consumption expenditure surveys.

Can underreporting and/or nonresponse by richer households explain this divergence and its growth? Before we can tackle this question it is important to note that the concept and definition of consumption are not identical across household surveys and NAS. In accordance with international convention, private consumption in NAS for most countries includes expenditure not only by households, but also by nonprofit private enterprises such as charities and nonprofit nongovernment organizations. In addition, it is not the case that only the consumption estimates from the surveys suffer from biases. The NAS consumption estimates suffer from some major weaknesses as well. These estimates are derived as residuals from commodity flow balances by deducting other components of demand such as intermediate inputs, investment, and net exports from the supply of output. Treating private consumption as a residual, to ensure the supply-demand balance, thus means that private consumption automatically absorbs errors and omissions made in estimation of other components. Such a residual cannot be considered as a superior estimate to the survey estimate.⁴⁰

Nevertheless, a finer analysis of the discrepancies between the two sets of consumption estimates, as well

³⁹ For example, 80% of individuals are ranked in the top decile in terms of both per capita expenditures and per capita incomes in the 2004 Philippines Family Income Expenditure Survey. (Source: Authors' estimates.)

⁴⁰ See Deaton (2001), Ravallion (2001), and Srinivasan (2003) for discussion of these issues.

as consideration of a third source of living standards data, shed light not only on what may be driving some of the difference between the two sets of consumption estimates, but also the extent of the selective underreporting/nonresponse problem. Since research in this area seems to be most advanced for the case of India, it is worth highlighting its results. First, careful analysis of disaggregated components of consumption across the NAS and the 1993/94 NSS survey of consumer expenditure by Sundaram and Tendulkar (2001) indicates that the NAS-NSS differential tends to be the largest for consumption items that form a larger share of the total consumption of high-income groups. This is consistent with the view that underreporting and/or nonresponse are larger problems among richer households.

While this may explain the discrepancy between the two sets of consumption estimates, it does not explain why there may be a growing divergence. A partial answer, though, is provided from the research of Banerjee and Piketty (2005a). They use individual tax return data from India to examine the evolution of top incomes (i.e., the top 1% of income earners) over 1922–2000. They find evidence of very large growth in top incomes since the 1980s, and especially the 1990s—the decade when the NAS-NSS differentials grew the most. If the NSS consumer expenditure surveys systematically missed out on the consumption of the top income-earning households (or its growth), then the rapid growth of the top incomes of the last decade or two could explain a portion of the NAS-NSS discrepancy. Banerjee and Piketty consider various scenarios and report that 20–40% of the discrepancy could be explained by the very rapid growth of top incomes in India over the last 10–20 years and by underreporting/nonreporting by the top income-earning households. Of course, this would still leave 60–80% of the discrepancy unexplained. But for our purposes here, all the evidence points to some degree of failure of household surveys to capture the incomes and consumptions of the rich, and thus the true extent of inequality.

4. Inequality Estimates for Asia

We now turn to what available distribution data on consumption expenditures (and in some cases, incomes) tell us about inequality in developing Asia. First, we examine inequality within the countries of developing Asia. We present estimates of inequality for the most recent year available, as well as approximately 10 years

earlier. This allows us to examine how inequality has unfolded over the last 10 years or so. Second, we present estimates on “Asia-wide” inequality for 2 years: 1993 and 2003. This is what inequality in developing Asia would look like if 16 individual DMCs for which sufficient data exist were grouped together to form a single economic entity. Third, we describe how economic well-being, as opposed to simply inequality, has unfolded over the last 10 years or so. Finally, we describe the empirical relationship between inequality, poverty, and growth as reflected in the data. Technically-minded readers may note that the estimates and analysis of inequality in this section are based on Lorenz curves and income distributions fitted using grouped (or tabulated) distribution data. Appendix 3 provides details on the grouped distribution data used, including sources. Box 4.1 presents a simple discussion of grouped distribution data and how these can be used in the analysis of inequality.

4.1 Inequality within Developing Asian Economies

Recent Estimates

Table 4.1 presents the most recent available estimates of the Gini coefficient and the ratio of per capita expenditures/incomes of the top 20% (i.e., fifth quintile)

Table 4.1 Gini Coefficients and Ratio of Expenditures/Incomes of the Top 20% to Bottom 20%, Developing Asia

| Developing Member Country | Latest Year | Gini | Top 20%/Bottom 20% |
|---|-------------|-------|--------------------|
| Armenia ^a | 2003 | 33.80 | 5.08 |
| Azerbaijan | 2001 | 36.50 | 5.96 |
| Bangladesh | 2005 | 34.08 | 5.03 |
| Cambodia ^a | 2004 | 38.05 | 7.04 |
| China, People's Rep. of ^{a, b} | 2004 | 47.25 | 11.37 |
| India ^{a, b} | 2004 | 36.22 | 5.52 |
| Indonesia | 2002 | 34.30 | 5.13 |
| Kazakhstan | 2003 | 33.85 | 5.61 |
| Korea, Rep. of ^c | 2004 | 31.55 | 5.47 |
| Kyrgyz Republic | 2003 | 30.30 | 4.43 |
| Lao PDR ^a | 2002 | 34.68 | 5.40 |
| Malaysia | 2004 | 40.33 | 7.70 |
| Mongolia | 2002 | 32.84 | 5.44 |
| Nepal ^a | 2003 | 47.30 | 9.47 |
| Pakistan | 2004 | 31.18 | 4.46 |
| Philippines | 2003 | 43.97 | 9.11 |
| Sri Lanka | 2002 | 40.18 | 6.83 |
| Taipei, China ^c | 2003 | 33.85 | 6.05 |
| Tajikistan | 2003 | 32.63 | 5.14 |
| Thailand | 2002 | 41.96 | 7.72 |
| Turkmenistan ^a | 2003 | 43.02 | 8.33 |
| Viet Nam | 2004 | 37.08 | 6.24 |

^a Estimates are from the Beta Lorenz parameterization of grouped data.

^b Estimates are based on combining separate rural and urban distributions.

^c Distributions for the Republic of Korea and Taipei, China refer to household incomes (urban wage-earning households for the former).

Note: Estimates of the Gini coefficient and expenditure/income shares are based on parameterized (generalized quadratic or Beta) Lorenz curves using grouped data on per capita expenditure/income distributions.

Sources: Authors' estimates using grouped data from World Bank PovcalNet, World Institute for Development Economics Research, World Income Inequality Database (Taipei, China), publications of national statistics offices or personal communications (India, Republic of Korea, Turkmenistan, and Viet Nam), and decile-wise distributions generated from unit record data (Bangladesh, Malaysia, and Philippines).

Box 4.1 Estimating Inequality Measures Using Grouped or Tabulated Data on Distributions

The estimates of inequality used in this section are based on grouped or tabulated data on the distribution of per capita expenditures/incomes. The first two data columns of Box Table 4.1.1, drawn from the unit-level records (or micro data) from the Philippines' 2003 Family Income and Expenditure Survey, provide an example of such data. In this example, information on national mean monthly per capita expenditures is provided by decile groups (data column 1). Data column 2 provides essentially the same information, except in terms of the share of each decile's expenditures in total expenditures.

The information provided in either data column 1 or 2 can be used to "fit" a Lorenz curve. This is useful since a Lorenz curve captures all the information on the pattern of relative inequalities in the population. According to Datt (1998), two of the "best performers" among different functional forms used for fitting Lorenz curves are the "generalized quadratic" Lorenz curve (Villasenor and Arnold 1989) and the Beta Lorenz curve (Kakwani 1980).

Box Table 4.1.1 Expenditure Shares: Actual versus Fitted

| Decile Group | Unit-Level Records | | General Quadratic Lorenz Curve | |
|-------------------------------------|--------------------------------------|-------|--------------------------------------|-------|
| | Mean Per Capita Expenditures (Pesos) | Share | Mean Per Capita Expenditures (Pesos) | Share |
| 1 | 473.47 | 0.022 | 494.12 | 0.023 |
| 2 | 691.21 | 0.033 | 671.00 | 0.032 |
| 3 | 870.75 | 0.041 | 860.86 | 0.041 |
| 4 | 1,070.99 | 0.051 | 1,071.01 | 0.051 |
| 5 | 1,304.11 | 0.062 | 1,312.43 | 0.062 |
| 6 | 1,591.41 | 0.075 | 1,603.50 | 0.076 |
| 7 | 1,979.49 | 0.094 | 1,979.02 | 0.094 |
| 8 | 2,532.50 | 0.120 | 2,517.85 | 0.120 |
| 9 | 3,468.32 | 0.164 | 3,465.84 | 0.164 |
| 10 | 7,127.80 | 0.338 | 7,144.09 | 0.338 |
| Mean Per Capita Expenditures: Total | 2,110.87 | | 2,111.97 | |

Source: Authors' estimates using unit-level data from the Philippines' 2003 Family Income and Expenditure Survey.

Box Table 4.1.2 Inequality Measures

| Inequality Measures | Unit-Level Records | Synthetic (General Quadratic Lorenz Curve) |
|-----------------------------------|--------------------|--|
| Gini Coefficient | 44.04 | 43.99 |
| Theil Index, GE(1) | 0.3575 | 0.3462 |
| Mean Log Deviation, GE(0) | 0.3243 | 0.3203 |
| Half (Coeff. Var. squared), GE(2) | 0.6044 | 0.5101 |

Source: Authors' estimates using unit-level data from Family Income and Expenditure Survey.

Data columns 3 and 4 of Box Table 4.1.1 present mean monthly per capita expenditures and expenditure shares by decile derived from a Lorenz curve fitted using the data in data column 1.¹ As may be seen by comparing the numbers across data columns 1 and 3, or 2 and 4, the fitted Lorenz curve tracks the data based on original unit-level records fairly well. However, the differences between the actual mean per capita expenditures (or shares) and those based on the fitted Lorenz curves tend to be largest at the top and bottom ends of the distribution. This would suggest that estimates of inequality measures based on tabulated distribution data will be closer to estimates based on unit-level records for inequality measures that are not sensitive to expenditures at the extreme ends of the distribution. Indeed, this is what seems to happen in the example we have considered. As may be seen from Box Table 4.1.2, estimates of the Gini coefficient based on unit-level records and tabulated distribution data are fairly close to one another. This is not the case for the GE(2) measure of inequality. As discussed in Section 3, the GE(2) measure is especially sensitive to expenditures at the top of the distribution.

¹ More specifically, the estimated Lorenz curve is used to obtain "synthetic" per capita expenditures at 0.1 percentile intervals across the entire distribution (i.e., 0, 0.1, 0.2, ..., 1). This is done by relying on the property that the first derivative of the Lorenz curve function with respect to any percentage of the population, multiplied by the mean per capita expenditure for the distribution as a whole, yields an estimate of the per capita expenditure at that proportion or percentage of the population.

to bottom 20% (i.e., first quintile) of the distribution for 22 DMCs. Most of the underlying distribution data refer to per capita consumption expenditures. Exceptions are given in the notes.

Figure 4.1 displays the values of the Gini coefficient as well as the ratio of per capita consumption expenditures of the top 20% to those of the bottom 20% in an easy-to-interpret format. As can be seen, Gini coefficients range from a low of 30.3 (Kyrgyz Republic) to a high of 47.3 (Nepal). The median value of the Gini coefficient in developing Asia is around 34.5. One may be tempted to state that Gini coefficients tend to be lowest in the Central Asian republics. But this is not always the case, as the coefficient for Turkmenistan reveals. As far as the ratio of the top to the bottom 20% is concerned, these range from a low of 4.31 (once

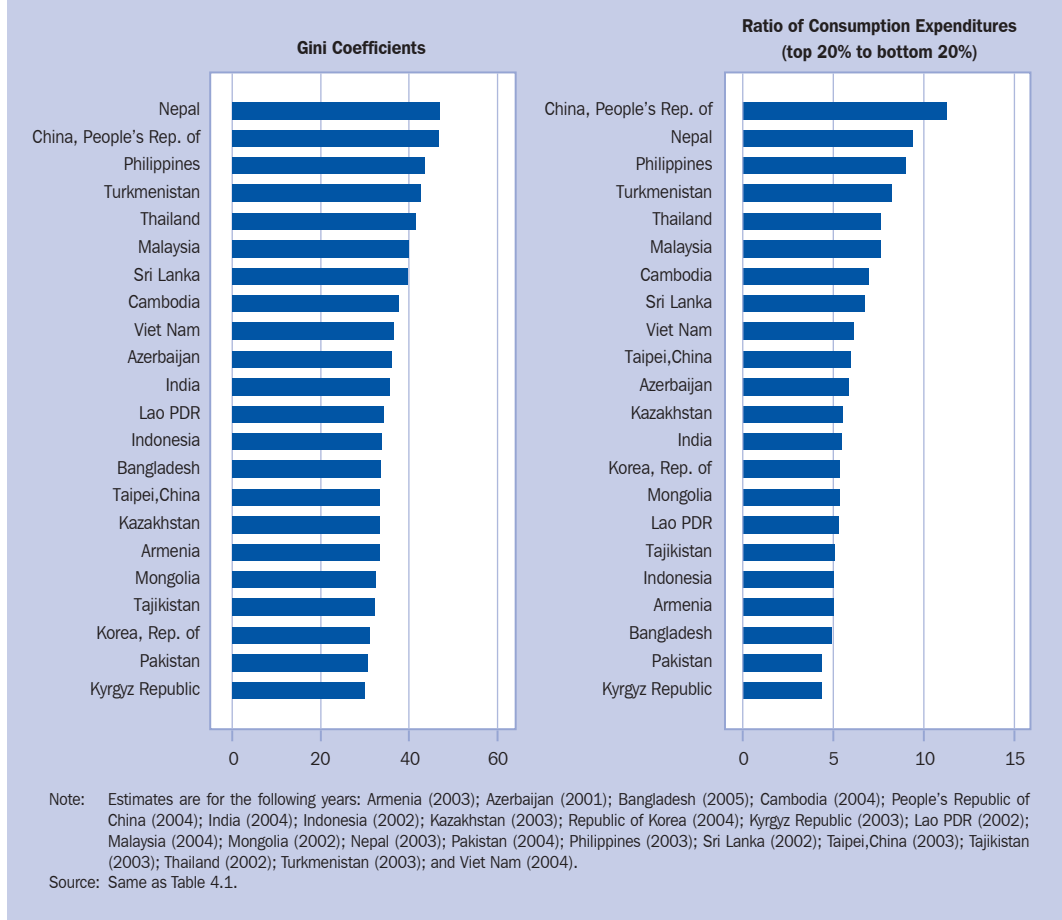
again, Kyrgyz Republic) to a high of over 10 (PRC). The median value of the ratio in developing Asia is 5.8.⁴¹

Almost all the inequality estimates shown in Table 4.1 and Figure 4.1 refer to expenditures. Table 4.2 describes some estimates of Gini coefficients from income distributions for selected DMCs. As may be seen, inequality estimates based on income distributions are higher, sometimes considerably so, than those based on expenditure distributions.

Table 4.3 presents some estimates of Gini coefficients and the top 20% to bottom 20% ratio of expenditures/incomes from countries outside developing Asia. A comparison with the Gini coefficients for developing Asia presented above reveals some interesting regional dimensions of inequality estimates.

⁴¹ The Gini coefficient and the ratio of the top 20% to bottom 20% are highly correlated. The Spearman rank correlation is 0.90.

Figure 4.1 **Gini Coefficients and Ratio of Expenditures/Incomes of the Top 20% to Bottom 20%**



By and large, the highest inequality is to be found in Latin America. Inequality can also be high in Africa. In fact, the highest Gini coefficient reported in Table 4.3 is for South Africa (57.77 from a consumption expenditure survey).

Table 4.2 **Estimates of Gini Coefficients: Expenditure versus Income Surveys**

| Developing Member Country | Year | Gini Coefficient | |
|---------------------------|------|------------------|---------|
| | | Expenditures | Incomes |
| Bangladesh ^a | 2000 | 33.4 | 39.2 |
| Philippines ^b | 2003 | 40.0 | 48.7 |
| Nepal ^a | 1996 | 36.6 | 51.3 |
| Nepal ^b | 2003 | 47.3 | 56.4 |
| Thailand ^a | 2000 | 42.8 | 52.3 |
| Viet Nam ^a | 1998 | 36.2 | 48.9 |

Sources: ^a Taken from p. 38 of World Bank (2005).

^b Based on unit-level record data.

Inequality tends to be far lower in industrial countries. The Gini coefficient for income inequality was only 24.9 in Japan. It is similarly low in many European countries (especially Nordic countries) and New

Zealand. Among industrial countries, the highest level of inequality, whether in terms of the Gini coefficient or the ratio of the top 20% to the bottom 20% of incomes/expenditures, is found in the US.

Levels of inequality in developing Asia are generally below those of Latin America. However, their difference somewhat reflects the fact that inequality estimates for Latin America invariably refer to incomes while for many Asian countries they are based on expenditures. More importantly, some of the recent estimates of inequality we have seen for developing Asia indicate levels approaching those of Latin America.

Recent Trends

We now turn to an examination of recent trends in inequality for 21 of the 22 DMCs considered above.⁴²

⁴² The omitted DMC is the Kyrgyz Republic, for which an estimate of the Gini coefficient for an earlier year, 1993, yielded a value of 53.7. Whether this estimate is accurate or reflects serious survey errors is difficult to say.

Table 4.3 International Estimates of Gini Coefficients of Selected Economies

| Economy | Year | Survey Type | Gini | Top 20%/Bottom 20% |
|-------------------|------|-------------|-------|--------------------|
| Australia | 2002 | Income | 30.90 | ... |
| Argentina (Urban) | 2003 | Income | 51.28 | 18.40 |
| Belarus | 1998 | Income | 27.67 | 3.97 |
| Brazil | 2004 | Income | 56.99 | 23.00 |
| Canada | 2000 | Income | 32.45 | 5.48 |
| Chile | 1998 | Income | 55.77 | 16.72 |
| Ecuador | 1998 | Income | 53.53 | 18.70 |
| Egypt | 1995 | Expenditure | 34.42 | 4.70 |
| El Salvador | 1997 | Income | 50.79 | 15.20 |
| Ethiopia | 1995 | Expenditure | 28.66 | 5.09 |
| Finland | 2003 | Income | 25.80 | 3.58 |
| France | 2001 | Income | 27.00 | 4.11 |
| Germany | 2001 | Income | 25.00 | 3.50 |
| Ghana | 1998 | Expenditure | 40.75 | 8.40 |
| Italy | 2002 | Income | 33.30 | 5.80 |
| Jamaica | 1998 | Expenditure | 38.45 | 8.05 |
| Japan | 1993 | Income | 24.90 | 3.37 |
| Mexico | 1998 | Income | 53.11 | 16.90 |
| New Zealand | 1997 | Expenditure | 23.65 | ... |
| Nigeria | 2003 | Expenditure | 43.60 | 9.80 |
| Norway | 2002 | Income | 29.60 | 4.64 |
| Panama | 1997 | Income | 57.19 | 28.86 |
| South Africa | 2000 | Expenditure | 57.77 | 20.50 |
| Spain | 1998 | Income | 34.00 | 5.86 |
| Sweden | 2002 | Income | 25.80 | 3.58 |
| United Kingdom | 2002 | Income | 34.37 | 5.59 |
| United States | 2000 | Income | 39.42 | 8.45 |

Sources: World Institute for Development Economics Research, World Income Inequality Database; World Bank, PovcalNet.

Table 4.4 provides estimates of the Gini coefficient and ratio of the top 20% to bottom 20% expenditure/income shares for 2 years. In addition to the most recent year, data from an earlier year, usually around 10 years, are

In a majority of cases, i.e., 15 out of 21, Gini coefficients have risen, though the increases are not always very large. In Azerbaijan, for example, the Gini coefficient has increased by only about half a percentage point over a 6-year period. In several cases, however, increases in the Gini coefficient are quite large. This includes the cases of Bangladesh, Cambodia, PRC, Lao PDR, Nepal, and Sri Lanka. In all these countries the Gini coefficient has grown by an average of more than 1% a year over the years covered by the data. In contrast, similarly large magnitudes of change in the Gini coefficient in the opposite direction (i.e., declines) have taken place in only one country (out of a total of six countries in which it has declined), namely, Armenia.⁴³ In all the other cases where the Gini coefficient has declined, the magnitudes of decline tend to be small.

The qualitative behavior for the ratio of top to bottom expenditure/income shares is fairly similar. For example, the direction of change is almost identical across the Gini coefficient and the ratio of top to bottom shares: Almost always, an increase in the Gini coefficient is accompanied by an increase in the ratio, and vice versa. The only exception is the case of Azerbaijan, where in contrast to a mild increase in the Gini coefficient between 1995 and 2001, the ratio declined.

Interestingly, of the six cases where the Gini coefficient declined, three pertain to transition economies. Three of the others are Southeast Asian

Table 4.4 Trends in Inequality

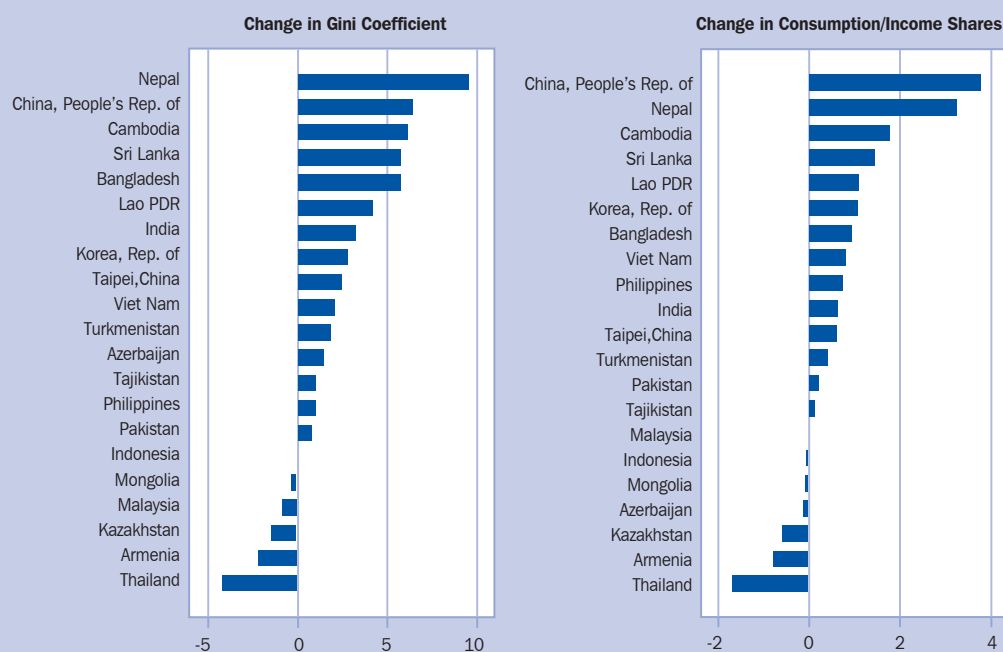
| Developing Member Country | Period | Gini Coefficients | | | Top 20%/Bottom 20% | | |
|---------------------------|-----------|-------------------|------------|-----------------------------|--------------------|------------|-----------------------------|
| | | Initial Year | Final Year | Annualized Growth Rates (%) | Initial Year | Final Year | Annualized Growth Rates (%) |
| Armenia | 1998–2003 | 36.01 | 33.80 | -1.27 | 5.87 | 5.08 | -2.9 |
| Azerbaijan | 1995–2001 | 34.96 | 36.50 | 0.72 | 6.09 | 5.96 | -0.36 |
| Bangladesh | 1991–2005 | 28.27 | 34.08 | 1.34 | 4.06 | 5.03 | 1.53 |
| Cambodia | 1993–2004 | 31.80 | 38.05 | 1.63 | 5.24 | 7.04 | 2.68 |
| China, People's Rep. of | 1993–2004 | 40.74 | 47.25 | 1.35 | 7.57 | 11.37 | 3.7 |
| India | 1993–2004 | 32.89 | 36.22 | 0.88 | 4.85 | 5.52 | 1.18 |
| Indonesia | 1993–2002 | 34.37 | 34.30 | -0.02 | 5.20 | 5.13 | -0.15 |
| Kazakhstan | 1996–2003 | 35.32 | 33.85 | -0.61 | 6.20 | 5.61 | -1.43 |
| Korea, Rep. of | 1993–2004 | 28.68 | 31.55 | 0.87 | 4.38 | 5.47 | 2.02 |
| Lao PDR | 1992–2002 | 30.40 | 34.68 | 1.32 | 4.27 | 5.40 | 2.35 |
| Malaysia | 1993–2004 | 41.22 | 40.33 | -0.2 | 7.72 | 7.70 | -0.02 |
| Mongolia | 1995–2002 | 33.20 | 32.84 | -0.16 | 5.53 | 5.44 | -0.23 |
| Nepal | 1995–2003 | 37.65 | 47.30 | 2.85 | 6.19 | 9.47 | 5.31 |
| Pakistan | 1992–2004 | 30.31 | 31.18 | 0.24 | 4.22 | 4.46 | 0.46 |
| Philippines | 1994–2003 | 42.89 | 43.97 | 0.28 | 8.34 | 9.11 | 0.98 |
| Sri Lanka | 1995–2002 | 34.36 | 40.18 | 2.24 | 5.34 | 6.83 | 3.52 |
| Taipei, China | 1993–2003 | 31.32 | 33.85 | 0.78 | 5.41 | 6.05 | 1.12 |
| Tajikistan | 1999–2003 | 31.52 | 32.63 | 0.87 | 4.97 | 5.14 | 0.84 |
| Thailand | 1992–2002 | 46.22 | 41.96 | -0.97 | 9.41 | 7.72 | -1.98 |
| Turkmenistan | 1998–2003 | 41.08 | 43.02 | 0.92 | 7.88 | 8.33 | 1.11 |
| Viet Nam | 1993–2004 | 34.91 | 37.08 | 0.55 | 5.40 | 6.24 | 1.31 |

Source: Same as Table 4.1.

presented; also presented are the average annualized growth rates of these two measures of inequality. Figure 4.2 depicts level changes in the coefficient and ratio in an easy-to-read format.

⁴³ As discussed in an earlier footnote, the Gini coefficient for the Kyrgyz Republic in 1993 is extremely high. Including this would show the Kyrgyz Republic as having had a dramatic reduction in inequality.

Figure 4.2 **Changes in Gini Coefficients and Expenditure/Income Shares of the Top 20% to Bottom 20%**



Note: Changes are computed over the following years: Armenia (1998–2003); Azerbaijan (1995–2001); Bangladesh (1991–2005); Cambodia (1993–2004); People's Republic of China (1993–2004); India (1993–2004); Indonesia (1993–2002); Kazakhstan (1996–2003); Republic of Korea (1993–2004); Lao PDR (1992–2002); Malaysia (1993–2004); Mongolia (1995–2002); Nepal (1995–2003); Pakistan (1992–2004); Philippines (1994–2003); Sri Lanka (1995–2002); Taipei, China (1993–2003); Tajikistan (1999–2003); Thailand (1992–2002); Turkmenistan (1998–2003); and Viet Nam (1993–2004).

Source: Same as Table 4.1.

economies that were quite severely affected by the Asian financial crisis of 1997–98.

An examination of the actual growth in mean per capita consumption expenditures or incomes across the five quintile groups sheds some light on what has been driving the pattern.⁴⁴ These growth rates are presented in Table 4.5. In 14 out of 21 DMCs, the fastest growth of expenditures or incomes has been in the fifth, or top, quintile. This includes the cases of Bangladesh; Cambodia; PRC; India; Republic of Korea; Lao PDR; Nepal; Sri Lanka; Taipei, China; Turkmenistan; and Viet Nam. In six DMCs, by contrast, the fastest growth has taken place in the bottom quintile. This group of DMCs is made up of transition economies (Armenia, Azerbaijan, Kazakhstan, and Mongolia) and two Southeast Asian economies (Indonesia and Thailand).

The overall pattern that emerges is one where a majority of developing Asian countries have seen increases in inequality (at least by the measures discussed above). However, in the main, increases in

inequality are not a story of the “rich getting richer and the poor getting poorer.” Rather it is the rich getting richer faster than the poor. For the most part, the countries where inequality has declined are either economies in transition or those having gone through a financial crisis.

How about if we were to measure inequality differently? Would our results change? The opposite movement in the two inequality measures in the case of Azerbaijan described above (recall the numbers in Table 4.4) raises the issue of whether other measures of inequality could give us a different picture on the recent trends in inequality in developing Asia.⁴⁵ A quick answer to this can be provided by an examination of Lorenz curves. As discussed in Section 3, measures of relative inequality will reveal different trends only when Lorenz curves cross. Table 4.6 lists the relationship between Lorenz curves for the 21 DMCs. Figure 4.3 depicts Lorenz curves for selected DMCs. Consider the Lorenz curves for Bangladesh. The curve for 2005 lies below that for 1991, indicating that all measures of relative inequality would show an unambiguous increase

⁴⁴ The mean per capita expenditure/income of any quintile group can be easily computed based on knowledge of mean per capita expenditure/income and the quintile shares of expenditure/income.

⁴⁵ Box 4.2 discusses a different approach to inequality analysis – one based on using national income and product accounts data.

Box 4.2 Inequality Using National Income and Product Accounts Data

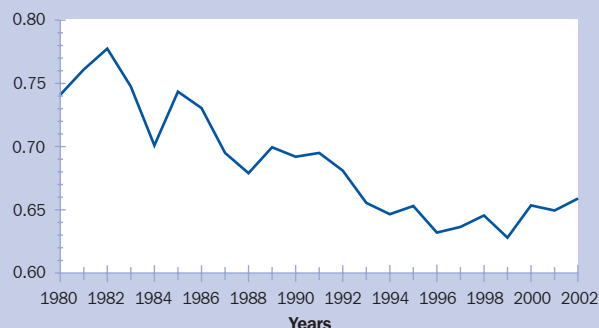
This chapter's discussion of inequality is carried out in terms of the distribution of household incomes or consumption expenditures. Distributional issues, however, have long been analyzed using another approach, one that focuses on the functional distribution of income, i.e., the distribution of income between labor and capital. The main source of data for analysis of the functional distribution of income is national income data.

What do such data indicate about the distribution of national income between labor and capital? Several recent studies have shown that the share of labor in national income has declined over the last two to three decades in industrial countries. Guscina (2006), for example, constructs data on the share of labor in national income for 18 industrial countries over 1960–2000. Two measures of labor share are used. The first includes, in labor's income, wages and salaries, employer-financed benefits, unemployment insurance, social security, and workers' compensation. The second, broader measure of labor income also includes the income of the self-employed. Following a long-standing convention, two thirds of income of the self-employed are allocated to labor earnings and one third to capital income. In order to eliminate cyclical variations in the share of labor, Guscina averages her data over successive 5-year periods. She also examines the behavior of the share of labor pre- and post-1985. While the precise patterns differ by country, as do the magnitude of changes, many industrial countries have experienced declining labor shares since 1985.

Evidence from developing countries is thinner. One of the difficulties has to do with data, and in particular, accounting for the incomes of the self-employed. In developing countries, standard calculation of labor shares fails to account for the labor income of the self-employed; this is recorded as profits rather than labor income (Gollin 2002). A study that addresses this issue, among other issues, is that by Felipe and Sipin (2004), who use national income data from the Philippines and adjust for operating surplus of private unincorporated enterprises in the way suggested by Gollin (2002). Felipe and Sipin find evidence of a clear declining trend in labor shares from the early 1980s up to 1996, the year before the Asian financial crisis. Labor shares increased, though, between 2000 and 2002. It is too early to say whether the recovery of labor shares is part of a larger trend.

For the overall period considered by the authors, there has been a decline in the labor share by around -0.6 percentage points a year (Box Figure 4.2.1).

Box Figure 4.2.1 Adjusted Labor Share, Philippines



Source: Figure 2 from Felipe and Sipin (2004).

In closing this discussion, it is worth going over an issue regarding the analysis of national income data to examine the distribution of income between labor and capital. This is the issue of how employees (whose incomes make up a very large part of labor income) are defined. If the definition is broad, i.e., anyone who draws a salary from a business, then the incomes of everyone, down from the owner of a corporation to its janitor, would be included in the labor share (Krueger 1999). Whether this is the case also depends on the tax code of the country and whether business owners have incentives to treat themselves as employees. Why should this matter? A growing feature in many countries, including industrial countries such as US and developing countries such as India, is that of very large compensation for top managers. This is illustrated in the figure below from Piketty and Saez (2003) for the US. To the extent that labor shares in national income are computed for assessing the division of returns between workers and firms, failing to account for the growing relative incomes of top management could lead to an overstatement of the share of labor in recent years.

Box 4.2 continued on next page

in inequality between 1991 and 2005. This pattern, whereby the more recent Lorenz curve lies completely below that of the earlier Lorenz curve, is repeated for a majority of DMCs (not shown).⁴⁶ The second set of Lorenz curves are those for Armenia. Here the pattern is opposite to that of Bangladesh in that the more recent Lorenz curves lies everywhere above the earlier Lorenz curve. All the measures of relative inequality would therefore be unambiguous in reporting a decline in inequality. The final two Lorenz curves shown are for Azerbaijan and Indonesia. Here, the Lorenz curves for

the earlier and later periods appear to have regions of overlapping/crossings. This is confirmed by Figure 4.4, which depicts the difference between the two Lorenz curves for these two countries.

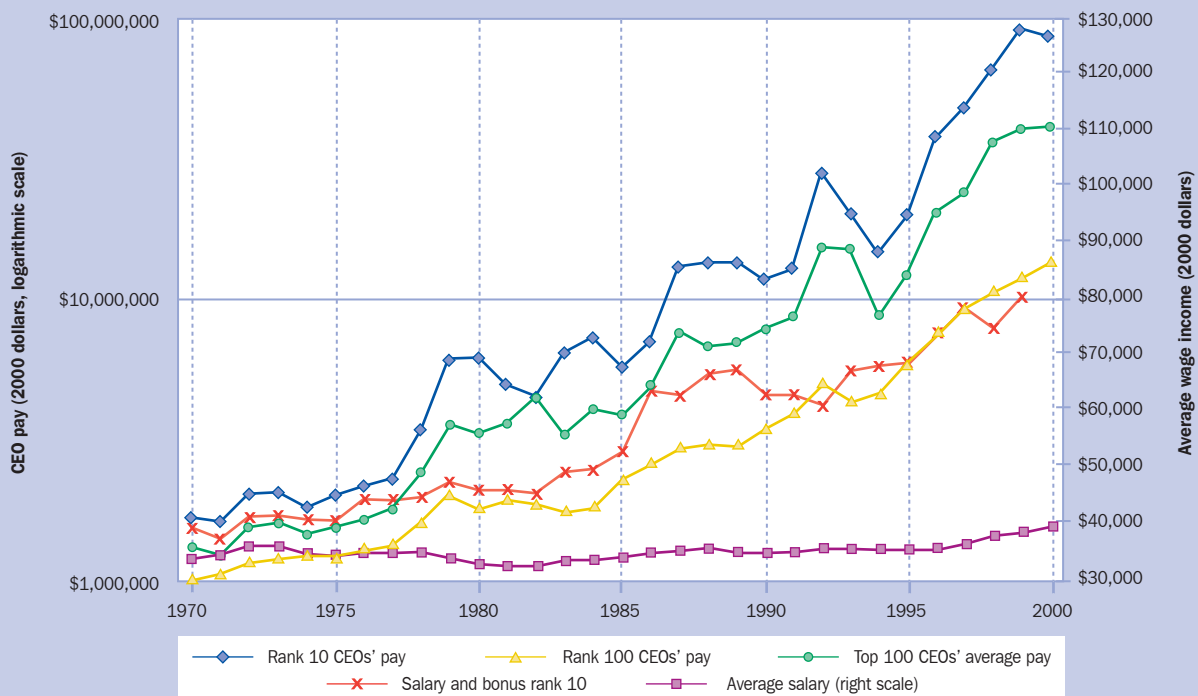
4.2 Asia-wide Inequality

In Subsection 4.1 we examined the trends in inequality in 21 DMCs and found that in 15 out of 21 cases Gini coefficients had risen. Cambodia, Nepal, and PRC posted significant increases in inequality. From these results we can conclude that within-country inequality has increased in the Asian region. During the same period (1990s–2000s), several countries in the region, the PRC and India in particular, experienced robust growth rates in GDP and per capita incomes. In fact, there has been uneven growth performance among

⁴⁶ It is worth emphasizing that the Lorenz curves here are not based on unit-level records but on either the generalized quadratic or Beta Lorenz curves based on extrapolation from grouped/tabulated distribution data. As may be inferred from the discussions in Box 4.1, these will generally do a good job in tracking the actual distribution, except at the upper and lower ends.

Box 4.2 continued from previous page

Box Figure 4.2.2 Chief Executive Officer Pay versus Average Wage Income in the United States, 1970–2000



Note: The figure uses data from the Forbes Annual Compensation Surveys of chief executive officers (CEO) in top 800 companies. Pay refers to overall compensation, which includes salary and bonuses. Rank 10 CEO refers to the 10th highest paid CEO on the list, while Rank 100 CEO refers to the 100th highest paid CEO.
Source: Piketty and Saez (2003).

countries in the region. In terms of annualized growth rates of per capita expenditure/income derived from household surveys, the PRC shows an average growth

rate of 6.23%; some Central Asian republics also show significantly large growth rates, followed by middle-level growth rates for Republic of Korea, Malaysia,

Table 4.5 Annualized Growth Rates of Per Capita Expenditure/Income by Quintile

| Developing Member Country | Time Period | Annualized Growth Rates of Per Capita Expenditure/Income (%) | | | | |
|---------------------------|-------------|--|------------|------------|------------|----------------------|
| | | Quintile 1 (bottom 20%) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (top 20%) |
| Armenia | 1998–2003 | 5.05 | 3.61 | 2.80 | 2.19 | 2.15 |
| Azerbaijan | 1995–2001 | 5.43 | 3.42 | 3.16 | 3.34 | 5.07 |
| Bangladesh | 1991–2005 | 0.07 | -0.24 | -0.08 | 0.27 | 1.60 |
| Cambodia | 1993–2004 | 0.69 | 1.27 | 1.84 | 2.39 | 3.38 |
| China, People's Rep. of | 1993–2004 | 3.40 | 4.46 | 5.42 | 6.19 | 7.10 |
| India | 1993–2004 | 0.85 | 0.77 | 0.82 | 1.04 | 2.03 |
| Indonesia | 1993–2002 | 2.09 | 1.97 | 1.86 | 1.77 | 1.93 |
| Kazakhstan | 1996–2003 | 0.81 | 0.19 | -0.20 | -0.51 | -0.63 |
| Korea, Rep. of | 1993–2004 | 2.00 | 3.32 | 3.69 | 3.91 | 4.02 |
| Lao PDR | 1992–2002 | 1.47 | 2.22 | 2.85 | 3.40 | 3.82 |
| Malaysia | 1993–2004 | 2.26 | 2.65 | 2.72 | 2.68 | 2.23 |
| Mongolia | 1995–2002 | 0.95 | 0.94 | 0.86 | 0.77 | 0.69 |
| Nepal | 1995–2003 | 1.92 | 2.04 | 2.56 | 3.32 | 7.23 |
| Pakistan | 1992–2004 | -0.07 | 0.19 | 0.31 | 0.38 | 0.39 |
| Philippines | 1994–2003 | 1.28 | 1.70 | 2.00 | 2.25 | 2.27 |
| Sri Lanka | 1995–2002 | 0.64 | 0.59 | 1.08 | 1.83 | 4.14 |
| Taipei, China | 1993–2003 | 1.42 | 1.37 | 1.60 | 1.86 | 2.55 |
| Tajikistan | 1999–2003 | 5.87 | 4.85 | 5.36 | 6.19 | 6.69 |
| Thailand | 1992–2002 | 2.35 | 2.27 | 1.96 | 1.51 | 0.38 |
| Turkmenistan | 1998–2003 | 6.79 | 6.21 | 5.91 | 5.91 | 7.90 |
| Viet Nam | 1993–2004 | 3.37 | 3.92 | 4.29 | 4.61 | 4.69 |

Source: Same as Table 4.1.

Table 4.6 Lorenz Curves: Initial and Recent Years

| Status of Lorenz Curves | Developing Member Country |
|---|---|
| Recent Year Lies Below | Bangladesh; Cambodia; People's Republic of China; India; Republic of Korea; Lao PDR; Nepal; Pakistan; Philippines; Sri Lanka; Taipei, China; Tajikistan; Turkmenistan; and Viet Nam |
| Recent Year Lies Above | Armenia; Kazakhstan; Malaysia; Mongolia; and Thailand |
| Crossing | Azerbaijan; Indonesia |
| Note: Initial and recent years are as in Table 4.5. | |

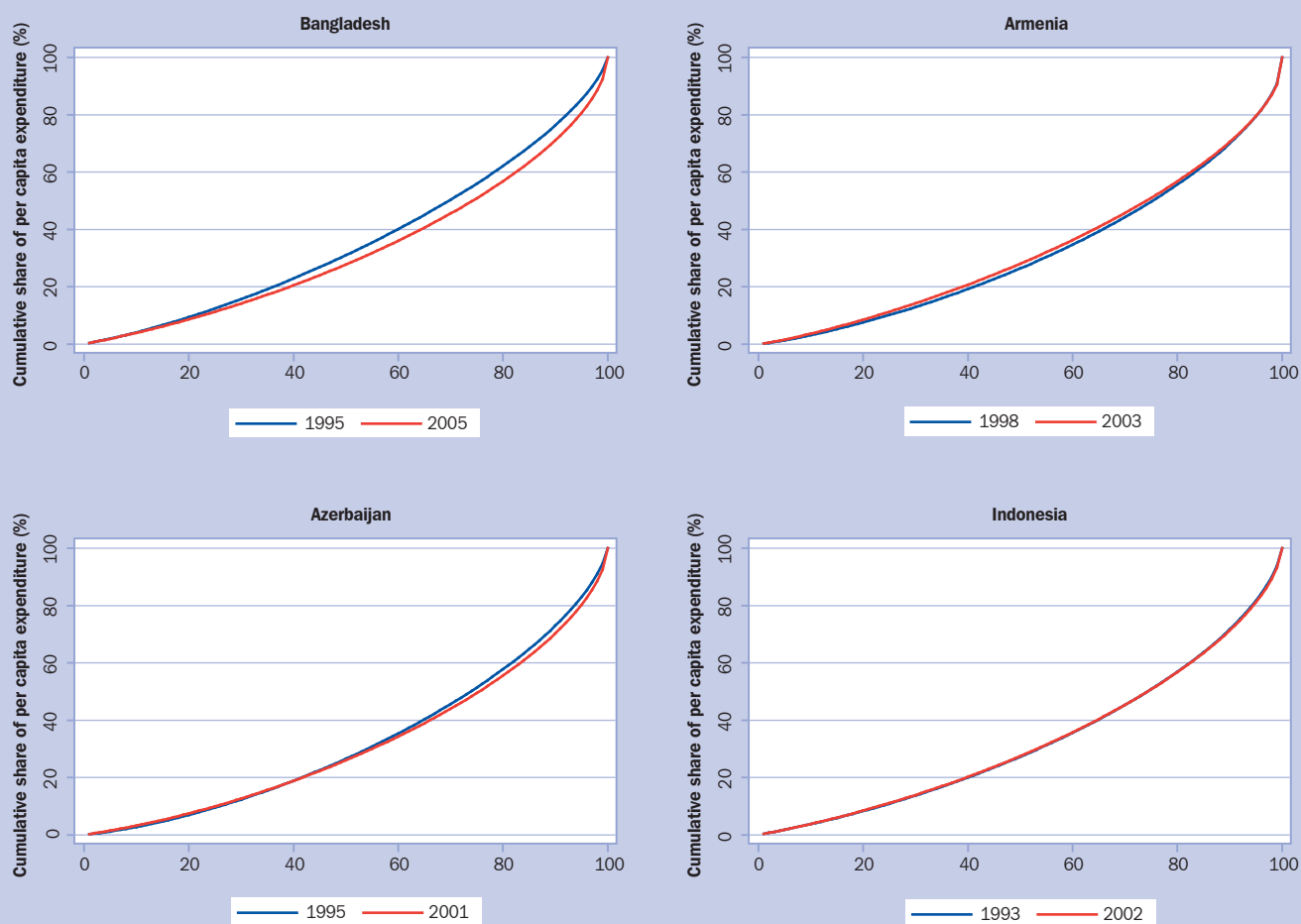
Nepal, Philippines, and Sri Lanka. Growth in per capita expenditure in India over the period 1993–2004 shows an average growth rate of 1.39%. These uneven growth rates point to a possible increase in inequality between countries in the region. Therefore, it is reasonable to ask whether overall inequality has indeed increased in the region, and this subsection is devoted to answering that question.

There are several other questions that this subsection will attempt to answer. For example, Has the nature of

the income distribution for the whole region changed over the last 10 years or so? Has inequality increased? Given that the Asian region has a diverse group of countries, this subsection will also examine the nature of income distributions and the underlying inequality in various subregions. The PRC and India are the two most populous countries. How much influence do they have on inequality in the region and in their respective subregions? As Asian countries have uneven growth performance over the study period (1993–2004) decomposition analysis is used in measuring the contribution of between-country inequality to total regional inequality.

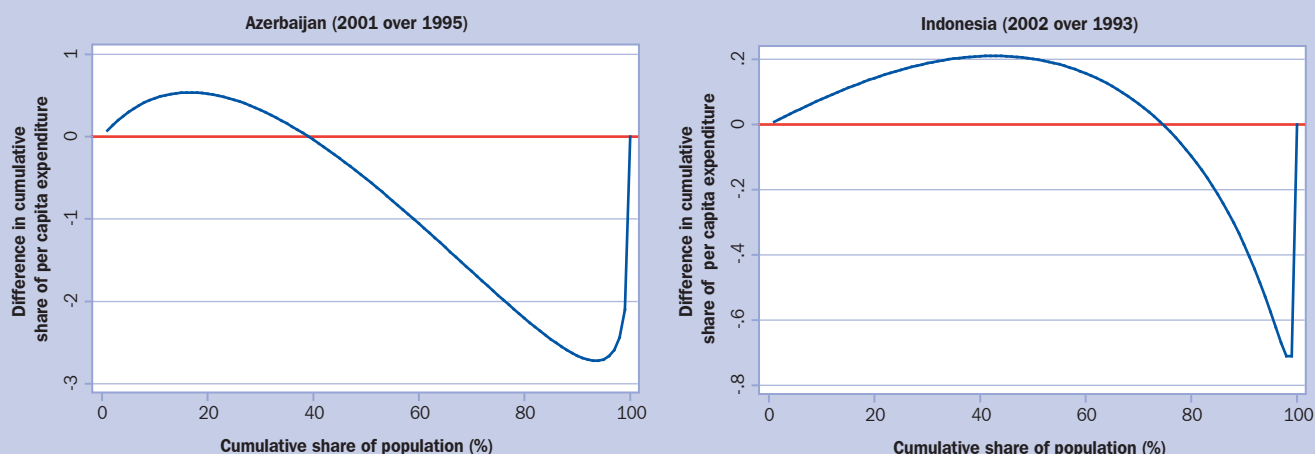
Before we measure Asia-wide inequality, we need to be specific about what we intend to measure. Within the context of inequality in a given country, we are clear about what we need to measure, namely, inequality in the distribution of incomes within that country. However, when we focus on a geographic region made up of several countries, there are several concepts of

Figure 4.3 Lorenz Curves, Selected Developing Member Countries



Note: X-axis refers to cumulative share of population (%).
Source: Same as Table 4.1.

Figure 4.4 Difference in Lorenz Curves for Azerbaijan and Indonesia



Source: Authors' estimates using grouped data from World Bank, PovcalNet.

inequality we can use in measuring inequality. Box 4.3 describes three such concepts.

How do we measure regional inequality? To study it, considering the population in the whole region as a single economy, we need to have information on the distribution of income in each country of the region. Several steps are involved, described below.

- **Conversion of income/expenditure into a common currency unit.** First, it is necessary to convert income/expenditure data, which are usually expressed in national currency units, into a common currency unit after adjusting for differences in purchasing powers of currencies across countries and, where necessary, over time. This is achieved using purchasing power parities

(PPPs). The data in this subsection are mainly based on PPPs from the World Bank.

- **Construction of country-specific income distributions.** The second—and major—step is to identify or map out income distribution for each of the countries. If we have access to unit record data from all the countries in the region then we simply pool all the income data of all the individuals or households in all countries to form a regional unit record dataset that can be used in much the same way as a country-specific income distribution is used in studying inequality. However, in practice we rarely have such data available. Income distribution data across countries and over time are typically available only in the form of grouped data. The

Box 4.3 Three Concepts for Studying Asia-wide Inequality

Intercountry Inequality

This is a measure of inequality, based purely on per capita GDP in each country in the region. Suppose we have a number of countries included in our study. Then intercountry inequality simply measures inequality, treating per capita GDP in each country as one income observation. This measure ignores differences in sizes of countries.

International Inequality

This measure takes population size into account. The inequality measure simply assumes that each person in a given country has an income equal to per capita GDP. It then combines this information from all the countries and measures inequality in the combined population. Thus this inequality measure weights each country's per capita income by its population size. However, it ignores inequality in each country and

is therefore likely to understate inequality in the whole region if the whole region were to be considered as a single population.

Global Inequality

Global inequality is a more complete concept that measures inequality in the distribution of income among people, regardless of their country of origin. This measure accounts for both inequality within each of the countries included in the region as well as inequality between countries as reflected in differences in per capita GDP. This is the concept embraced in more recent work on global inequality (Milanovic 2002; Sala-i-Martin 2002; Chotikapanich Rao, Griffiths, and Valensia 2007), and is the concept we use in measuring inequality in the Asian region. (Since we are considering a specific region of the world, we use the term regional inequality in place of global inequality.)

most typical form of such data is shown in Box 4.1 above. Per capita consumption or income shares for decile or quintile groups are published, along with information on the overall mean or per capita income. In this subsection we use a new econometric method described in Chotikapanich, Griffiths, and Rao (2007) in deriving the income distribution underlying a given set of grouped data. This method is used on data from each country, recovering density and distribution functions and the associated Lorenz curves (recall Box 3.4 and Appendix 1 for more detail on these concepts).

- **Combining country-specific income distributions to form regional and subregional income distributions.** Once we have an income distribution for each country, recovered from the observed decile or quintile share data, it is possible to combine them to form a regional distribution that is a population-weighted average of the country-specific distributions. Details of these steps are also available in Chotikapanich, Griffiths, and Rao (2007). This approach can be used in deriving income distributions for any subregional groupings of countries that are of interest.

Coverage and Grouping of Economies

Given the constraints on the availability of suitable grouped data for the purpose of constructing economy-specific income distributions for 1993 and 2003, the analysis reported in this subsection is limited to 16 Asian economies.⁴⁷ They are classified into three subregions.

Table 4.7 Classification of 16 Developing Member Countries by Subregion

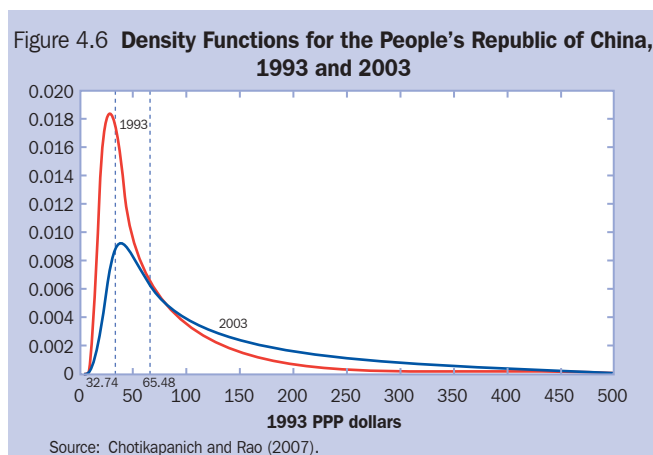
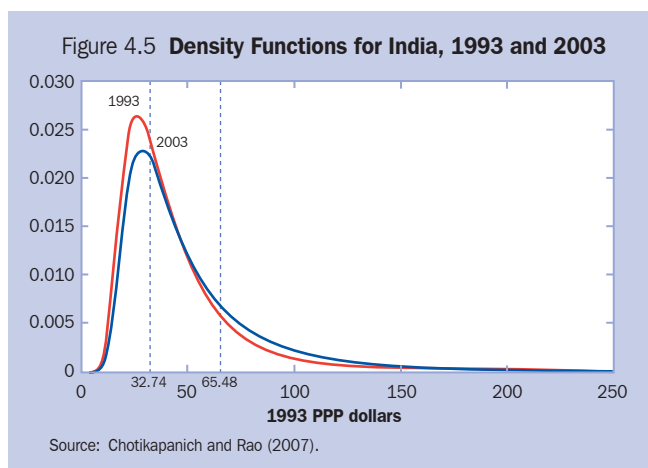
| East Asia | South Asia | Southeast Asia |
|-----------------------------------|--------------|----------------|
| People's Republic of China, rural | Bangladesh | Cambodia |
| People's Republic of China, urban | India, rural | Indonesia |
| Republic of Korea | India, urban | Lao PDR |
| Mongolia | Nepal | Malaysia |
| Taipei, China | Pakistan | Philippines |
| | Sri Lanka | Thailand |
| | | Viet Nam |

In the remainder of this subsection, results are presented for the region as a whole, for the three subregions, and for individual economies.

Economy-specific Income Distributions

As a first step in the construction of the regional income distribution, we derived economy-specific distributions.

A few of these are presented below. The following two plots show the income distributions for the PRC and India (rural plus urban) for 1993 and 2003.⁴⁸



In the case of India, it can be seen that the shift in the income distribution is not very large. The mode of the distribution has remained virtually the same. The distribution does show a modest increase in mean income, but dispersion in incomes appears to have increased and the distribution has shifted to the right, suggesting an increase in inequality. In contrast, the income distributions for the PRC show a bigger shift in mean income than in the case of India and, possibly, a larger increase in inequality.

What happened to poverty incidence in the PRC and India? In the case of the PRC, the density functions for 1993 and 2003 show a clear decline in poverty incidence at the \$1-a-day international line represented by \$32.74, and a similar reduction in poverty incidence

⁴⁷ In particular, those countries for which distribution data are available for 1993 and 2003, or years very close to these, are included.

⁴⁸ The income levels \$32.74 and \$65.25, respectively, refer to \$1-a-day and \$2-a-day international poverty lines in 1993 PPP dollars expressed in monthly terms.

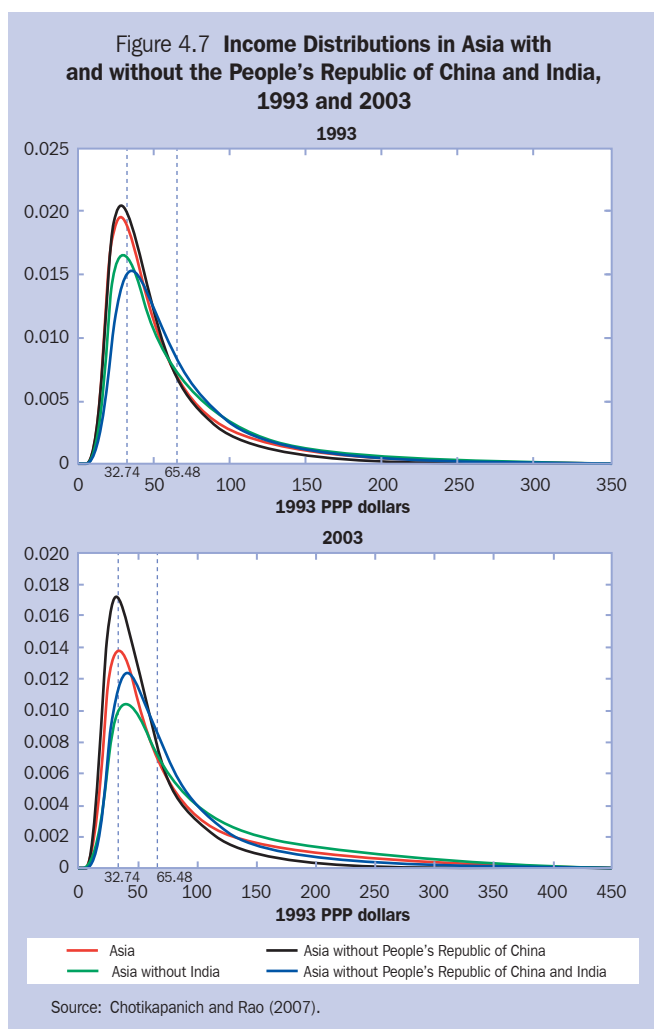
at the \$2-a-day international poverty line.⁴⁹ However, in the case of India, reductions in the corresponding poverty incidence appear to be considerably lower in magnitude than in the case of the PRC.

Once the density functions are estimated for different countries, these can be used in deriving the distribution functions and Lorenz curves.

Regional and Subregional Distributions

Income Distributions in Asia with and without the PRC and India

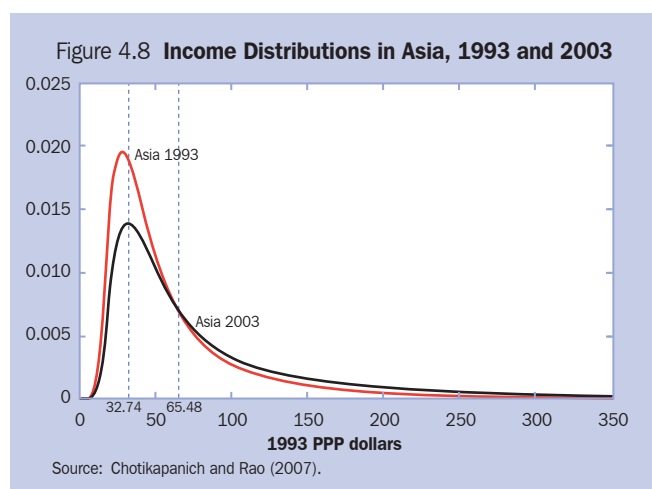
In the figures shown below, income distribution for the Asian region for the years 1993 and 2003 is shown. For each of the years, we also show how the distributions change if the PRC and/or India are not included in the construction of the distribution.



Comparing income distributions for Asia in 1993 and 2003, it is evident that there has been an increase in per capita consumption over the period (data for both periods are expressed in 1993 PPP dollars). Further, it can be seen that income distribution in 2003 shows a significant reduction in poverty incidence using the \$1-a-day international poverty line. Thus, growth in per capita consumption, along with shifts in the income distribution (as shown by the distributions constructed for the whole region), clearly show that growth in the region can be classified as pro-poor. Subsection 4.4 delves more deeply into this issue of pro-poor growth and provides an assessment of pro-poor growth performance of various countries in the region.

Generally, it appears that income distributions without the PRC and India tend to have a higher mean income in 1993, but in 2003 it appears that exclusion of the PRC may bring the average income of the rest of the region down, suggesting that average income/consumption of the PRC in 2003 is above the regional mean. It is also clear from these figures that the region without the PRC and India has income distributions that tend to have a higher per capita income and at the same time show higher variability, which may result in increases in numerical values of inequality measures.

Figure 4.8 clearly shows growth in per capita income over 1993–2003. It also shows a considerable reduction in poverty incidence using \$1-a-day and \$2-a-day international poverty lines.



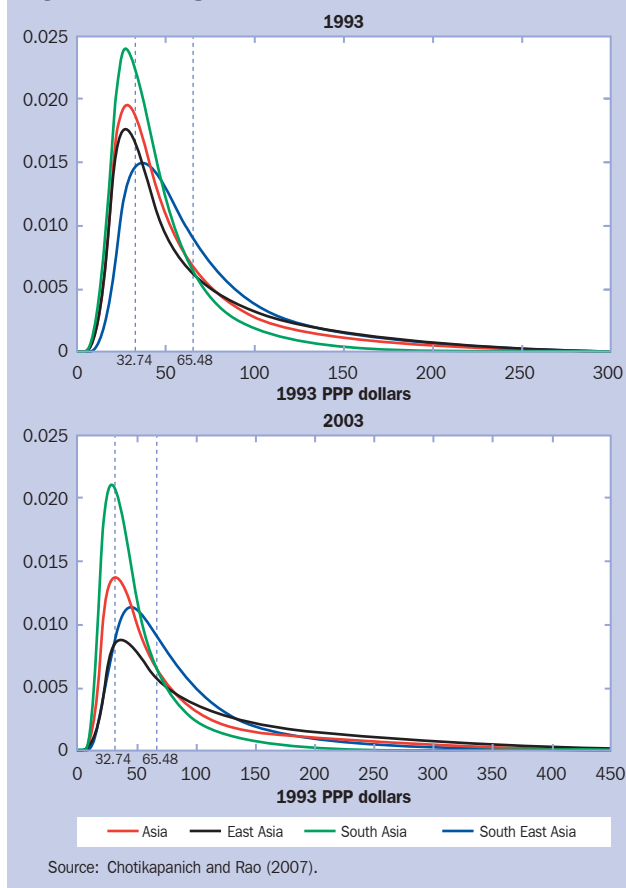
Subregional Income Distributions

The following figures show subregional income distributions for 1993 and 2003.

In interpreting the graphs, it is important to see that the scale used on the x-axis is different for the

⁴⁹ Poverty incidence is the same as the area under the respective density functions for the People's Republic of China and India to the left of the poverty line.

Figure 4.9 Subregional Income Distributions, 1993 and 2003



two years. It is clear that Southeast Asia has higher per capita income/expenditure in both years (Figure 4.9). However, in 1993 the difference between East and Southeast Asia does not appear to be large. In both years, South Asia has the lower per capita income. From the dispersion shown, it appears that Southeast Asia also has the highest inequality.

We briefly examine the subregions of South Asia and East Asia with and without India and the PRC, respectively. These distributions are shown for 1993 and 2003 (Figure 4.10).

The two charts in Figure 4.10 have some characteristics that have not appeared in any of the earlier graphs. East Asia without the PRC is significantly richer than other subregions. This is shown by a shift in the distribution toward the right. Further, the distribution for East Asia without the PRC shows a bi-modal distribution with twin peaks. This means that the population in this subregion consists of sizable populations at both ends of the income spectrum. This is because East Asia without the PRC is made up of Republic of Korea; Mongolia; and Taipei, China. Of these three economies, Mongolia is relatively poorer. However, no such dramatic differences appear in the case of South Asia

without India, mainly because countries in South Asia have similar per capita consumption.

Asia-wide Inequality

Though the plots of density functions and distribution functions reveal interesting features about the underlying income distributions, it is difficult to know the exact magnitude of inequality unless we make use of numerical measures of inequality (a few of the commonly used measures were described in Subsection 3.1). In this short subsection, we make use of the Gini coefficient (which is in the range 0 to 100) and the Theil measure (which is additively decomposable) for purposes of presenting results on the level of inequality in Asia and its subregions.

Table 4.8 shows Gini and Theil's measures computed directly from the income distribution constructed for the Asian region as a whole. This means that the inequality indicators reported here provide a measure of inequality when all the people in the region

Figure 4.10 Subregional Distributions without the People's Republic of China and India, 1993 and 2003

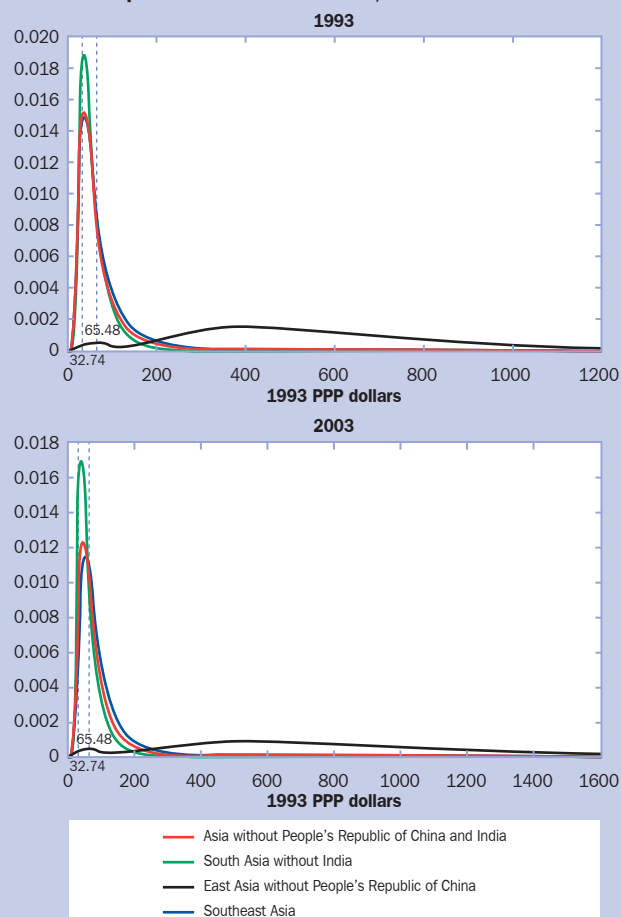


Table 4.8 Inequality in Asia, with and without the People's Republic of China and India, 1993 and 2003

| 1993 | Mean (1993 PPP \$) ^a | Gini | Theil | Population (million) | Population Share (%) | Income/Expenditure Share (%) |
|--|---------------------------------|-------|--------|----------------------|----------------------|------------------------------|
| Asia | 72.7771 | 46.82 | 0.3654 | 2,809.3 | 100.00 | 100.00 |
| Without People's Republic of China | 76.0241 | 50.47 | 0.4317 | 1,637.7 | 58.30 | 60.90 |
| Without India | 85.6606 | 48.78 | 0.3991 | 1,909.9 | 67.99 | 80.02 |
| Without People's Republic of China and India | 113.6565 | 55.39 | 0.5241 | 738.3 | 26.28 | 41.04 |
| 2003 | | | | | | |
| Asia | 111.1651 | 52.42 | 0.4665 | 3,235.5 | 100.00 | 100.00 |
| Without People's Republic of China | 91.1696 | 53.49 | 0.4900 | 1,963.7 | 60.69 | 49.78 |
| Without India | 140.0455 | 51.80 | 0.4602 | 2,155.8 | 66.63 | 83.94 |
| Without People's Republic of China and India | 139.4855 | 57.94 | 0.5844 | 884.0 | 27.32 | 34.28 |

a Monthly per capita expenditure/income.
Source: Chotikanich and Rao (2007).

are considered to be a single group or population. These results are presented for 1993 and 2003.

Over the period 1993 to 2003, mean income/expenditure increased significantly in Asia whether the PRC and India are included or not. In 1993, the Asian average increased when the PRC is dropped, indicating that per capita income in the PRC was below the regional average that year. However, this is reversed in 2003, showing a near 20% drop in mean income when the PRC is excluded. In the case of India, per capita income remains below the regional average in both years.

The most important point to make out of Table 4.8 is that the region has experienced significant growth but at the same time has also experienced increased inequality. Turning to measures of inequality, both Gini and Theil's measures show a significant increase over the 10-year period. In 1993 as well as in 2003, inequality in the region increases when the PRC is excluded, indicating that growth of per capita incomes in that country may be resulting in a reduction in between-country inequality. This is an aspect examined below.

Before we turn to a decomposition of Asian inequality, we must point out that a Gini of 52.42 for Asia in 2003 is rather high. The main reason is because hundreds of millions of poor (especially from the PRC and India) are mixed with relatively few nonpoor people. Similarly, a Gini of 57.94 for the region without the PRC and India is quite high.

In Table 4.9, results of inequality decompositions are provided. As the Gini is not additively decomposable, the decomposition analyses reported here are based purely on the Theil index.

The main features are as follows. Inequality in the region increased over 1993–2003. However, most of that inequality is due to within-country inequality. A major proportion of the increase in the Theil index comes from

the between-country component. In 1993, roughly 90% of inequality stems from inequality within countries. However, this share has since fallen to 72%.

Table 4.9 Decomposition of Inequality in Asia

| 1993 | | | | |
|------------------|--------|------------------------------------|--|--------|
| Gini | Asia | Without People's Republic of China | Without People's Republic of China and India | |
| | | Without India | India | |
| Total Inequality | 46.82 | 50.47 | 48.78 | 55.39 |
| Total Inequality | 0.3654 | 0.4317 | 0.3991 | 0.5241 |
| Within | 0.3211 | 0.2045 | 0.3890 | 0.2382 |
| Between | 0.0443 | 0.2272 | 0.0101 | 0.2859 |
| 2003 | | | | |
| Gini | Asia | Without People's Republic of China | Without People's Republic of China and India | |
| | | Without India | India | |
| Total Inequality | 52.42 | 53.48 | 51.80 | 57.94 |
| Total Inequality | 0.4665 | 0.4900 | 0.4602 | 0.5844 |
| Within | 0.3358 | 0.2264 | 0.3994 | 0.2503 |
| Between | 0.1307 | 0.2636 | 0.0608 | 0.3341 |

Source: Chotikanich and Rao (2007).

A further point to note from Table 4.9 is that the within-country component remained fairly stable (only a marginal increase is shown). Therefore, the main source of the increase in inequality is the increase in between-country inequality.

As noted earlier, inequality is higher when the PRC is not included, while the opposite holds true for the case without India in 2003. But an interesting feature from the decompositions presented is that in 2003, excluding the PRC increases between-country inequality, which implies that the PRC is a country catching up with the richer countries of the region. When India is excluded, the between-country inequality drops considerably, indicating that India, together with other low-income countries in South Asia and Southeast Asia, forms a homogeneous group. The regional inequality increases considerably when both the PRC and India are dropped.

What Messages do we Take from this Subsection?

First, most of the inequality in Asia—taken to be 16 countries included in the analysis—is *within-country* inequality. Second, inequality has increased over 1993–2003, with increases in *between-country* inequality being the main driver of increases in inequality. The analysis also shows subtle shifts in the income distributions, as represented by the density and distribution functions, at the subregional level. Both levels and trends in inequality tend to vary significantly across different subregions, indicating the need to study inequality at the country level, and at the subregional and regional levels.

4.3 Economic Well-being in Asia

As we have seen from the estimates and analysis of both Subsections 4.2 and 4.3, expenditure/income distributions in many Asian countries have become more unequal over the last 10 years or so. This does not imply that economic well-being, which as noted in Section 3 refers to a household's or individual's access to goods and services, has also been reduced. A distribution of income or expenditure that is becoming more unequal over time may yet allow, even those at the bottom of the distribution, greater access to goods and services. By bringing economic well-being into the picture, we are effectively turning to the question of whether or not income/expenditure distributions have become “better.”

But what constitutes “better”? Clearly, this involves a value judgment. For example, an observer comparing two distributions may treat as better the distribution into which the observer would prefer to be born into (Fields 2001). In what follows, we consider two approaches to determining whether—and in which countries—the distribution has become “better” over the last 10 years.⁵⁰

One approach for deciding whether one distribution is better than another (where the distributions could pertain to different countries or different time periods for a given country) is that of the abbreviated social welfare function, in which the economic well-being of

society as a whole is expressed in terms of statistics that arise from a given income or expenditure distribution. Fields (2001), for example, considers a specific form of the abbreviated social welfare function in which it is a function of three variables: gross national product (GNP) per capita (a proxy for average incomes), the Gini coefficient as a measure of inequality, and \$1-a-day poverty rates as a measure of absolute poverty. The relationship between these three variables and social welfare is taken to be such that the latter increases with gains in per capita income, decreases with increases in inequality, and decreases with a rise in absolute poverty.

This approach does not yield an unambiguous answer to the question of how economic well-being has evolved in many Asian countries. Using average per capita household expenditure/income in place of GNP per capita, Table 4.10 reveals that average “incomes” have increased in almost all DMCs over the time period concerned (the exception being Kazakhstan). Similarly, absolute poverty in terms of either a \$1-a-day or \$2-a-day poverty line has fallen in virtually all DMCs over the period under consideration (the exceptions being \$1-a-day poverty in Bangladesh and Pakistan). However, as seen in Subsection 4.1 earlier, inequality has increased in many countries. Thus, an improvement in social welfare due to increasing average incomes and reductions in absolute poverty are countered by the effects of a rise in inequality.

An alternative approach to determining whether one distribution is “better” than another is that of stochastic dominance analysis, which allows distributions to be ranked in terms of social welfare—a level of welfare for the population in question. A particularly intuitive type of stochastic dominance is “first order dominance.” In our current context, it essentially entails checking whether expenditures or incomes have increased at each point of the distribution for the 2 years we are comparing. For example, we can verify whether per capita expenditure at each percentile of the 2004 distribution is higher than the corresponding percentile of the 1993 distribution for a given country. If the 2004 figure is higher for at least some percentile, and no lower for all other percentiles, we can say that the 2004 distribution “first order dominates” the 1993 distribution. This means that the 2004 distribution will record higher levels of welfare in

⁵⁰ All approaches rely on “outcome-based evaluation criteria.” That is, evaluation is based on the consumption or income distributions that we actually see in countries and not on the processes by which the specific consumption or income distributions arise. See Fields (2001).

Table 4.10 Assessing Abbreviated Social Welfare over Time

| Developing Member Country | Initial Year | Final Year | Annualized Growth Rates (%) (log differences divided by number of years elapsed between final and initial years) | | | |
|---------------------------|--------------|------------|---|-------|---------------------------|---------------------------|
| | | | Mean Per Capita Expenditure/ Income from Household Surveys | Gini | \$1-a-day Poverty Rate | \$2-a-day Poverty Rate |
| | | | | | | |
| Armenia | 1998 | 2003 | 2.64 | -1.27 | -26.05 | -6.91 |
| Azerbaijan | 1995 | 2001 | 4.21 | 0.72 | -24.46 | -5.29 |
| Bangladesh | 1991 | 2005 | 0.66 | 1.34 | 0.52 | -0.31 |
| Cambodia | 1993 | 2004 | 2.50 | 1.63 | -2.91 | -1.96 |
| China, People's Rep. of | 1993 | 2004 | 6.23 | 1.35 | -8.75 | -4.86 |
| India | 1993 | 2004 | 1.39 | 0.88 | -1.60 | -0.61 |
| Indonesia | 1993 | 2002 | 1.90 | -0.02 | -9.13 | -2.15 |
| Kazakhstan | 1996 | 2003 | -0.33 | -0.61 | n.a. | -1.17 |
| Korea, Rep. of | 1993 | 2004 | 3.69 | 0.87 | n.a. | n.a. |
| Lao PDR | 1992 | 2002 | 3.18 | 1.32 | -5.06 | -1.66 |
| Malaysia | 1993 | 2004 | 2.45 | -0.20 | n.a. | -6.13 |
| Mongolia | 1995 | 2002 | 0.79 | -0.16 | -2.61 | -1.23 |
| Nepal | 1995 | 2003 | 4.78 | 2.85 | -4.13 | -2.32 |
| Pakistan | 1992 | 2004 | 0.31 | 0.24 | 0.36 | -0.46 |
| Philippines | 1994 | 2003 | 2.12 | 0.28 | -3.52 | -2.11 |
| Sri Lanka | 1995 | 2002 | 2.52 | 2.24 | -4.93 | -1.33 |
| Taipei, China | 1993 | 2003 | 2.00 | 0.78 | n.a. | n.a. |
| Tajikistan | 1999 | 2003 | 6.06 | 0.87 | -16.90 | -8.07 |
| Thailand | 1992 | 2002 | 1.12 | -0.97 | n.a. | -3.73 |
| Turkmenistan | 1998 | 2003 | 6.88 | 0.92 | -27.16 | -29.60 |
| Viet Nam | 1993 | 2004 | 4.43 | 0.55 | -10.75 | -4.84 |

Notes: 1. Republic of Korea and Taipei, China have very low/negligible estimates of initial poverty.
2. Underlying data and poverty lines are expressed in 1993 PPP dollars.
Source: Same as Table 4.1.

terms of any social welfare function that is increasing in incomes (and anonymous).⁵¹

A first approximation testing for first order dominance can be obtained by comparing the mean per capita expenditures or incomes across quintile groups for the 1990s and 2000s for each of the 21 economies shown in Table 4.10. In the case of the PRC and India, we also present data for rural and urban areas separately. The data for the 21 economies are presented in Table 4.11.

In only a few cases does the more recent distribution fail to first order dominate the earlier distribution. Thus, even in the case of Nepal, which registered an almost 10 percentage point increase in the Gini coefficient between 1995 in 2003, the per capita expenditure of each quintile group is higher than its earlier corresponding value. Thus, while per capita expenditure of the first quintile

group was \$20.6 a month (in 1993 PPP consumption dollars) in 1995, this had increased to \$24.0 by 2003.

The exceptions in which the more recent distribution fails to first order dominate the earlier distribution are Bangladesh, Kazakhstan, and Pakistan. As an examination of the per capita consumption expenditures for 1991 and 2005 shows, the second and third quintile groups have seen a slight decline in expenditure in the case of Bangladesh. Some cases in which the more recent distribution comes close to failing to first order dominate the earlier distributions are those of rural India between 1993 and 2004 and Sri Lanka between 1995 and 2002.

Figure 4.11 presents a graphical means for checking for first order dominance. This entails comparing the relative position of two (or more) distributions' "quantile" functions, i.e., curves that depict income or expenditure at each quantile. The cases presented are those for selected DMCs including Azerbaijan, for which Lorenz curves for 1995 and 2001 crossed (as seen earlier), as well as rural India and rural PRC, as well as Bangladesh, Nepal, Indonesia, Philippines, and Viet Nam.

While some caution needs to be taken in interpreting the results of these quantile functions—they are extrapolations based on information provided in grouped distribution data—they confirm the two

⁵¹ Given a distribution of income or expenditures for some population, a social welfare function assigns a level of welfare for the population as a whole (i.e., a measure of economic well-being of the population as a whole). There are many different ways of defining a social welfare function, i.e., for mapping a given distribution of incomes or expenditures to a level of welfare for the population in question. Social welfare functions that are increasing in incomes have the property that social welfare increases with an increase in the income of any individual (keeping all other incomes fixed). The property of anonymity simply means that the welfare function depends on incomes but does not depend on which individual gets what.

Table 4.11 Mean Per Capita Expenditure/Income (1993 PPP Dollars)

| Developing Member Country | Time Period | Per Capita Expenditure/Income by Quintiles | | | | | | | | | |
|---------------------------------|-------------|--|--------|------------|--------|------------|--------|------------|--------|------------|---------|
| | | Quintile 1 | | Quintile 2 | | Quintile 3 | | Quintile 4 | | Quintile 5 | |
| | | Initial | Final | Initial | Final | Initial | Final | Initial | Final | Initial | Final |
| Armenia | 1998–2003 | 35.65 | 45.57 | 54.13 | 65.27 | 72.68 | 83.56 | 98.02 | 109.76 | 207.68 | 231.60 |
| Azerbaijan | 1995–2001 | 29.45 | 40.80 | 50.60 | 62.13 | 69.97 | 84.58 | 95.00 | 116.11 | 179.38 | 243.16 |
| Bangladesh | 1991–2005 | 21.56 | 21.78 | 31.15 | 30.11 | 39.74 | 39.31 | 50.72 | 52.66 | 87.45 | 109.48 |
| Cambodia | 1993–2004 | 24.88 | 26.84 | 34.77 | 39.97 | 44.61 | 54.61 | 59.13 | 76.94 | 130.36 | 189.09 |
| China, People's Rep. of (Rural) | 1993–2004 | 19.70 | 27.17 | 28.58 | 42.03 | 37.46 | 58.15 | 49.65 | 81.63 | 91.32 | 177.68 |
| China, People's Rep. of (Urban) | 1993–2004 | 55.85 | 90.80 | 83.15 | 143.47 | 107.99 | 194.55 | 140.12 | 264.14 | 233.80 | 500.93 |
| China, People's Rep. of | 1993–2004 | 21.59 | 31.38 | 33.90 | 55.37 | 49.06 | 89.03 | 76.27 | 150.68 | 163.40 | 356.71 |
| India (Rural) | 1993–2004 | 18.83 | 20.67 | 26.37 | 28.57 | 33.24 | 35.85 | 42.57 | 46.12 | 75.95 | 90.26 |
| India (Urban) | 1993–2004 | 25.15 | 27.11 | 37.53 | 41.60 | 50.74 | 57.87 | 69.39 | 81.47 | 136.25 | 171.70 |
| India | 1993–2004 | 19.81 | 21.76 | 28.21 | 30.71 | 36.40 | 39.85 | 48.43 | 54.30 | 96.03 | 120.00 |
| Indonesia | 1993–2002 | 28.42 | 34.31 | 40.17 | 47.94 | 53.44 | 63.20 | 72.90 | 85.49 | 147.94 | 175.95 |
| Kazakhstan | 1996–2003 | 50.52 | 53.47 | 84.73 | 85.84 | 120.43 | 118.80 | 169.51 | 163.61 | 313.37 | 299.85 |
| Korea, Rep. of | 1993–2004 | 238.99 | 297.75 | 378.42 | 545.13 | 493.85 | 741.23 | 634.87 | 975.58 | 1046.44 | 1629.17 |
| Lao PDR | 1992–2002 | 19.77 | 22.90 | 26.75 | 33.39 | 33.67 | 44.79 | 43.53 | 61.17 | 84.39 | 123.61 |
| Malaysia | 1993–2004 | 51.39 | 65.87 | 82.81 | 110.80 | 119.51 | 161.15 | 174.66 | 234.52 | 396.70 | 507.18 |
| Mongolia | 1995–2002 | 29.40 | 31.41 | 48.01 | 51.28 | 66.84 | 71.00 | 92.14 | 97.23 | 162.68 | 170.76 |
| Nepal | 1995–2003 | 20.57 | 23.99 | 30.64 | 36.07 | 41.44 | 50.85 | 57.37 | 74.83 | 127.45 | 227.26 |
| Pakistan | 1992–2004 | 33.03 | 32.77 | 44.45 | 45.47 | 56.11 | 58.22 | 72.19 | 75.59 | 139.28 | 145.98 |
| Philippines | 1994–2003 | 26.66 | 29.92 | 42.60 | 49.65 | 62.63 | 74.95 | 94.36 | 115.59 | 222.35 | 272.64 |
| Sri Lanka | 1995–2002 | 35.43 | 37.04 | 52.19 | 54.40 | 69.98 | 75.46 | 95.04 | 108.00 | 189.23 | 252.84 |
| Taipei, China | 1993–2003 | 250.59 | 288.94 | 456.65 | 523.86 | 621.24 | 728.90 | 818.14 | 985.78 | 1354.57 | 1748.07 |
| Tajikistan | 1999–2003 | 27.76 | 35.11 | 44.59 | 54.13 | 58.90 | 72.98 | 76.75 | 98.33 | 138.04 | 180.43 |
| Thailand | 1992–2002 | 36.45 | 46.12 | 56.78 | 71.22 | 84.04 | 102.20 | 129.64 | 150.70 | 342.88 | 356.13 |
| Turkmenistan | 1998–2003 | 65.55 | 92.03 | 109.14 | 148.87 | 157.98 | 212.35 | 229.47 | 308.32 | 516.34 | 766.41 |
| Viet Nam | 1993–2004 | 23.60 | 34.19 | 34.18 | 52.64 | 45.72 | 73.31 | 62.27 | 103.42 | 127.36 | 213.43 |

Source: Same as Table 4.1.

features that other cuts of the data suggest. First, expenditure levels have tended to grow at all points of the distribution so that more recent distributions first order dominate earlier ones in most DMCs. Second, however, the growth in expenditure at the lower end of the distribution has been relatively low in many cases. This suggests that poorer households have benefited from and/or participated in overall growth less than richer households. This is clearly the case in an “absolute” sense—one need only compare the larger distance between the quantile functions at the higher end of the distribution; it is also true for many DMCs in a “relative” sense (as already discussed in reference to Table 4.5 above).

4.4 Poverty Reduction: Linkages with Inequality and Growth

What are the implications of the foregoing for poverty? The fact that expenditure levels have increased at all percentiles, in most DMCs over the approximately 10-year period considered here suggests that, for a broad class of measures, poverty has declined regardless of the position of the choice of the poverty line.⁵² This indeed seems to be the case as demonstrated by Table

4.12, which lists in the first two data columns initial and final poverty rates at \$1-a-day and \$2-a-day poverty lines for 19 DMCs.⁵³ Box 4.4 describes some definitions and concepts relating to (income) poverty.

Table 4.12 Poverty Rates/Headcount Index: 1990s versus 2000s

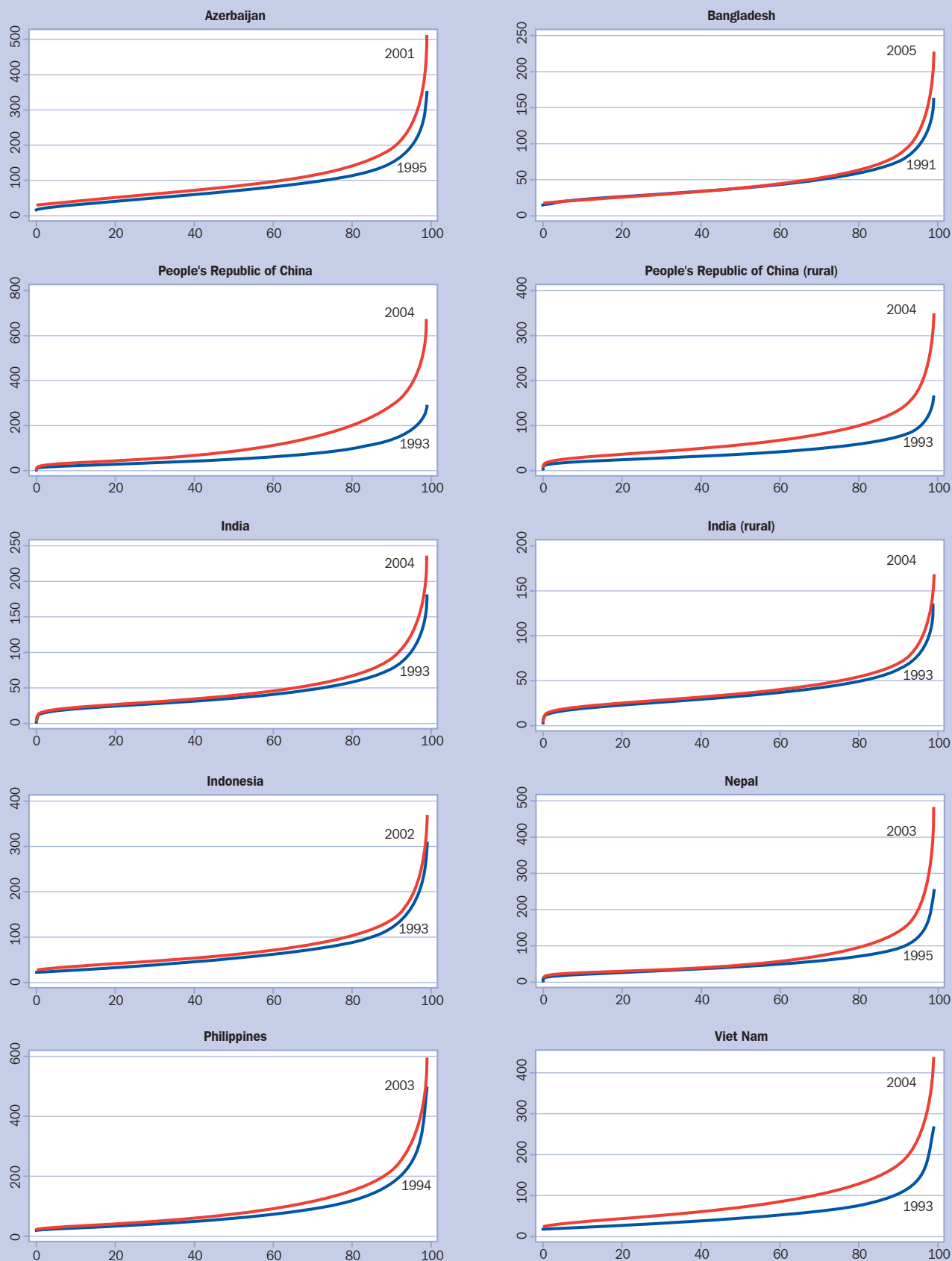
| Developing Member Country | Headcount Index, \$1-a-day (%) | | Headcount Index, \$2-a-day (%) | |
|---------------------------|--------------------------------|------------|--------------------------------|------------|
| | Initial Year | Final Year | Initial Year | Final Year |
| Armenia | 6.38 | 1.73 | 42.80 | 30.29 |
| Azerbaijan | 12.44 | 2.87 | 45.67 | 33.25 |
| Bangladesh | 33.71 | 36.26 | 85.30 | 81.71 |
| Cambodia | 25.45 | 18.47 | 76.50 | 61.66 |
| China, People's Rep. of | 28.33 | 10.82 | 64.45 | 37.76 |
| India | 41.83 | 35.07 | 85.11 | 79.63 |
| Indonesia | 17.39 | 7.65 | 64.19 | 52.89 |
| Kazakhstan | 0.42 | 0.00 | 18.49 | 17.04 |
| Lao PDR | 47.84 | 28.84 | 89.94 | 74.41 |
| Malaysia | 0.00 | 0.00 | 19.17 | 9.77 |
| Mongolia | 13.24 | 11.03 | 48.87 | 44.83 |
| Nepal | 34.42 | 24.74 | 77.39 | 64.27 |
| Pakistan | 9.33 | 9.75 | 63.36 | 59.97 |
| Philippines | 18.09 | 13.18 | 52.72 | 43.58 |
| Sri Lanka | 6.82 | 4.83 | 45.51 | 41.47 |
| Tajikistan | 14.77 | 7.51 | 58.67 | 42.49 |
| Thailand | 6.02 | 0.00 | 37.48 | 25.81 |
| Turkmenistan | 0.35 | 0.09 | 9.28 | 2.11 |
| Viet Nam | 27.32 | 8.38 | 73.46 | 43.16 |

Source: Same as Table 4.1.

⁵² We use the term “suggests” deliberately. Given that the analysis here is based on grouped data, our statements regarding expenditures/incomes at the extremes of the distribution need to be made with some caution.

⁵³ Republic of Korea; Taipei, China; and Kyrgyz Republic are omitted from this analysis. For the first two economies, even \$2-a-day poverty turns out to be nonexistent by 1993, the initial year being considered in this analysis. For the Kyrgyz Republic, the initial year's data lack sufficient credibility, as noted earlier.

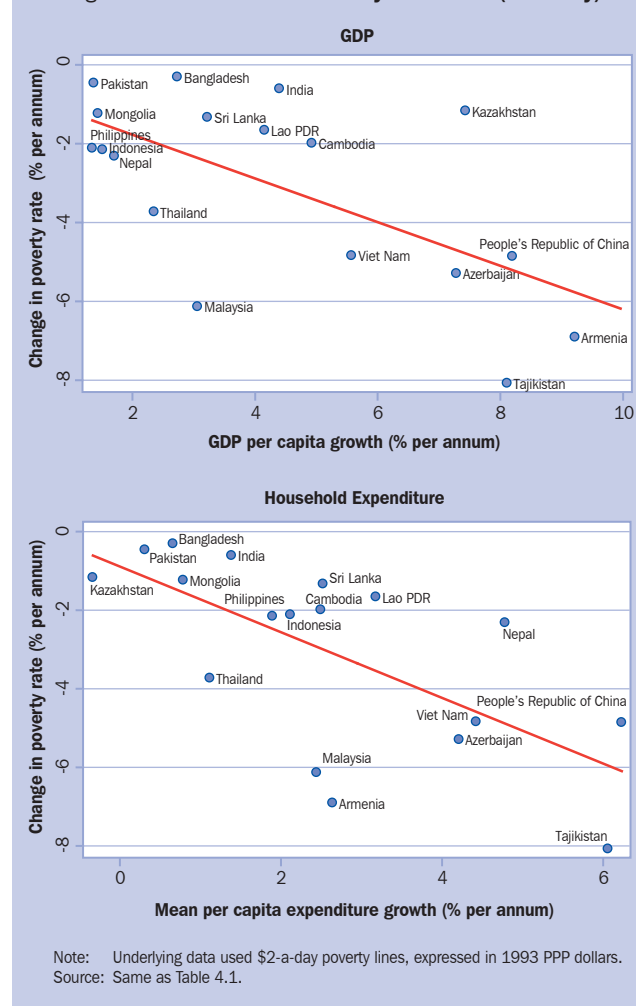
Figure 4.11 Quantile Functions for Selected Developing Member Countries, 1990s versus 2000s



Note: The X-axis refers to quantile of expenditure recipients ordered from lowest to highest; the Y-axis depicts per capita expenditures in 1993 PPP dollars.
Source: Same as Table 4.1.

Of course, the degree to which poverty has declined varies across countries. A key factor that explains the different rates of decline is the rate of aggregate growth. Figure 4.12 plots the changes in \$2-a-day poverty rates against changes in two alternative measures of aggregate growth for selected DMCs: per capita GDP and per capita mean household consumption expenditures.

Figure 4.12 Growth and Poverty Reduction (\$2-a-day)

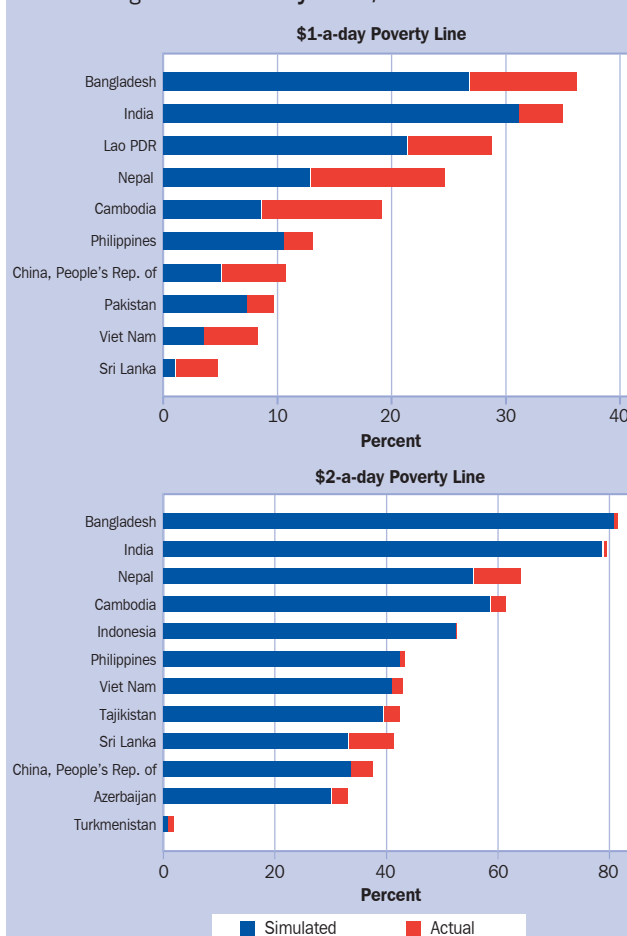


In both cases, aggregate growth is strongly associated with poverty reduction. The relationship is stronger, however, for growth measured in terms of mean household expenditure rather than GDP. This reflects the fact that changes in per capita GDP and changes in household expenditure do not track each other perfectly. In what follows, we do not dwell on these differences (although Box 5.1 in Section 5 discusses some implications for the ongoing debate on whether

economic growth has been sufficiently “inclusive” or not in India where the differences can be relatively large.)

But even the same growth rate can be associated with different rates of poverty reduction. Two proximate factors that play a role in explaining this are the initial level of inequality and the increase in inequality over time (Ravallion 2004a). The higher the initial level, or increase, the lower will be the extent of poverty reduction for a given growth rate. As an illustration of how increases in inequality over a period of positive growth can damp the extent of poverty reduction, Figure 4.13 shows actual \$1-a-day and \$2-a-day

Figure 4.13 Poverty Rates/Headcount Index



Notes: Poverty rates are for the following years: Azerbaijan (2001); Bangladesh (2005); Cambodia (2004); People's Republic of China (2004); India (2004); Indonesia (2002); Lao PDR (2002); Nepal (2003); Pakistan (2004); Philippines (2003); Sri Lanka (2002); Turkmenistan (2003); and Viet Nam (2004). Simulated poverty rates are computed using expenditure distributions for the following years: Azerbaijan (1995); Bangladesh (1991); Cambodia (1993); People's Republic of China (1993); India (1993); Indonesia (1993); Lao PDR (1992); Nepal (1995); Pakistan (1992); Philippines (1994); Sri Lanka (1995); Turkmenistan (1998); and Viet Nam (1993).

Source: Same as Table 4.1.

Box 4.4 Definitions and Concepts Relating to Poverty

The **poverty line** is the consumption level required to achieve the minimum acceptable standard of living in a society. This minimum standard may be defined in absolute or relative terms. The absolute poverty line is often defined as the threshold that allows minimum calorie requirements plus a small allowance for nonfood items. A relative poverty line is defined as a function of various income (or expenditure) distribution parameters, such as the mean or median. (For example, a relative poverty line could be defined as 50% of the mean income.) When a person's expenditure falls below this threshold, he or she is considered poor.

Since minimum acceptable consumption levels vary across countries and over time, poverty lines also tend to vary across countries and over time. However, differences in the definitions and methodologies used for computing poverty lines tend to vary far more across countries than over time in the same country, especially when the time periods are not too far apart. Thus, national methodologies should not be used for making international comparisons of poverty.

The **\$1-a-day poverty line** represents the \$1.08 per person per day consumption level in 1993 at purchasing power parity prices. This threshold stands as an internationally accepted minimum level of

private consumption and thereby seeks to provide a more meaningful comparison of poverty across countries.

Poverty incidence is the proportion of individuals in the total population whose income or expenditure falls below the poverty threshold. This measure may be based on either the national poverty line or international poverty lines, such as the \$1-a-day poverty line. Poverty incidence is also often referred to as the **headcount index** or even **poverty rate**. Often, references to "poverty" on its own are references to poverty incidence.

The **poverty gap index**, unlike poverty incidence, gives one a sense of how poor the poor are and reflects the "depth" of poverty. It is equivalent to the shortfall of consumption below the poverty line per head of the total population, and is expressed as a percentage of the poverty line.

The **squared poverty gap index** adds the dimension of inequality among the poor to the poverty gap index and is said to reflect the "severity" of poverty. For a given value of the poverty gap index, populations with greater dispersion of incomes or expenditures among the poor will show up with a higher value for the squared poverty gap index.

poverty rates versus those that would have been seen had the growth that was experienced (over the period considered here) occurred without any changes in the distribution for those DMCs where the Gini coefficient increased.⁵⁴ As may be seen, distributional changes adverse to poverty reduction have been relatively high in countries such as Cambodia and Nepal for \$1-a-day poverty. Interestingly, this pattern does not exist to the same degree if we switch to \$2-a-day poverty rates. This is because the \$2-a-day poverty line is high relative to mean expenditure levels in many DMCs, so that applying current means to earlier, less unequal distribution in effect only "redistributes" poverty.

More formally, in many of the cases considered so far, growth over the time period here has not been pro-poor (for \$1-a-day poverty) in the sense of Kakwani and Son (2007) — i.e., growth benefits the poor proportionately more than the nonpoor. To examine this in more detail, it is useful to consider a recent study that examines the experience of 17 Asian economies over 1981–2001 (Son 2007a).

⁵⁴ It should be noted that there is not a one-to-one monotonic relationship between changes in the Gini coefficient and changes in poverty, holding mean consumption expenditure/income fixed. The exact relationship will depend on the position of the poverty line vis-à-vis a given distribution, and the specific manner in which the distribution changes over time. Nevertheless, in most cases it turns out that the actual increases in the Gini coefficient are associated with an increase in the poverty rate for a given increase in mean per capita consumption expenditures.

4.5 Pro-poor Growth in Asia

To what extent has the growth experience of 17 low- and middle-income Asian countries been pro-poor? As Box 4.5 describes, there are different definitions of pro-poor growth. Here, we rely on the Kakwani and Son (2007) measure of pro-poor growth, which takes into account both the growth rate in mean income as well as how the benefits of growth are distributed between the poor and the nonpoor. This measure, called the poverty equivalent growth rate (PEGR), is the counterfactual growth rate that would have generated the same change in poverty if the Lorenz curve had remained constant.

Table 4.13 summarizes the experience of the 17 Asian countries vis-à-vis pro-poor growth based on

Table 4.13 Pro-poor Growth, Summary Results for 17 Asian Countries (based on the \$1-a-day poverty line)

| | Positive Growth | Negative Growth | All Growth Spells |
|---|-----------------|-----------------|-------------------|
| <i>Based on the Headcount Ratio</i> | | | |
| Pro-poor | 21 (35.6%) | 10 (16.9%) | 31 (52.5%) |
| Not Pro-poor | 21 (35.6%) | 7 (11.9%) | 28 (47.5%) |
| Total Spells | 42 (71.2%) | 17 (28.8%) | 59 (100%) |
| <i>Based on the Poverty Gap Ratio</i> | | | |
| Pro-poor | 13 (22.0%) | 13 (22.0%) | 26 (44.1%) |
| Not Pro-poor | 29 (49.2%) | 4 (6.8%) | 33 (55.9%) |
| Total Spells | 42 (71.2%) | 17 (28.8%) | 59 (100%) |
| <i>Based on the Severity of Poverty</i> | | | |
| Pro-poor | 15 (25.4%) | 11 (18.6%) | 26 (44.1%) |
| Not Pro-poor | 27 (45.8%) | 6 (10.2%) | 33 (55.9%) |
| Total Spells | 42 (28.8%) | 17 (28.8%) | 59 (100%) |

Source: Son (2007a).

Box 4.5 Pro-poor Growth

Development analysts use two main sets of definitions of pro-poor growth.¹ A key difference between the various definitions lies in their treatment of changes in inequality during the growth process. One set of measures takes these into account explicitly; the other does not. An example of the latter is the definition used by Ravallion and Chen (2003) who deem a growth process to be pro-poor only if the poor benefit in absolute terms. Suppose poverty is measured by the \$1-a-day headcount ratio, a growth process will be pro-poor by this definition as long as the headcount ratio falls. The other set

of definitions, however, emphasizes how the benefits of growth are distributed among the poor and nonpoor. A recent measure belonging to this class of definitions is the poverty equivalent growth rate (PEGR) developed by Kakwani and Son (forthcoming).

Consider two points of time for which we have distribution data. The PEGR is defined as the growth rate that would generate, under the assumption of *unchanged inequality*, the same amount of poverty reduction as actually experienced. Since typically there will be at least some change in inequality over time, the PEGR will be different from the actual growth rate. Growth is defined as pro-poor if the PEGR is greater than the actual growth rate. As per this definition, growth is pro-poor if it benefits the poor proportionately more than the nonpoor.

¹ See Son 2007b for a comprehensive discussion of the different definitions, as well as an empirical illustration using the growth experience of Thailand between 1988 and 2000.

the \$1-a-day poverty line. The results reveal that out of 59 growth spells, 17 (28.8%) had negative growth rates and 42 (71.2%) had positive growth rates. Of the 42 spells when growth rates were positive, there is an equal number of cases when growth was pro-poor and not pro-poor, i.e., 21 cases (or 35.6% of the 59 growth spells). In 10 out of the 17 growth spells of negative growth rates, the poor experienced a proportionally smaller decline in their income than the nonpoor. Overall, growth processes in Asia have generally been favorable to the poor. The findings suggest further that poverty reduction in Asia has been helped by positive growth and facilitated by a pro-poor growth pattern when pro-poor growth is measured in terms of the headcount ratio.

The story changes, however, when pro-poor growth is calculated using the poverty gap ratio and severity of poverty measure. Results show that growth processes in Asia have not been favorable to the extremely poor who live far below the \$1-a-day poverty line. On the whole, while growth in Asia has been generally positive, it has benefited mostly the poor clustered around the poverty threshold, but not the very poor. The same conclusion emerges when calculations are based on the \$2-a-day poverty line (Table 4.14).

Table 4.14 Pro-poor Growth, Summary Results for 17 Asian Countries (based on the \$2-a-day poverty line)

| | Positive Growth | Negative Growth | All Growth Spells |
|---|-----------------|-----------------|-------------------|
| <i>Based on the Headcount Ratio</i> | | | |
| Pro-poor | 26 (44.1%) | 7 (11.9%) | 33 (55.9%) |
| Not Pro-poor | 16 (27.1%) | 10 (16.9%) | 26 (44.1%) |
| Total Spells | 42 (71.2%) | 17 (28.8%) | 59 (100%) |
| <i>Based on the Poverty Gap Ratio</i> | | | |
| Pro-poor | 13 (22.0%) | 5 (8.5%) | 18 (30.5%) |
| Not Pro-poor | 29 (49.2%) | 12 (20.3%) | 41 (69.5%) |
| Total Spells | 42 (71.2%) | 17 (28.8%) | 59 (100%) |
| <i>Based on the Severity of Poverty</i> | | | |
| Pro-poor | 13 (22.0%) | 8 (13.6%) | 21 (35.6%) |
| Not Pro-poor | 29 (49.2%) | 9 (15.3%) | 38 (64.4%) |
| Total Spells | 42 (71.2%) | 17 (28.8%) | 59 (100%) |

Source: Son (2007a).

5. A More In-depth Look at Expenditure Inequality

We now take a deeper look at various aspects of inequality and its recent evolution in a few DMCs. Unlike Sections 2 and 4, which were based on grouped distribution data on per capita expenditures/incomes at the national level, the discussion here is based on the analysis of micro data (unit-level records) from household expenditure surveys. Such analysis allows a much richer analysis. Among other things, it enables us to comprehend better the factors accounting for inequality and changes in it.

5.1 Inequality Estimates

Table 5.1 presents various estimates of inequality for India, Indonesia, Philippines, and Viet Nam based on micro data. In addition to the Gini coefficient, inequality indexes belonging to the generalized entropy class of inequality measures are provided: GE(0), the mean log deviation; GE(1), the Theil index; and GE(2), half the square of the coefficient of variation. As discussed in Section 3, GE(0) is especially sensitive to incomes (or expenditures) at the bottom of the distribution, GE(2) is more sensitive to incomes at the top of the distribution, and GE(1) exhibits a constant responsiveness across all ranges of incomes. The Gini coefficient is more sensitive to incomes around the middle of the distribution.

An important feature of Table 5.1 is that it presents inequality estimates based on both nominal expenditure data as well as expenditure data that have been adjusted for spatial price differentials—i.e., price differences that may exist across geographic locations such as the

Table 5.1 Average Monthly Per Capita Expenditures and Measures of Inequality

| Developing Member Country | Year | Nominal Per Capita Expenditures (current US\$) | | | | | Adjusted for Spatial Price Differentials ^a | | | |
|---------------------------|------|--|-------|-------|-------|-------|---|-------|-------|-------|
| | | MPCE | Gini | GE(0) | GE(1) | GE(2) | Gini | GE(0) | GE(1) | GE(2) |
| India ^b | 1983 | 12.20 | 32.59 | 0.18 | 0.21 | 0.50 | 32.45 | 0.17 | 0.20 | 0.46 |
| | 1993 | 10.45 | 32.49 | 0.17 | 0.22 | 0.66 | 31.37 | 0.16 | 0.21 | 0.60 |
| | 2004 | 15.21 | 36.39 | 0.22 | 0.28 | 0.78 | 33.18 | 0.18 | 0.24 | 0.65 |
| Indonesia | 2002 | 20.93 | 34.45 | 0.19 | 0.25 | 0.66 | 32.17 | 0.17 | 0.22 | 0.53 |
| Philippines | 1991 | 29.50 | 43.88 | 0.32 | 0.39 | 1.00 | 41.78 | 0.29 | 0.35 | 0.85 |
| | 1994 | 39.82 | 42.94 | 0.31 | 0.35 | 0.78 | 40.32 | 0.27 | 0.31 | 0.62 |
| | 2003 | 40.91 | 44.04 | 0.32 | 0.36 | 0.60 | 41.97 | 0.29 | 0.32 | 0.54 |
| Viet Nam | 1993 | 10.76 | 35.98 | 0.21 | 0.24 | 0.36 | 33.90 | 0.19 | 0.21 | 0.31 |
| | 1998 | 17.77 | 35.44 | 0.20 | 0.23 | 0.35 | 35.01 | 0.20 | 0.23 | 0.33 |
| | 2002 | 18.96 | 37.50 | 0.23 | 0.25 | 0.37 | 37.03 | 0.22 | 0.25 | 0.36 |

MPCE = monthly per capita expenditure.

^a Underlying expenditures are expressed in 1999 urban Delhi prices for India; 1999 Jakarta for Indonesia; 1997 National Capital Region for Philippines; and 2002 nationwide average prices for Viet Nam.

^b Data for India pertained to 15 major states plus Himachal Pradesh and urban Delhi.

Source: Authors' estimates using unit-level data from household expenditure surveys.

different states or regions that make up a country.⁵⁵ The fact that inequality estimates are lower when spatial price differences are taken into account reflects the fact that prices tend to be lower in poorer locations.

In what follows, we start with a relatively detailed discussion of the case of India. In addition to having the second largest population in the world, India's economy has been growing fairly rapidly in recent years. By many accounts, however, a large portion of the population has failed to participate in or benefit from this growth in a significant way. A common refrain is that growth has been "skimmed away" by the rich. What do the data show? We consider this question in the context of what household consumer expenditure survey data reveal about inequality and the observable factors that appear to drive it.⁵⁶ This discussion is followed by a shorter discussion on evidence from Indonesia, Philippines, and Viet Nam.

5.2 India: Economic Growth with Growing Inequality?

Table 5.1 above revealed that between 1983 and 1993, different measures of inequality showed different trends

in the evolution of inequality. For example, while the Gini coefficient and GE(0) register a decline, GE(1) and, especially GE(2), showed increases. This ambiguity in the direction of changes in inequality is reflected in the crossing of the Lorenz curves for the distributions of 1983 and 1993 (the top two charts in Figure 5.1). Moreover, the fact that the crossing takes place beyond the 90th percentile mark is consistent with the relatively sharp increase in GE(2), a measure of inequality that puts more weight on changes in expenditure at the top of the distribution (top-right chart in Figure 5.1).⁵⁷

Overall, with the exception of the very rich, the changes in inequality between 1983 and 1993 appear to be fairly minor. A more consistent pattern of changes in inequality – all in the upward direction – can be seen between 1993 and 2004 (data rows 2–3, Table 5.1).⁵⁸ However, the increase in inequality is not particularly sharp once spatial price variations are considered, indicating that inflation rates have been lower in the relatively poorer areas.

Growth Incidence across the Distribution in India

The increases in inequality reflected in all four measures since 1993 suggest that richer individuals have experienced faster growth in their consumption expenditures than poorer individuals. This can be confirmed by using an increasingly popular graphical tool for inequality analysis, the growth incidence curve (GIC). The GIC shows growth in per capita expenditures at different statistical percentiles of the expenditure distribution over the time period between

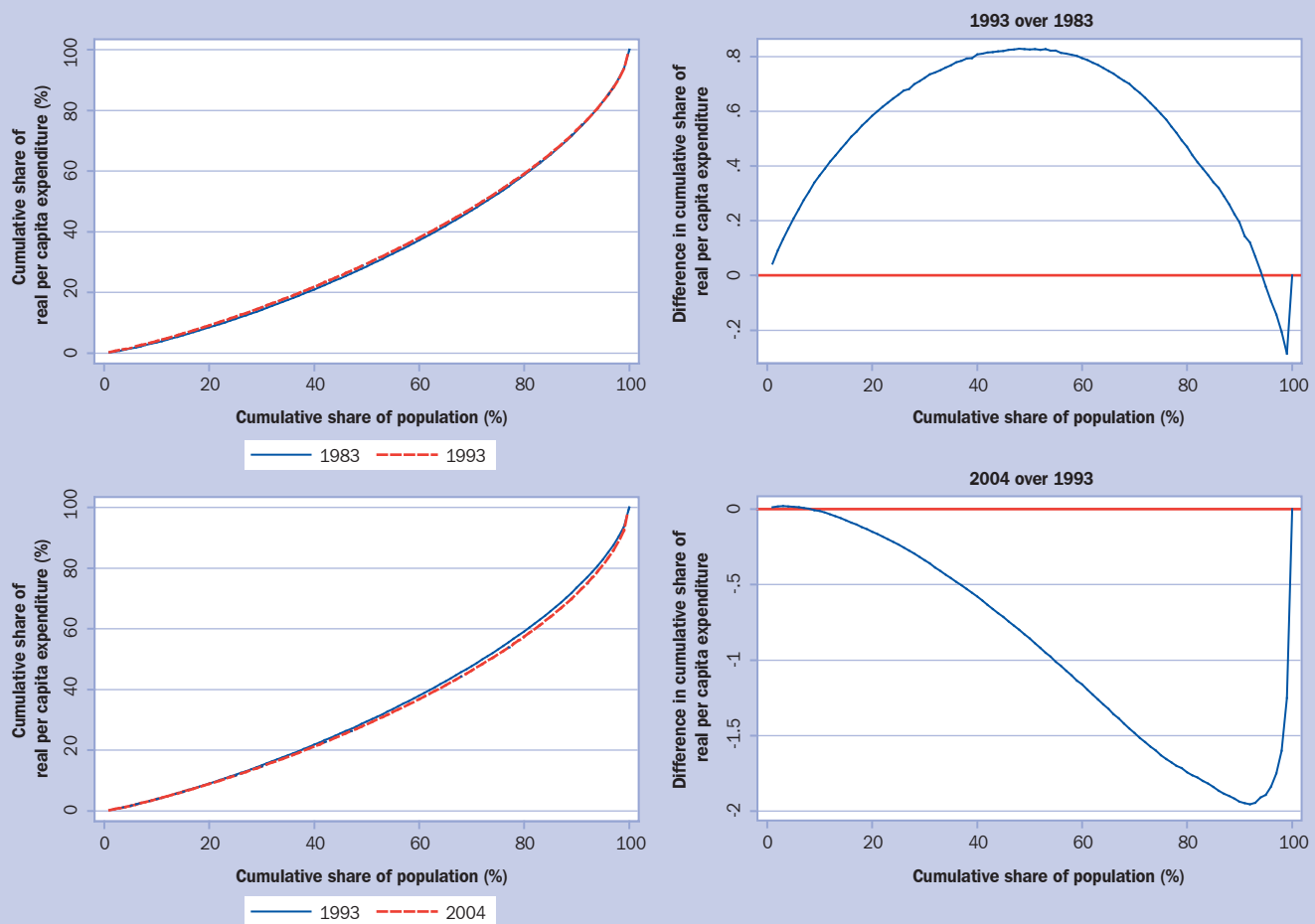
⁵⁵ We use state- or region-specific poverty lines for a given year as the basis of computing spatial variation in prices. These are then combined with temporal consumer price indexes (state or region specific) to capture all the years covered by our data. In the case of India, the poverty lines are those developed by Deaton (2003) for 1999; they vary by state as well as by sector (urban/rural) within states. For Indonesia, spatial deflators are based on 1999 poverty lines proposed by Pradhan, Suryahadi, Sumarto, and Pritchett (2001). For the Philippines, we used the poverty lines of Balisacan (2001) for 1997. The spatial price deflators used for Viet Nam are based on 2002 region-specific poverty lines that also distinguish between rural and urban areas (World Bank 1999).

⁵⁶ We use information on per capita expenditures gleaned from the thick sample/quinquennial-round NSS consumer expenditure surveys of 1983 (Round 38), 1993/94 (Round 50), and 2004/05 (Round 61), in order to get a picture of how inequality has evolved over this period. In the discussion, the years 1993 and 2004 are used to refer to the survey years 1993/94 and 2004/05, respectively.

⁵⁷ The Lorenz curves are generated in STATA using the ALORENZ program created by Joao Pedro Azevedo and Samuel Franco. See <http://fmwww.bc.edu/repec/bocode/a/alorenz.ado>.

⁵⁸ The Lorenz curves for 1993 and 2004 also cross (last two charts in Figure 5.1), though not in a pronounced manner. As can be inferred from the fourth chart, the 1993 Lorenz curve lies very slightly below the 2004 one at the very low end of the distribution.

Figure 5.1 Lorenz Curves, India



Source: Authors' estimates using unit-level data from National Sample Survey consumer expenditure surveys.

two surveys. The shape of the GIC provides information on how growth in expenditure is distributed. As can be seen from the GIC for 1983–1993 (Figure 5.2), growth was broadly downward sloping, i.e., those at the lower (higher) end of the distribution saw their per capita expenditure levels grow more quickly (more slowly) than mean growth.⁵⁹ This explains why all the inequality measures, with the exception of GE(2) in Table 5.1, reveal either a decline in inequality or an essentially unchanged level of inequality.

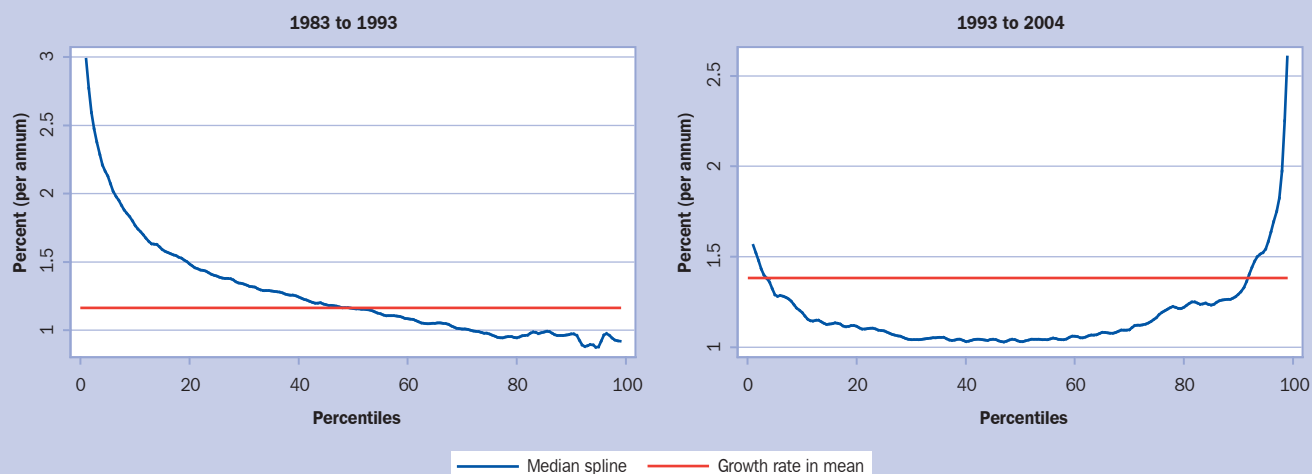
This pattern of the distribution of growth in per capita expenditures changes, however, between 1993 and 2004. It becomes apparent from the GIC for this period that the relatively well off—i.e. those at the

80th percentile and above—saw faster growth in their expenditures than most of the rest of the population. The top 10 percentile tended to see the fastest growth.

It is important to note, however, that since growth rates of expenditures have been positive at all percentiles in both GICs, all measures of absolute poverty would show a decline in poverty regardless of the monetary value of the poverty line. More generally, even when (some) measures have shown inequality to be increasing, per capita expenditure levels have increased at each percentile of the distribution. In all three sets of distributions (1983, 1993, and 2004), the more recent distribution “first order dominates” the earlier distribution. In terms of social welfare functions that are anonymous and increasing in expenditure, social welfare has improved over time despite increasing inequality.

⁵⁹ The growth incidence curves are generated in STATA using the program GICURVE created by Michael M. Lokshin and Martin Ravallion. The program is part of the Poverty Analysis Toolkit of the World Bank (<http://go.worldbank.org/9877902MVO>).

Figure 5.2 Growth Incidence Curves, India



Source: Authors' estimates using unit-level data from National Sample Survey consumer expenditure surveys.

A Data Conundrum: How High Have Growth and Increases in Inequality in India Really Been?

Before we move on to a discussion of what factors account for inequality, and for changes in inequality, in India, two points are worth noting. First, the increase in inequality as measured by the Gini coefficient is not particularly sharp (especially when we correct for spatial price differences); yet this seems inconsistent with the view held by many that inequality in India has increased steeply, especially over the last decade and a half. Part of the explanation might be that the inequality we have captured here is expenditure inequality. Perhaps data on income distribution, were it available, would show sharper increases in inequality.⁶⁰ Second, the growth in mean per capita consumption expenditures implied by the data (and represented by the horizontal lines in the GICs above) appear to be relatively low, given India's growth experience over the 1980s and, especially, the 1990s. Per capita GDP grew by 3.2% in 1980/81–1990/91 and by 4.1% in 1991/92–2004/05 (Nayyar 2006, p. 807).⁶¹ The growth rates in per capita expenditures as recorded by NSS data are considerably lower. Of course, it may be argued that there is no reason that rates of growth of per capita GDP should equal the rates of growth of per capita consumption expenditures since the latter are, roughly speaking, a subset of the former. However, a discrepancy in growth rates exists even if we are to

compare per capita consumption expenditures from household surveys with the conceptually closer private consumption expenditures captured by national account statistics (NAS).

Box 5.1 describes the results of a study that elucidates both issues. In particular, its results suggest that when viewed in terms of the share of total income that the very rich account for—i.e., the top 1%, 0.1%, and 0.01% of income earners—inequality has increased sharply, especially since the early 1990s. Additionally, it is quite possible that the NSS surveys fail to capture the consumption of the very rich (partly since the rich are a very small fraction of the population and partly because the rich are probably more likely to refuse to participate in the survey or underreport their expenditures). Taken together, these two features could explain why perceptions of increases in inequality in India do not too well match increases in expenditure inequality as measured by NSS surveys. They also go some way in explaining the growing divergence between the NAS-based and household survey-based estimates of consumption expenditures.

Accounting for Inequality

What factors account for inequality and its changes over time? In what follows we use two sets of tools for understanding inequality's drivers. We use *standard decomposition techniques* that inform us about how much of total inequality can be accounted for by inequality *between* groups and inequality *within* groups (where groups are defined in terms of some observable household characteristic, for example, residence in

⁶⁰ In the next section, we present inequality estimates for a subset of income earners for whom income data are available from labor force surveys. These estimates are consistent with the view of much faster increases in inequality in the 1990s.

⁶¹ Per capita GDP grew by an average of 1.4% a year between 1950/51 and 1979/80.

Box 5.1 Shares of Top Indian Incomes

Banerjee and Piketty (2005b) use individual tax return data to examine two issues. First, how have top incomes and wages in India evolved over eight decades? Second, can the behavior of top incomes and wages explain the Indian “growth paradox” of the 1990s (whereby growth as captured by National Sample Survey (NSS) data on household consumption expenditures was much lower than growth measured by national account statistics (NAS))?

Income Shares of the Rich, 1922–2000

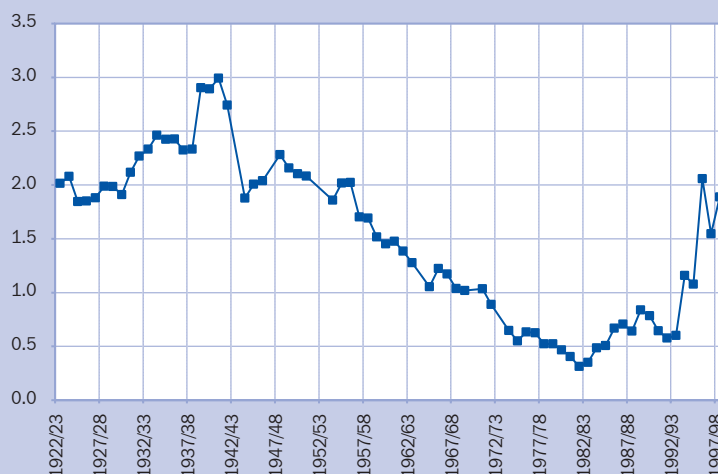
The behavior and evolution of top incomes can often play an important role in economic life and public discourse. However, the issue has tended to be neglected by economists, especially in the context of developing countries. In part the reason has to do with the nature of household surveys and their apparent inability to capture high incomes (recall the discussion in Section 3). Accordingly, Banerjee and Piketty use annual tabulations of tax returns published by the Indian tax administration from 1922/23 to 1999/2000 to better understand how top incomes, and their shares in total income, have evolved. They focus on the share of the top 1% (and higher) in total income because of the small share of income earners in India who pay tax due to relatively high levels of exemption. For instance, the authors estimate the proportion of taxable individuals to range between 0.5–1% from the 1920s to 1980s, then increasing rapidly to 3.3–4% by the end of the 1990s. Starting with the tax tabulations that report the number of taxpayers and total income in a large number of income brackets, Pareto extrapolation techniques are used to compute average incomes of the top 1%, top 0.5%, and top 0.01% of the distribution of total income. Total income is estimated from NAS data.

The estimate made by Banerjee and Piketty for average income in 1999/2000 over all individuals (“tax units”) works out to Rs25,000 a year. Four million individuals fall into the top percentile, earning Rs88,000 or more. Around 40,000 individuals fall into the top 0.01%, making Rs1.4 million or more.

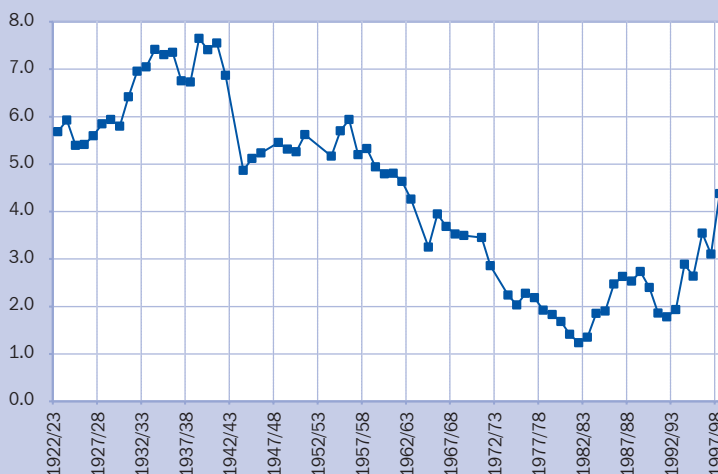
Box Figure 5.1.1 shows the income share of the top 1%, 0.1%, and 0.01%. In each case, the top income shares trace out a U-shaped pattern over 1922–2000. Interestingly, as one may expect on the basis of the broad contours of economic policy, the top income shares decline steadily from the 1950s to the early 1980s—a period coinciding with the socialist policies of various governments. The top income shares pick up sometime in the early 1980s—a period that many observers mark as the starting point of market-oriented reforms. Banerjee and Piketty point to an acceleration in the growth of the share of the top 0.01% after 1991—a group that the authors label the “ultra rich.”

Box Figure 5.1.1 Top Income Shares

The Top 0.01% Income Share in India, 1922–2000 (%)



The Top 0.1% Income Share in India, 1922–2000 (%)



The Top 1% Income Share in India, 1922–2000 (%)



Source: Banerjee and Piketty (2005b).

Box 5.1 continued on next page

Box 5.1 continued from previous page

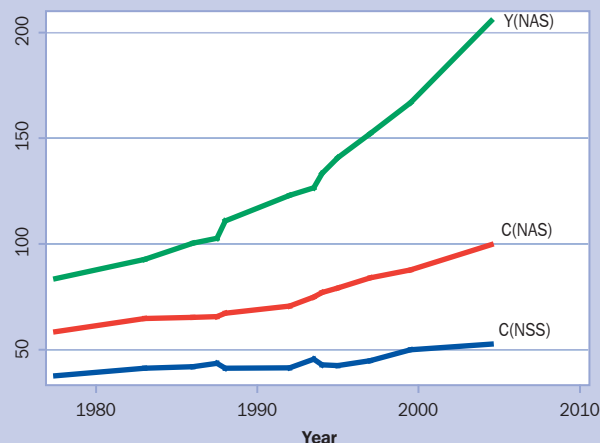
Indian Growth Paradox of the 1990s

Banerjee and Piketty use the tax return data also to see if they can explain the growth paradox of the 1990s. The paradox is illustrated by Box Figure 5.1.2, which charts the evolution of per capita GDP and per capita household consumption expenditures (both from NAS data) and NSS survey-based estimates of per capita expenditures. A gap between per capita expenditures from NAS and NSS data is unsurprising. The two are not identical concepts. However, the size of the gap, and its growing divergence since the 1990s especially, is surprising.

Banerjee and Piketty ask whether the very large rise in top incomes during the 1990s can resolve the growing discrepancy. Under the assumption that the NSS fails to capture the extra growth of the top 1% (either because the top 1% are missed completely or because they do not report the growth in expenditures), Banerjee and Piketty calculate that up to 20% of the cumulative NSS-NAS gap between 1987/88 and 1999/2000 (and almost 40% of the cumulative NSS-NAS gap between 1980/81 and 1999/2000) can be explained.

Banerjee and Piketty conclude that while their explanation can account for some of the growth paradox, there is clearly “some deeper problem” with the way either the NSS or the NAS data are collected.

Box Figure 5.1.2 Per Capita Expenditure and Per Capita GDP, India (per month, 1993 PPP dollars)



Note: Y = per capita GDP; C = per capita consumption expenditures; NAS = National Account Statistics; NSS = National Sample Survey.
Sources: World Bank, PovcalNet and World Development Indicators Online.

urban or rural locations or membership in a particular social group). We also use a *regression-based decomposition technique* developed by Fields (2003) to determine what proportion of total inequality can be accounted for by various observable household characteristics.⁶²

It is crucial to point out that decomposition techniques provide a description of how various household characteristics are related to inequality. Their results do not imply causation. Nevertheless, used with caution the results can be suggestive of the ultimate factors explaining or driving inequality. In this way, they are a very useful tool in analyzing inequality.

Mean Per Capita Expenditures by Group/Household Characteristics

The first step in applying the decomposition techniques is to determine what household characteristics should be used in defining the relevant groups/factors over which inequality should be decomposed.⁶³ Trends in

⁶² A very useful feature of the Fields (2003) methodology is that the shares attributed to each explanatory factor (household characteristic) are independent of the measure of inequality used.

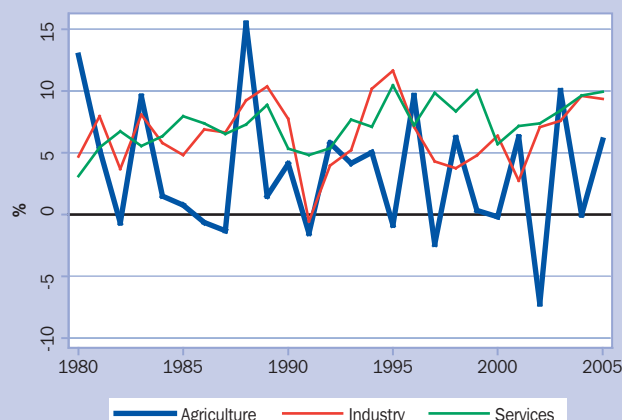
⁶³ Some may argue that the groups over which decompositions are carried out should be based on given/predetermined characteristics that are “morally irrelevant,” for example, groups defined in terms of characteristics such as race, gender, or caste. In addition to gender and caste (in India), we also decompose inequality over other groupings based on acquired education, industry of employment, etc., since the results can be useful in improving our understanding of the determinants of inequality.

India’s economy over the last two decades provide some straightforward characteristics for defining groups. First, the dominant role of agriculture in the economic lives of rural Indians, combined with the fluctuating and lackluster performance of agriculture (Figure 5.3), suggests that the rural-urban dichotomy may be an important driver of inequality (and its changes). Second, a number of analysts and commentators of the Indian economy have pointed to the growing divergence in economic performance across Indian states. Figure 5.4, reproduced from Ahluwalia (2000), describes the behavior of the Gini coefficient of per capita GDP in 14 major states in India.

As the figure shows, interstate inequality was low and stable in the early 1980s. It started rising in around 1983 and accelerated from the late 1980s (decelerating and even declining a little in the last year of the figure, 1997). This pattern suggests that some of the increases in inequality seen in the 1990s may be driven by growing differences in economic performance across Indian states. In other words, grouping households by their location across states may be useful.

Third, as can be seen from Figure 5.3, services sector growth has been particularly robust in India. Indeed, the sector has been the main driver of high growth since the 1990s (as well as being the main driver of export growth). Much of the services sector’s dynamism comes from relatively skill-intensive subsectors such as information

Figure 5.3 GDP Growth by Sector:
Agriculture, Industry, and Services



Source: World Bank, World Development Indicators Online.

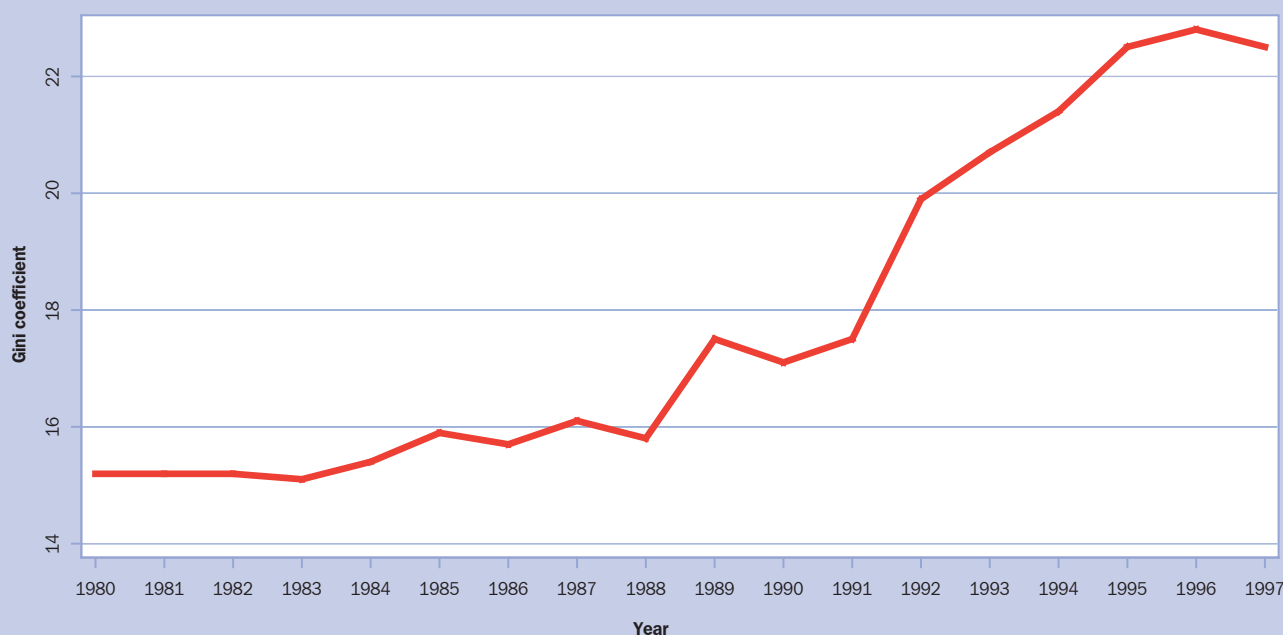
technology, business process outsourcing, and financial services—all subsectors that generate demand for workers with college degrees (often in specialized subjects), and specific occupations (belonging to the professional and technical occupational subgroups). Something similar has happened in the more dynamic components of India's manufacturing. The exact causality is hard to work out, but opportunities for

the most educated and those belonging to managerial, professional, and technical occupations seem to have grown sharply. Given the relative scarcity of workers who fit these criteria, one could expect production sector and occupational characteristics of workers to play some part in driving increases in inequality.

In summary, it would seem that a household's location in urban or rural areas; in economically dynamic states (relatively rich states and/or high-growth states); and a household's association, via its main economic earner, with particular production sectors, a certain educational attainment, and specific occupations—all may be playing some role in driving inequality and its changes. These characteristics of households suggest natural groupings over which inequality and its changes may be decomposed.

At the same time, there are social groupings that can form an important basis for explaining how economic well-being is distributed across households and how it may evolve (especially if a household's membership in a particular social group also influences its educational and occupational opportunities and hence its prospects for future earnings). Given the still important role of caste in influencing education and occupational opportunities in India, we also consider decomposition of inequality between members of the "scheduled caste"

Figure 5.4 Trend in Interstate Inequality, India



Source: Table 3 of Ahluwalia (2000).

and “scheduled tribe” groups and remaining social groups.⁶⁴

Figure 5.5 displays the mean monthly per capita expenditures for households belonging to the various groups (using the head of the household for assignment purposes) for 1983, 1993, and 2004. In all years, group mean per capita expenditures are higher for households in urban areas. They are also higher when the household head (i) works in the services sector, (ii) is a manager or has a professional or technical occupation, or (iii) holds a tertiary degree. Mean per capita expenditures are lower for households belonging to scheduled caste or scheduled tribe social groups.

How have the differentials in mean per capita expenditures by group evolved? Table 5.2 presents the actual levels and changes in means over time (in percentage terms). Significantly, with the exception of the rural-urban partition for the 1993–2004 period, differential growth rates have widened the lead in relative terms of the group starting (in 1983) with higher mean per capita expenditures. Thus households belonging to scheduled castes and scheduled tribes have seen their per capita expenditures grow more slowly than those of other households. Conversely, households whose heads are employed in the services sector, have a college degree, or are managers or hold professional/technical occupations have seen faster growth in their mean per capita expenditures.

In view of the number of dimensions in which gender biases can exist, including possible discrimination in the labor market, one surprising finding from Table 5.2 is that mean per capita expenditures are higher among female-headed households. There may be several reasons for this, all of which can be consistent with the existence of gender biases. For example, female-headed households may be supported by various types of transfers that push up their expenditures, the women heading these households may have atypical educational and occupational profiles, etc. While a detailed analysis of this issue is beyond the scope of

this chapter, it may be noted that a complementary household survey dataset indicates that female-headed households tend to be smaller and to have a higher proportion of working to nonworking members. Thus, the employment profile of female-headed households could be a factor explaining their higher than average per capita expenditures.

Inequality Decompositions: Within Groups and Between Groups

We now turn to the decompositions for within-group and between-group components. Our measure of inequality belongs to the generalized entropy class of measures. As noted in Section 3, these measures

Table 5.2 Average Monthly Per Capita Expenditures, by Group (constant Rupees, urban Delhi, 1999 = 100), India

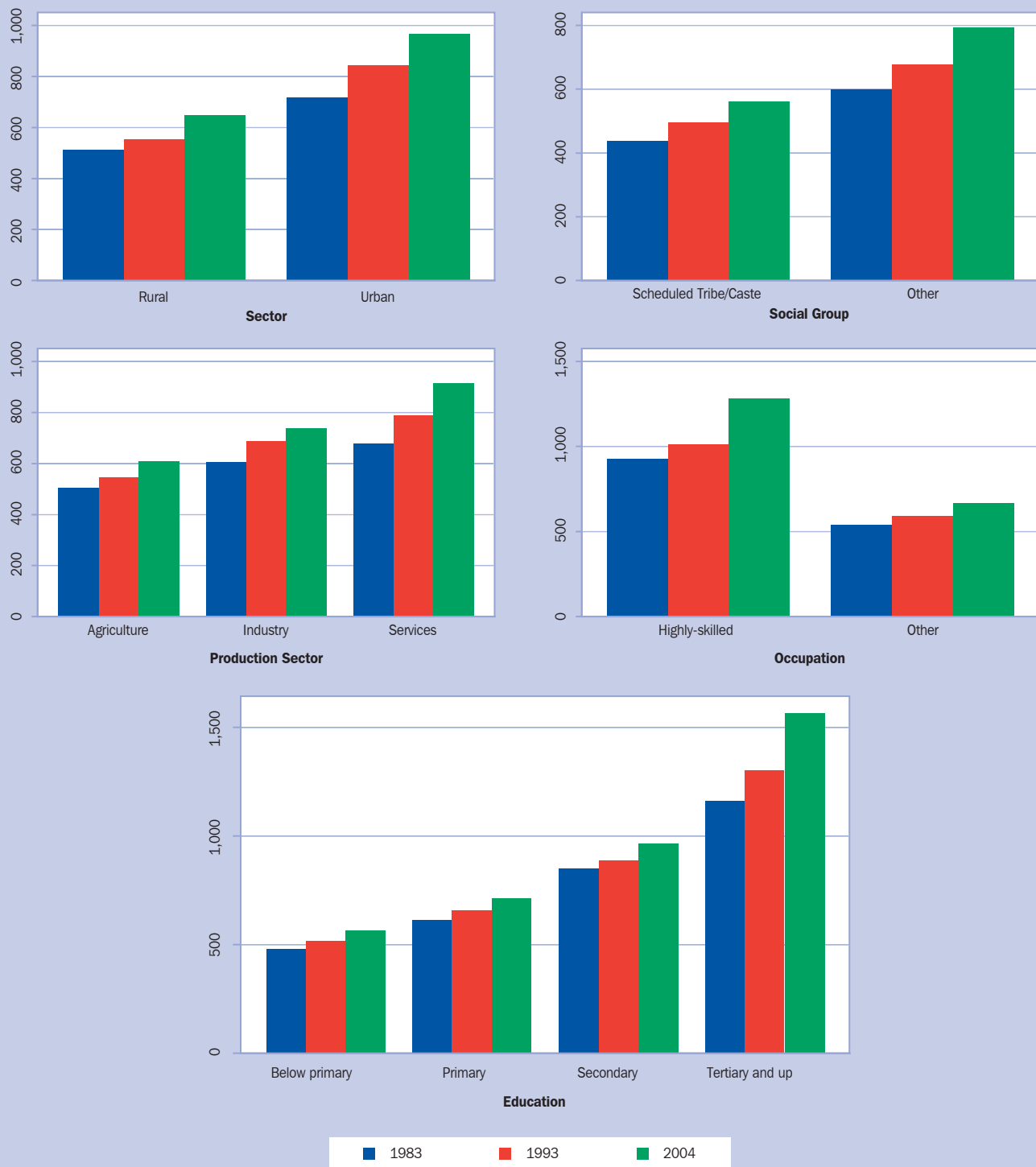
| Group | 1983 | 1993 | 2004 | Annualized Growth, % (1983–1993) | Annualized Growth, % (1993–2004) |
|--------------------------|----------|----------|----------|-------------------------------------|-------------------------------------|
| Overall | 558.77 | 627.16 | 729.16 | 1.2 | 1.4 |
| Bottom 20% | 235.40 | 282.50 | 323.03 | 1.8 | 1.2 |
| Lower-Middle 20% | 350.55 | 400.44 | 449.81 | 1.3 | 1.1 |
| Middle 20% | 452.90 | 508.02 | 569.37 | 1.2 | 1.0 |
| Upper-Middle 20% | 599.94 | 663.12 | 750.01 | 1.0 | 1.1 |
| Top 20% | 1,155.05 | 1,281.83 | 1,553.77 | 1.0 | 1.8 |
| <i>Rural/Urban</i> | | | | | |
| Rural | 512.36 | 555.51 | 648.32 | 0.8 | 1.4 |
| Urban | 718.06 | 844.44 | 967.89 | 1.6 | 1.2 |
| <i>Gender</i> | | | | | |
| Male | 557.01 | 626.14 | 728.19 | 1.2 | 1.4 |
| Female | 560.26 | 641.51 | 740.67 | 1.4 | 1.3 |
| <i>Social Group</i> | | | | | |
| Scheduled Tribe/Caste | 438.72 | 496.21 | 562.11 | 1.2 | 1.1 |
| Other | 599.19 | 678.02 | 794.08 | 1.2 | 1.4 |
| <i>Education</i> | | | | | |
| Below Primary | 480.69 | 515.66 | 566.62 | 0.7 | 0.9 |
| Primary | 611.50 | 656.40 | 713.58 | 0.7 | 0.8 |
| Secondary | 849.11 | 890.03 | 964.04 | 0.5 | 0.7 |
| Tertiary and Above | 1163.28 | 1302.76 | 1565.00 | 1.1 | 1.7 |
| <i>Production Sector</i> | | | | | |
| Agriculture | 502.88 | 544.89 | 609.78 | 0.8 | 1.0 |
| Industry | 605.55 | 685.38 | 735.85 | 1.2 | 0.6 |
| Services | 677.43 | 786.63 | 914.20 | 1.5 | 1.4 |
| <i>Occupation</i> | | | | | |
| Highly-Skilled | 926.08 | 1,009.75 | 1,280.68 | 0.9 | 2.2 |
| Other | 536.89 | 590.11 | 668.02 | 0.9 | 1.1 |

Source: Authors' estimates using unit-level data from National Sample Survey consumption expenditure surveys.

can be perfectly decomposed into the inequality that exists within groups and into the inequality that exists between groups. Table 5.3 presents the share of total inequality accounted for by the between-group component for GE(0), GE(1), and GE(2) in various years. The decompositions have two main features. First, the share of between-group inequality can be quite low. For example, it is negligible for a partition based on gender of the household head and 2–6% for a partition based on the Indian state in which a household lives (in 2004).

⁶⁴ Scheduled castes are the bottom rung of the hierarchy in the Hindu caste system. Scheduled tribes are groups outside the caste system.

Figure 5.5 Average Monthly Per Capita Expenditures, by Groups (constant Rupees, urban Delhi, 1999=100), India



Source: Authors' estimates using unit-level data from National Sample Survey consumer expenditure surveys.

In other words, inequality within any particular group swamps that across groups. Second, the largest shares of between-group inequality occur when households are partitioned on the basis of education. In 2004, up

to almost 24% of total inequality could be explained by between-group inequality, using education of the household head to define groups in the case of the GE(0) inequality measure. Surprisingly, the grouping in

Table 5.3 Share of Between-Group Inequality in Total Inequality, India (%)

| Subgroup | GE(0) | GE(1) | GE(2) |
|--------------------------|-------|-------|-------|
| <i>Rural/Urban</i> | | | |
| 1983 | 6.1 | 5.4 | 2.6 |
| 1993 | 10.7 | 9.0 | 3.3 |
| 2004 | 8.8 | 7.1 | 2.8 |
| <i>Gender</i> | | | |
| 1983 | 0.0 | 0.0 | 0.0 |
| 1993 | 0.0 | 0.0 | 0.0 |
| 2004 | 0.0 | 0.0 | 0.0 |
| <i>Social Group</i> | | | |
| 1983 | 5.0 | 4.0 | 1.7 |
| 1993 | 5.7 | 4.3 | 1.4 |
| 2004 | 6.2 | 4.5 | 1.6 |
| <i>Education</i> | | | |
| 1983 | 14.3 | 13.9 | 7.2 |
| 1993 | 21.3 | 19.2 | 7.7 |
| 2004 | 24.0 | 20.9 | 9.2 |
| <i>Production Sector</i> | | | |
| 1983 | 4.8 | 4.2 | 1.9 |
| 1993 | 8.1 | 6.6 | 2.3 |
| 2004 | 8.8 | 6.9 | 2.7 |
| <i>Occupation</i> | | | |
| 1983 | 5.0 | 4.9 | 2.6 |
| 1993 | 8.2 | 7.5 | 3.0 |
| 2004 | 11.0 | 10.0 | 4.6 |
| <i>Indian State</i> | | | |
| 1983 | 6.1 | 5.4 | 2.6 |
| 1993 | 7.0 | 6.0 | 2.3 |
| 2004 | 6.3 | 4.9 | 1.9 |

Source: Authors' estimates using unit-level data from National Sample Survey consumption expenditure surveys.

terms of whether a household belongs to the scheduled caste or scheduled tribe group yields a fairly low share of between-group inequality – the highest share is 6.2% in 2004 using GE(0).

How has membership in a particular group been associated with changes in inequality? Results of a dynamic decomposition of inequality can help answer this question. In particular, it is possible to decompose the total change in a measure of inequality into three components: (i) population shifts between the different groups, (ii) changes in the relative means across groups, and (iii) an unexplained or residual component made up of changes in inequality within groups (also known as the “pure inequality effect”). Table 5.4 presents the shares of total changes in inequality that these

Table 5.4 Dynamic Decompositions: Accounting for the Change in GE(0) between 1993 and 2004, India (%)

| Group | Population Shifts Across Subgroups | Changes to Means Across Subgroups | Residual |
|-------------------|------------------------------------|-----------------------------------|----------|
| Rural/Urban | 2.9 | -7.9 | 105.0 |
| Gender | 1.2 | -0.1 | 98.8 |
| Social group | 0.0 | 10.6 | 89.4 |
| Education | 47.1 | 24.2 | 29.0 |
| Production Sector | 31.1 | 18.0 | 51.2 |
| Occupation | -10.3 | 54.5 | 55.7 |
| Indian State | 0.0 | -4.4 | 105.2 |

Source: Authors' estimates using unit-level data from National Sample Survey consumption expenditure surveys.

three components account for. Since the dynamic decomposition is most easily computed for the GE(0) measure of inequality, we work with this measure only. Additionally, since GE(0) has increased only between 1993 and 2004, we focus on this period.

Not surprisingly, the major factor accounting for changes in inequality is, for most groupings, a pure inequality effect—i.e., changes in within-group inequality. This is to be expected since in the first place many of the static decompositions yielded very low shares of between-group inequality. The clear exception is education and, to a lesser extent, occupation and industry of employment (i.e, production sector). Focusing on education, where the between-group share in total inequality of GE(0) increased from 21.3% to 24.0% (Table 5.3), a large amount of this increase is accounted for by changes in the distribution of household heads with different types of education (47.1%). Almost 24.2% of the increase was accounted for by changes in the relative mean per capita expenditure across educational categories. In the case of occupation, almost 55% of the changes in inequality was accounted for by changes in the mean per capita expenditure associated with highly skilled occupations relative to other occupations.

The results suggest that factors relating to shifting returns to particular types of education, occupations, and production sector, as well as shifts in educational and industrial profiles of workers, have been important.

Regression-based Decompositions

The regression-based decomposition techniques developed by Fields (2003) are a useful complement to the decompositions just discussed. They enable us to answer two questions. First, how much inequality in per capita expenditures can be accounted for by various household characteristics? Second, to what extent do these characteristics account for the change in inequality over time?⁶⁵

The first three data columns of Table 5.5 describe the contribution of various household characteristics to inequality in consumption expenditures from 1983 to 2004.⁶⁶ The various household characteristics listed in

⁶⁵ The answer to the first question applies to a broad class of inequality measures. Answers to the second depend on the inequality measure being adopted. This is to be expected, of course. As we have seen above, different inequality measures can display different trends in inequality (for example, the case of India between 1983 and 1993). Thus the various household characteristics would have to account differently for the changes in inequality for different inequality measures.

⁶⁶ See Appendix 4 for a brief discussion of the method.

Table 5.5 Contribution of Various Household Characteristics to Explained Inequality in Consumption Expenditures and Changes in Gini Coefficient, India (%)

| Household Characteristic | 1983 | 1993 | 2004 | Accounting for Change in Gini Coefficient (1993–2004) |
|-------------------------------------|-------|-------|-------|---|
| Age ^a (%) | 1.8 | 1.4 | 2.5 | 10.6 |
| Urban (%) | 7.8 | 10.2 | 5.0 | -34.9 |
| Gender ^a (%) | -0.1 | 0.0 | -0.1 | -0.8 |
| Social Group (%) | 14.6 | 10.7 | 10.8 | 8.8 |
| Production Sector (%) | 1.4 | 4.6 | 4.2 | -0.1 |
| Occupation (%) | 4.4 | 6.6 | 9.8 | 31.2 |
| Level of Education ^a (%) | 47.6 | 51.9 | 54.5 | 60.8 |
| Indian State (%) | 22.4 | 14.6 | 13.3 | -1.2 |
| Residual (%) | | | | 25.5 |
| R-squared | 0.22 | 0.28 | 0.30 | |
| Log-variance | 0.31 | 0.28 | 0.28 | |
| Gini | 32.28 | 31.41 | 32.59 | |
| Changes in Gini Coefficient | | | | 1.18 |

^a Refers to characteristic of household head.

Notes: 1. The contribution of categorical variable is cumulative, and is obtained by summing the contributions of constituent variables (i.e., the contribution of education is based on four education categories; that of the production sector is based on three industrial categories; age is made up of two terms, age and age squared). Details are in Appendix 5.

2. The Gini coefficients reported here are different from those reported in Table 5.1 because observations with missing data on any of the household characteristics were dropped.

Source: Authors' estimates using unit-level data from National Sample Survey consumption expenditure surveys.

the table can capture 22–30% of the total variation in (the logarithm of) households' per capita expenditures, and other measures of inequality such as the Gini coefficient. Education of the household head turns out to be the most important observable household characteristic, accounting for 48% to almost 55% of explained inequality. Other important household characteristics include the Indian state in which a household resides (13–22%) and being a member of a scheduled caste or tribe (11–15%). The importance of education has grown, while that of state of residence has declined over time. Occupation has seen a fairly rapid rise in its contribution to explained inequality, though its overall contribution to inequality was still less than 10% in 2004.

The last column of Table 5.5 describes how increases in total inequality between 1993 and 2004 were accounted for by each of the above household characteristics. Since the answer depends on the measure of inequality used, results are provided corresponding to the Gini coefficient only.⁶⁷ Changes in education levels have had the most

dramatic impact on inequality changes, accounting for 61% of the total change in the Gini coefficient over the period. A second factor is employment in highly skilled occupations, accounting for almost 31% if the increase in the Gini coefficient. This is higher than the unexplained/residual component of increases in the Gini coefficient (26%). Residence in urban areas was equalizing between 1993 and 2004. This is consistent with the earlier observation that the rural sector saw faster growth in mean per capita expenditures than urban areas over the same period (though in absolute terms, the gap between rural and urban areas continued to grow).

The Importance of Groups

The relatively low share of between-group inequality in total inequality, especially for the more immutable or slow-to-change groupings based on predetermined or given characteristics such as caste, or even geographic location, may suggest that policies aimed at equalizing outcomes across these groupings are a low priority. There are several reasons why caution needs to be exercised in going from low shares of between-group inequality to normative arguments and policy design. Kanbur (2003) brings up several.

First, groups – and once again, the more immutable groupings especially – can have significant social and political importance. Thus, even if inequality is high within all major social groups (for example, inequality is high within both socially disadvantaged communities as well as the remaining population), persistent and wide differences in mean outcomes across social groups can have serious consequences for social and political stability. Of course, persistent and significant mean differences can also be normatively unacceptable.

Second, even when decompositions are carried out over groups across which households have mobility – for example a rural household could migrate to an urban location – in practice the possibility of mobility can be quite limited. Indeed, a growing body of work for India suggests that the weakness of formal social protection systems severely limits the ability of households to migrate from lagging to leading regions or even from rural to urban areas. Munshi and Rosenzweig (2005), for example, find that migration weakens an individual's access to caste-based insurance mechanisms. The prospects of losing these can be an important factor against migration. More obviously, linguistic differences can also provide barriers to migration in a country with many distinct regional languages.

⁶⁷ Given an inequality measure $I(\cdot)$, the contribution of household characteristic j to the change in inequality can be computed as: $[S_{j2} * I(\cdot)_2 - S_{j1} * I(\cdot)_1] / [I(\cdot)_2 - I(\cdot)_1]$ where S_j is the share of the log variance of expenditures attributable to household characteristic j , and the numbers 1 and 2 refer to the 2 years over which the change in inequality is being considered. See Fields (2003) for more details.

Third, many household surveys remain weak in capturing the benefits that households can derive from local public goods (including not only security and sanitation, but also schools and health centers, for example). The typical household survey that captures only household incomes or the expenditures on private goods and services will fail to account for the true extent of between-group inequality if group membership influences households' access to such public goods.

In line with the spirit of these arguments, Elbers et al. (2005) note that the standard between-group share, calculated as the ratio of observed between-group inequality to total inequality, may be judging between-group inequality against an inappropriate benchmark (i.e., total inequality).⁶⁸ In particular, while between-group inequality refers to the inequality across a relatively small number of groups (for example, two or three social groups), total inequality can be “viewed as the between-group inequality that would be observed if every household in the population constituted a separate group” (p. 6). Elbers et al. go on to argue that the standard computation of the between-group share is equivalent to comparing observed between-group inequality across a few groups against an extreme benchmark involving perhaps millions of groups.

Instead of considering the ratio of between-group inequality to total inequality, Elbers et al. propose replacing total inequality with “the maximum between-group inequality that would be obtained if the number of groups and their sizes were restricted to be the same as for the numerator.” In other words, if between-group inequality is computed over three social groups with population shares 10%, 20%, and 70%, the benchmark against which the resulting between-group inequality is compared should be the maximum inequality that can result with exactly three groups in the identical population shares. How is such a hypothetical benchmark to be constructed? A simple way is to build three artificial groups with the same population shares and reassign expenditures across the three groups so that all the lowest expenditures go to the group with the lowest mean expenditure, and so on.

Table 5.6 presents the share of between-group inequality when using this alternative benchmark (what Elbers et al. call “maximum between-group inequality”) for 2004. As can be seen, the shares of between-group inequality (with the alternative benchmark as the

Table 5.6 **Elbers Decomposition, 2004, India (%)**

| Group | GE(0) | GE(1) | GE(2) |
|-------------------|-------|-------|-------|
| Rural/Urban | 63.5 | 53.2 | 22.6 |
| Social Group | 40.0 | 25.4 | 8.1 |
| Education | 86.0 | 78.2 | 39.9 |
| Production Sector | 72.0 | 57.0 | 23.5 |
| Occupation | 53.4 | 55.1 | 30.7 |

Source: Authors' estimates using unit-level data from National Sample Survey consumption expenditure surveys.

denominator instead of total inequality) increase dramatically. Focusing attention on the scheduled castes/tribes grouping, the between-group share is as high as 40% and even higher for rural/urban location—63.5%, for GE(0). Of course, education, production sector, and occupation register higher between-group shares. But the key point is that a large between-group share with more immutable characteristics, such as social group, is especially pernicious. Moreover, part of the high between-group shares of education, production sector, and occupation will be driven by the lower representation of disadvantaged social groups in higher education, highly skilled occupation, and employment outside the agriculture sector.

5.3 Viet Nam

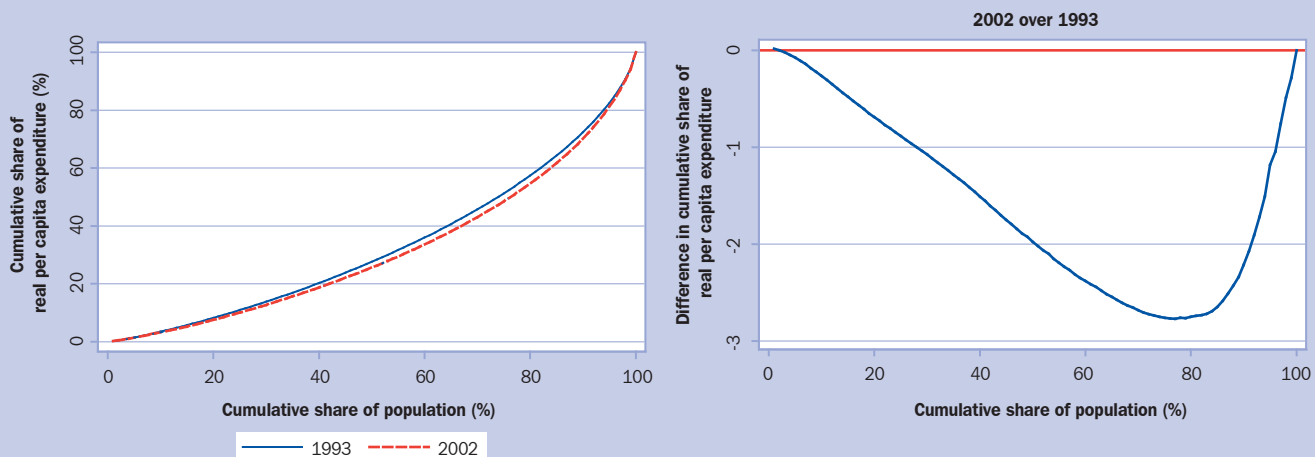
Like India, Viet Nam has experienced impressive recent economic growth. In 1993–2002, per capita GDP grew by 5.7% a year on average. Unlike India, however, per capita consumption expenditures as captured by household surveys also grew rapidly—by around 4.6% a year over the same period. How has inequality evolved over this period? What factors have been associated with inequality and changes in it? In what follows, we examine these questions using the 1992/93 and 1997/98 Viet Nam Living Standard Survey (VLSS) and the 2002 Viet Nam Household Living Standard Survey (VHLSS).

Evolution of Inequality and Growth Incidence

As may be recalled from Table 5.1, the various inequality measures depicted have all registered increases in inequality over the years, especially between 1993 (or 1998) and 2002 when per capita expenditures are adjusted for spatial price differences. Focusing on the period between 1993 and 2002, an examination of Lorenz curves reveals that all relative measures of inequality show an increase in inequality (Figure 5.6). This can be inferred from the second chart in Figure 5.6, which shows the difference between Lorenz curves; at virtually no point do the differences in the 2 years' Lorenz curves intersect the horizontal axis.

⁶⁸ The extent of inequality accounted for by between-group inequality can also be influenced by the number of groups into which households can be partitioned. In general, finer partitions can be expected to increase the share of between-group inequality.

Figure 5.6 Lorenz Curves, Viet Nam



Source: Authors' estimates using unit-level data from Viet Nam Living Standard Surveys.

Even more so than the case of India since 1993, consumption expenditures have grown faster among richer people than poorer people. This can be confirmed by the upward slope of the GICs for 1993 and 1998 as well as for 1998 and 2002 (Figure 5.7).

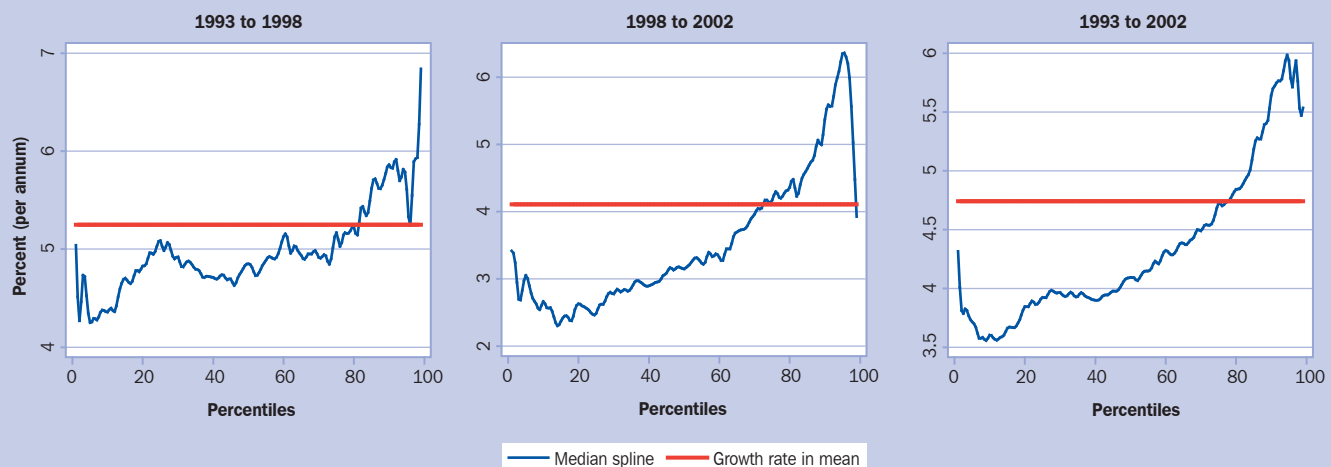
Accounting for Inequality

An examination of mean per capita expenditures across various household characteristics, such as those considered for India, reveals several important features about the distribution of consumption expenditures in Viet Nam. As may be seen from Table 5.7, households in urban areas and those with college-educated heads have the highest mean per capita expenditures. These

households have also seen higher growth than their rural counterparts and households with limited educational attainments. As in the case of India, female-headed households tend to have higher per capita expenditures. They also exhibit faster growth in expenditures.

Turning to the decomposition of total inequality in within- and between-group components, Table 5.8 describes the share of between-group inequality. It is clear that the within-group inequality component always explains a majority of total inequality. However, between-group inequality is nontrivial for several household characteristics. Rural/urban location accounts for one third of total inequality in 2002 as measured by GE(0) and GE(1). Moreover, the

Figure 5.7 Growth Incidence Curves, Viet Nam



Source: Authors' estimates using unit-level data from Viet Nam Living Standard Survey.

Table 5.7 Average Monthly Per Capita Expenditures, by Group, 1993 and 2002 (constant thousand Dong, 2002 = 100), Viet Nam

| Group | 1993 | 2002 | Annualized Growth (%) |
|--------------------------|--------|--------|-----------------------|
| <i>Rural/Urban</i> | | | |
| Rural | 157.8 | 217.3 | 3.6 |
| Urban | 310.5 | 511.9 | 5.6 |
| <i>Gender</i> | | | |
| Male | 177.0 | 264.0 | 4.4 |
| Female | 219.9 | 369.7 | 5.8 |
| <i>Education</i> | | | |
| Below Primary | 168.03 | 226.38 | 3.4 |
| Primary | 180.35 | 260.00 | 4.1 |
| Secondary | 236.25 | 400.76 | 6.0 |
| Tertiary and Above | 394.77 | 729.96 | 7.1 |
| <i>Production Sector</i> | | | |
| Agriculture | 153.81 | 203.7 | 3.1 |
| Industry | 235.11 | 346.0 | 4.3 |
| Services | 279.81 | 392.8 | 3.8 |

Source: Authors' estimates using unit-level data from Viet Nam Living Standard Survey.

between-group share of total inequality accounted for by rural/urban location has increased over time. A much more dramatic increase in between-group shares occurs for education. For example, while only 7–9% of total inequality can be accounted for by between-group inequality in 1993, this share more than doubles by 2002.

Table 5.8 Share of Between-Group Inequality in Total Inequality, Viet Nam (%)

| Group | GE(0) | GE(1) | GE(2) |
|--------------------------|-------|-------|-------|
| <i>Gender</i> | | | |
| 1993 | 2.5 | 2.2 | 1.6 |
| 1998 | 2.8 | 2.6 | 1.9 |
| 2002 | 4.4 | 4.2 | 3.1 |
| <i>Rural/Urban</i> | | | |
| 1993 | 22.1 | 21.9 | 17.1 |
| 1998 | 32.0 | 31.4 | 24.5 |
| 2002 | 33.8 | 33.3 | 26.1 |
| <i>Education</i> | | | |
| 1993 | 8.4 | 8.8 | 7.2 |
| 1998 | 13.9 | 14.3 | 11.9 |
| 2002 | 18.9 | 20.3 | 17.9 |
| <i>Production Sector</i> | | | |
| 1993 | 17.1 | 16.4 | 12.3 |
| 1998 | 24.2 | 22.4 | 16.3 |
| 2002 | 22.1 | 20.0 | 14.2 |
| <i>Region</i> | | | |
| 1993 | 13.2 | 11.5 | 7.9 |
| 1998 | 20.4 | 19.0 | 14.1 |
| 2002 | 16.9 | 15.9 | 11.8 |

Source: Authors' estimates using unit-level data from Viet Nam Living Standard Survey.

In fact, the dynamic decomposition of changes in the GE(0) measure of inequality between 1993 and 2002 (data not shown) confirms that rural-urban differentials and education-related differentials are important contributors to increasing inequality. Moreover, for both these factors, it is growing differentials in mean

per capita expenditures across groups (i.e., across the households in rural versus urban areas and across households with more education versus less education) that account for a majority of the increase in inequality. A much smaller proportion of the increase in inequality can be explained by households shifting from rural to urban areas or becoming more educated.

Table 5.9 describes how much the various household characteristics contribute to total inequality using the regression-based decompositions of Fields (2003). From the table, we can see that of the observable household characteristics, education and rural/urban groupings are factors with the highest contributions to the variations in per capita expenditures in 2002. Consistent with the decompositions of Table 5.8, the share of inequality accounted for by education has increased tremendously over the last decade. By 2002, the education of the household head contributed 28.2% of the inequality explained by the factors considered (and 13.3% of total inequality). This may be compared with around 20% of explained inequality in 1993.

The growing importance of education in accounting for increases in inequality is clearly seen in the last column of Table 5.9, which shows how much the various factors have been associated with changes in the Gini coefficient between the overall period 1993–2002. Rural/urban location and education were by far the biggest drivers of growing inequality. Unobserved factors—captured in the residual—put a downward pressure on inequality.

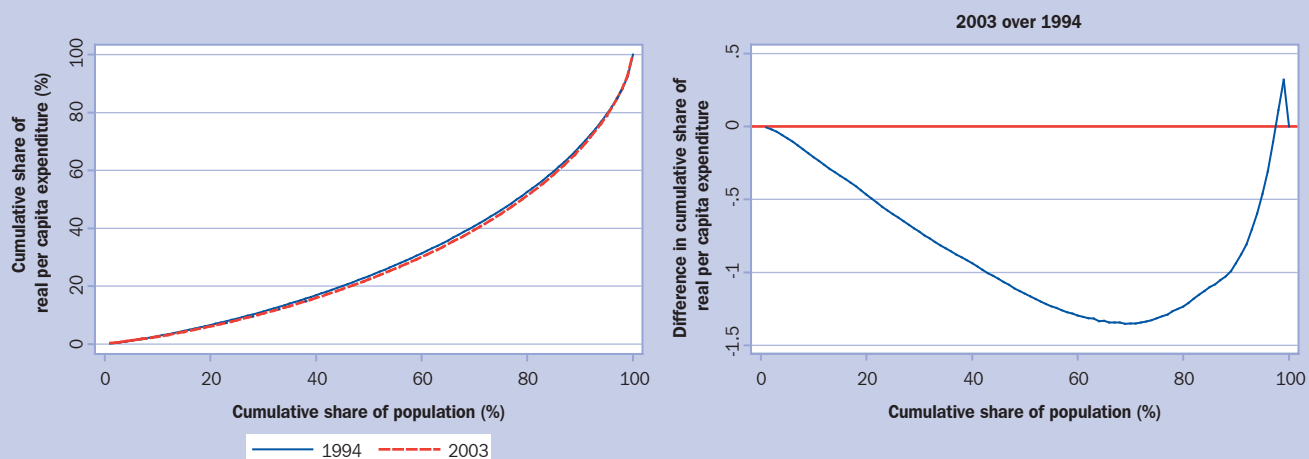
Table 5.9 Contribution of Various Household Characteristics to Explained Inequality in Consumption Expenditures and Changes in Gini Coefficient, Viet Nam (%)

| Household Characteristic | 1993 | 1998 | 2002 | Accounting for Change in Gini Coefficient (1993 to 2002) |
|----------------------------|-------|-------|-------|--|
| Age ^a (%) | 5.8 | 3.8 | 3.3 | -2.1 |
| Gender ^a (%) | 3.0 | 1.4 | 2.2 | 2.1 |
| Production Sector (%) | 19.4 | 15.4 | 15.4 | 18.8 |
| Rural/Urban (%) | 26.9 | 30.7 | 30.5 | 81.3 |
| Education ^a (%) | 19.6 | 21.8 | 28.2 | 94.3 |
| Region (%) | 25.3 | 27.0 | 20.4 | 27.1 |
| Residual (%) | | | | -121.5 |
| R-squared | 0.32 | 0.43 | 0.47 | |
| Log-variance | 0.32 | 0.34 | 0.37 | |
| Gini | 33.25 | 34.56 | 36.11 | |
| Change in Gini Coefficient | | | | 2.86 |

- a Refers to characteristic of household head.
- Notes: 1. The contribution of categorical variables is cumulative, and is obtained by summing the contributions of constituent variables (i.e., the contribution of education is based on four education categories; that of production sector is based on three industrial categories; age is made up of two terms, age and age squared). Details are in Appendix 5.
2. The Gini coefficients reported here are different from those reported in Table 5.1 because observations with missing data on any of the household characteristics were dropped.

Source: Authors' estimates using unit-level data from Viet Nam Living Standard Survey.

Figure 5.8 Lorenz Curves, Philippines



Source: Authors' estimates using unit-level data from Family Income and Expenditure Surveys.

5.4 The Philippines

Unlike the previous two countries, the Philippines experienced fairly lackluster economic growth between the early 1990s and 2005. In what follows, we analyze inequality using the Family Income and Expenditure Survey (FIES) for 1994 and 2003.

Evolution of Inequality and Growth Incidence

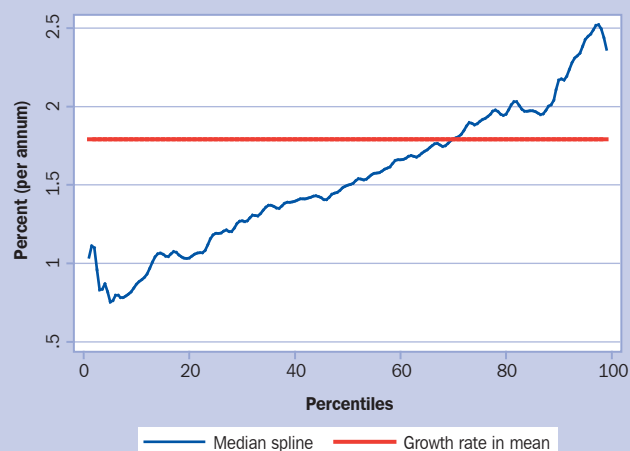
As may be seen from Table 5.1 above, levels of inequality in the Philippines have been high, with the Gini coefficient hovering at 40–42 over the years (with adjustment for spatial differences in prices). In so far as the comparison between 1994 and 2003 is concerned, the Gini coefficient increased by around 1.7 percentage points. All the GE measures behave similarly, except for GE(2), which shows a slight decrease in inequality. Figure 5.8, which depicts Lorenz curves for 1994 and 2003 as well as the differences in the curves for those years, indicates a crossing of Lorenz curves crossing above the 90th percentile mark—consistent with the different trend of GE(2), the measure that gives more weight to the rich.

Over the period 1994–2003, the Philippines' per capita GDP grew by an average of 1.9% a year. Growth in per capita expenditures from the FIES was very similar, averaging around 1.8% a year. But as in India and Viet Nam, growth in consumption expenditures was higher among richer individuals, as can be seen quite clearly from the GIC displayed in Figure 5.9.

Accounting for Inequality

Table 5.10 describes mean per capita expenditures by household characteristic. As in the case of Viet Nam, urban households and those with highly educated heads not only have higher per capita expenditures on average, but the growth in these is also higher (recall that the growth among households with highly educated heads fits the Indian case as well). Also as in the case of the other two countries, female-headed households have higher per capita expenditure levels and have seen generally faster growth. However, unlike the

Figure 5.9 Growth Incidence Curve, Philippines, 1994 to 2003



Source: Authors' estimates using unit-level data from Family Income and Expenditure Surveys.

Table 5.10 Average Monthly Per Capita Expenditures, by Group, 1994 and 2004 (constant Pesos, National Capital Region 1997 = 100), Philippines

| Group | 1994 | 2003 | Annual Growth (%) |
|--------------------------|----------|---------|-------------------|
| <i>Rural/Urban</i> | | | |
| Rural | 1,162.6 | 1,340.7 | 1.6 |
| Urban | 2,104.1 | 2,519.1 | 2.0 |
| <i>Gender</i> | | | |
| Male | 1,564.9 | 1,807.7 | 1.6 |
| Female | 2,105.2 | 2,591.1 | 2.3 |
| <i>Education</i> | | | |
| Below Primary | 1,064.4 | 1,107.1 | 0.4 |
| Primary | 1,306.2 | 1,434.0 | 1.0 |
| Secondary | 2,012.8 | 2,230.9 | 1.1 |
| Tertiary and Above | 3,990.8 | 4,664.9 | 1.7 |
| <i>Production Sector</i> | | | |
| Agriculture | 1,068.27 | 1,249.1 | 1.7 |
| Industry | 1,770.81 | 1,919.1 | 0.9 |
| Services | 2,174.14 | 2,451.3 | 1.3 |

Source: Authors' estimates using unit-level data from Family Income and Expenditure Survey.

other two countries, growth in per capita expenditures has been higher for households with heads employed in agriculture.

Table 5.11 shows the between-group shares in total inequality. Once again, the majority of inequality is driven by within-group inequality. Like India (and Viet Nam in 2002), education has the largest between-group shares. Rural/urban location and production sector of employment are the next most important. A dynamic decomposition of changes in GE(0) reveals that among the various factors considered here, only education-related differentials are important in accounting for changes in inequality (data not shown). Moreover, as in the case of Viet Nam, it is not so much the changing

Table 5.11 Share of Between-Group Inequality in Total Inequality, Philippines (%)

| Group | GE(0) | GE(1) | GE(2) |
|--------------------------|-------|-------|-------|
| <i>Rural/Urban</i> | | | |
| 1991 | 16.9 | 13.5 | 5.5 |
| 1994 | 16.2 | 13.6 | 6.7 |
| 2003 | 16.9 | 14.7 | 8.8 |
| <i>Gender</i> | | | |
| 1991 | 1.9 | 1.7 | 0.8 |
| 1994 | 1.9 | 1.8 | 1.0 |
| 2003 | 2.8 | 2.8 | 1.8 |
| <i>Education</i> | | | |
| 1991 | 32.2 | 31.1 | 16.2 |
| 1994 | 29.9 | 29.4 | 18.1 |
| 2003 | 34.0 | 34.0 | 24.9 |
| <i>Production Sector</i> | | | |
| 1991 | 20.2 | 16.4 | 6.8 |
| 1994 | 20.0 | 16.8 | 8.4 |
| 2003 | 16.6 | 14.4 | 8.7 |
| <i>Region</i> | | | |
| 1991 | 15.0 | 13.4 | 6.2 |
| 1994 | 15.2 | 13.6 | 7.4 |
| 2003 | 9.8 | 8.7 | 5.4 |

Source: Authors' estimates using unit-level data from Family Income and Expenditure Survey.

profile of education among household heads that contributes to increases in inequality (reflecting the fact that many “low education” households are able to become better educated over time and earn and spend more); while this phenomenon does take place—it can account for about a third of the increase in inequality—increasing differentials in mean expenditures of better educated relative to less educated households account for as much as 60% of the increase in inequality (the rest, about 6%, is unaccounted for).

Results of the regression-based decompositions, reported in Table 5.12, reveal that the household characteristics considered here account for 43–45% of total inequality (this may be gauged by the R-squares reported in the last column). Not surprisingly, education of the household head turns out to be the single most important observable household characteristic

Table 5.12 Contribution of Various Household Characteristics to Explained Inequality in Consumption Expenditures and Change in Gini Coefficient, Philippines (%)

| Household Characteristic | 1994 | 2003 | Accounting for Change in Gini Coefficient (1994 to 2003) |
|----------------------------|-------|-------|--|
| Age ^a (%) | 4.1 | 2.9 | -11.1 |
| Rural/Urban (%) | 10.2 | 15.6 | 76.7 |
| Gender ^a (%) | 0.5 | 1.0 | 6.4 |
| Education ^a (%) | 49.2 | 57.8 | 155.4 |
| Production Sector (%) | 18.2 | 12.9 | -48.8 |
| Region (%) | 17.7 | 9.9 | -81.5 |
| Residual (%) | | | 3.1 |
| R-squared | 0.43 | 0.45 | |
| Log-variance | 0.46 | 0.50 | |
| Gini | 40.09 | 41.57 | |
| Change in Gini Coefficient | | | 1.48 |

a Refers to characteristic of household head.
 Notes: 1. The contribution of categorical variables is cumulative, and is obtained by summing the contributions of constituent variables (i.e., the contribution of education is based on four education categories; that of production sector is based on three industrial categories; age is made up of two terms, age and age squared). Details are in Appendix 5.
 2. The Gini coefficients reported here are different from those reported in Table 5.1 because observations with missing data on any of the household characteristics were dropped.

Source: Authors' estimates using unit-level data from Family Income and Expenditure Survey.

explaining inequality. Education accounts for almost half of explained inequality in 1994. Interestingly, it explains a growing share of total inequality: in 2003, variation in education of the household head accounted for around 58% of explained inequality. This is confirmed by the last column of Table 5.12, which shows the contribution of various factors to the increase in the Gini coefficient between 1994 and 2003. Education and rural/urban location are the most important factors. The regional variation in per capita expenditures as well as production sector affiliation work to reduce inequality.

Box 5.2 Some Results of Inequality Decompositions for Indonesia

As we have seen, several features of the distribution of per capita expenditures across population subgroups and the inequality decompositions carried out for the three countries, India, Philippines, and Viet Nam, are similar in that households in urban areas and with heads who are college educated and are employed outside agriculture have on average higher per capita expenditures. Also similar is the importance of education in accounting for that portion of inequality that can be captured by observable household characteristics. Using the 2002 SUSENAS, the household expenditure/income survey carried out by the Central Bureau of Statistics in Indonesia, we see these patterns fitting the Indonesian data as well.

Box Table 5.2.1 Average Monthly Per Capita Expenditure, by Group (constant thousand Rupiah, Jakarta 1999 = 100), Indonesia, 2002

| Group | Mean Per Capita Expenditures |
|--------------------------|------------------------------|
| <i>Rural/Urban</i> | |
| Rural | 138.26 |
| Urban | 221.71 |
| <i>Gender</i> | |
| Male | 175.39 |
| Female | 187.56 |
| <i>Education</i> | |
| Below Primary | 134.42 |
| Primary | 173.97 |
| Secondary | 230.18 |
| Tertiary and Above | 397.58 |
| <i>Production Sector</i> | |
| Agriculture | 131.01 |
| Industry | 189.21 |
| Services | 215.55 |
| <i>Occupation</i> | |
| Highly Skilled | 323.92 |
| Other | 166.38 |

Source: Authors' estimates using unit-level data from SUSENAS.

Box Table 5.2.2. Share of Between-Group Inequality in Total Inequality, Indonesia, 2002 (%)

| Group | GE(0) | GE(1) | GE(2) |
|-------------------|-------|-------|-------|
| Rural/Urban | 16.3 | 12.8 | 5.3 |
| Gender | 0.1 | 0.1 | 0.0 |
| Education | 19.8 | 18.4 | 9.3 |
| Production Sector | 15.9 | 12.2 | 4.9 |
| Occupation | 7.2 | 6.8 | 3.5 |
| Province | 15.1 | 13.9 | 7.0 |

Source: Authors' estimates using unit-level data from SUSENAS.

Box Table 5.2.3. Contribution of Various Household Characteristics to Explained Inequality in Consumption Expenditures, Indonesia, 2002

| Household Characteristic | 2002 |
|------------------------------------|------|
| Age ^a (%) | 0.1 |
| Rural/Urban (%) | 16.8 |
| Gender ^a (%) | 0.2 |
| Production Sector ^a (%) | 18.4 |
| Occupation ^a (%) | 2.0 |
| Education ^a (%) | 37.2 |
| Province (%) | 25.3 |
| R-squared | 0.31 |

^a Refers to characteristic of household head.
 Note: The contribution of categorical variables is cumulative, and is obtained by summing the contributions of constituent variables (i.e., the contribution of education is based on four education categories; that of production is based on three industrial categories; age is made up of two terms, age and age squared). Details are in Appendix 5.
 Source: Authors' estimates using unit-level data from SUSENAS.

First, households residing in urban areas have higher per capita expenditures on average, as do households whose heads are female; highly educated; and employed in highly skilled occupations, in industry and especially services (Box Table 5.2.1). Second, between-group shares of total inequality are fairly low (Box Table 5.2.2). The grouping for which they are highest is education, where up to 19.8% of total inequality can be accounted by between-group inequality, in the case of GE(0). Finally, the regression-based decompositions once again reveal education to be the single most important observed household characteristic, accounting for almost 37% of explained inequality (which is itself about 12% of total inequality).

Summary

Micro data on per capita expenditures for India, Indonesia, Philippines, and Viet Nam is useful for our understanding of inequality, and of its evolution in India, Philippines, and Viet Nam—the three countries for which we analyze *changes* in inequality. First, correcting for variation in prices across spatial locations yields smaller estimates of inequality—a reflection of lower prices in poorer geographic locations. When variations in spatial prices are controlled for, increases in inequality in India are not particularly large.

Second, as revealed by comparing Lorenz curves for distributions from the early 1990s and 2000s, relative measures of inequality have increased for the most part in India, Philippines, and Viet Nam (again, the three countries for which we analyze changes in inequality). (The exception is in terms of those measures of inequality that put very high weight on what happens to expenditures at the very top or bottom of the distribution.)

Third, per capita expenditures have grown for all percentiles of the distribution in India, Philippines, and

Viet Nam. Thus, despite increasing inequality, absolute poverty has declined—regardless of the monetary value of the poverty line. In the case of India, this implies that assertions about the poor being “bypassed” by growth are not strictly correct. Instead, a more accurate description of the data is that the poor—as well as those in the middle of the distribution—have typically seen lower than average growth in per capita expenditures.

Fourth, the most important factor that can account for increasing inequality is education. This holds true for each of the three countries for which we are able to examine the evolution of inequality (India, Philippines, and Viet Nam). Growing rural-urban differentials are also found to be important in Viet Nam particularly, as well as the Philippines.

6. Inequality of Wages

A common feature of the inequality decompositions considered in Section 5 is the large contribution of education to that component of inequality that can be accounted for by observable household characteristics, namely the location (rural/urban and the particular state/region in which a household resides); social group (in the case of India); and various characteristics of the household head, including age, gender, education level, production sector, and occupation.

In what follows we carry out an analysis of labor force survey data that complements and builds on the analysis of Section 5. In particular, we use labor force survey data to examine (i) the extent of inequality in wages and salaries of full-time employees in urban areas, and (ii) the role of various individual characteristics in accounting for this inequality. We also dig deeper into the role played by education in accounting for inequality and changes in it.

What is the benefit of such an exercise? The key one is that, by using labor force survey data, we are able to focus on how individual characteristics drive individual earnings.⁶⁹ This can lead to a cleaner analysis when multiple members of a household, and not just the

household head, are earners and pool their resources to make household expenditures. Thus the link between characteristics, such as education, earnings, and ultimately inequality, will be more clearly picked up.

One drawback of labor force survey data is, however, that they force us to focus on a particular subset of the employed. As discussed in Section 3, self-employment and agricultural employment weigh heavily in total employment in developing countries, especially in rural areas. As also discussed, data on incomes from both sets of activities are often subject to considerable measurement error unless great care and time are spent during data collection. (This consideration has led India’s National Sample Survey Organization not to canvass income information from the self-employed.) Thus we focus on only one subset of workers—urban workers engaged in wage and salaried employment on a full-time basis. Furthermore, we restrict our attention to workers aged 21 and above.

With this caveat, we turn to the evidence on inequality using labor force survey data. The methodology used for decomposing inequality is the regression-based decomposition technique proposed by Fields (2003).

6.1 Structure of Employment

Table 6.1 describes some important features of our sample of workers from the labor force surveys of India, Indonesia, and Philippines.⁷⁰ As can be seen, full-time wage and salaried workers aged 21 and above represent only a portion of total employment in urban areas. Nevertheless, studying wage and salaried workers is useful, especially in urban areas, since they represent an important component of urban workers and income data on them are fairly clean.

Table 6.1 Urban Full-time Wage and Salaried Workers (aged 21 years and above, %)

| Developing Member Country | India | | | Indonesia | | Philippines | |
|---------------------------|-------|------|------|-----------|------|-------------|------|
| Share in | 1983 | 1993 | 2004 | 1994 | 2004 | 1994 | 2004 |
| Urban Employment | 53.8 | 53.0 | 49.8 | 35.0 | 33.7 | 40.8 | 43.8 |

Source: Authors’ estimates using unit-level data from respective labor force surveys.

⁶⁹ Strictly speaking, the terms “wages” and “earnings” refer to different things. Wages refer to the payment accruing to a worker per unit of time (for example, per hour worked). Earnings are equal to wages multiplied by the number of time units (for example, hours) worked. Here, we use the two terms interchangeably. Since our focus is on full-time workers, defined here as workers employed for 40 hours or more a week, the variation in hours worked should be relatively low. Wage inequality and earnings inequality should therefore not be very different.

⁷⁰ We define full-time as follows. In India, it includes “regular” and “casual” wage and salaried workers aged 21 and above who have worked for at least 1 hour in each of 10 or more half-days over the reference week. In Indonesia, it includes urban individuals aged 21 years and above working in a “regular” salary/wage occupation with at least 40 hours of work during the reference week. In the Philippines, it includes individuals aged 21 and above, employed “permanently” in private and government institutions in urban areas and working 40 or more hours a week. The precise definition of the terms “regular,” “casual,” and “permanent” differs by country.

Figure 6.1 shows the fraction of urban full-time wage and salaried workers by level of education. Some revealing patterns emerge. First, on average, the Philippines has the most educated group of urban full-time wage and salaried workers. Almost 35% of this group had a college education in 2004 and only 5% had less than a primary education. Among the three countries, these are the highest and lowest shares, respectively. Second and perhaps surprisingly, the share of college educated among this group of workers

in India is not too far behind that of the Philippines (a little above 30% in 2004). Third, for this group of workers, the highest degree of polarity in terms of educational attainments is to be found in India, for which a high share of college educated is matched by a high share of workers with less than primary education (a little over 20% in 2004). The degree of polarity is lowest in Indonesia: it has the lowest fraction of below primary school workers and college graduates (less than 5% and a little above 15%, respectively). Fourth, there has been a remarkable increase in the fraction of this group of workers who are college graduates in India.

Figure 6.1 Percentage Distribution of Urban Full-time Wage and Salaried Workers, by Level of Education

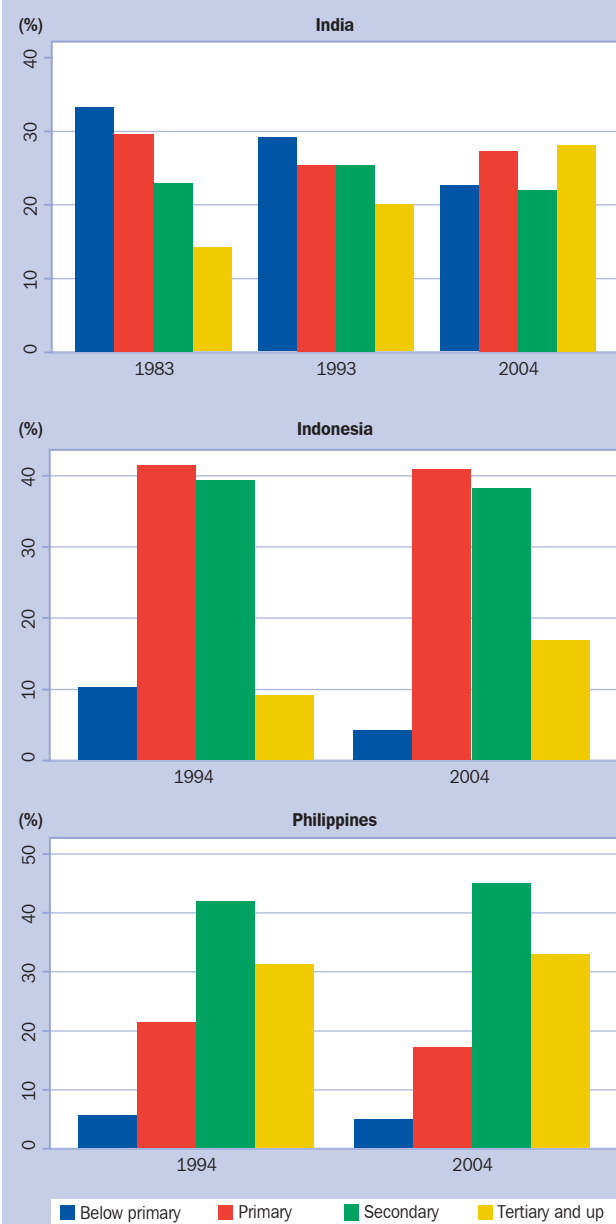


Figure 6.2 shows the fraction of workers by production sector. Needless to say, agriculture accounts for a very small share of urban employment. Other than that, the countries vary in the relative importance of industry and services sector employment. While the latter dominates in all three countries, it does so in a very big way in the Philippines, followed by India and then Indonesia. For example, the share of services sector employment is 40 percentage points more than the industry sector in the Philippines. In contrast, this differential is around only 10 percentage points in Indonesia.

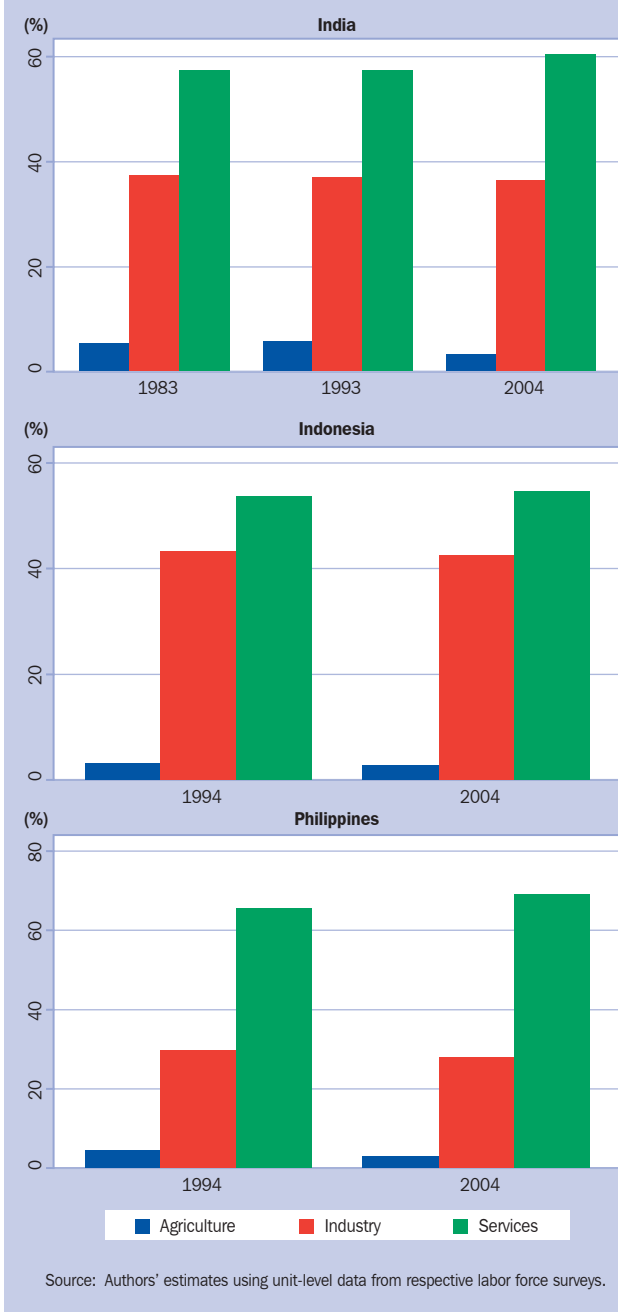
6.2 Wage Inequality

Some Broad Patterns

Table 6.2 describes average real wages for various groups of workers. On average, wages for urban full-time workers are lowest in India, followed by Indonesia and then Philippines.⁷¹ Differences in the survey design of the labor force surveys across countries weaken international comparability however, and prevent

⁷¹ The wage data for the analysis of wage inequality are defined as follows. In the case of India, earnings of "regular and casual wage and salaried workers" over the week are divided by the number of half-days worked multiplied by four on the assumption that each half-day of work entails 4 hours of work. The resulting variable is therefore an hourly wage rate. Attention is, however, restricted to individuals working at least 10 half-days in a single activity over the week. In the case of Indonesia, only earnings over the month are available. The analysis is carried out for these monthly earnings, but restricting attention only to "regular workers" reporting 40 hours or more of work a week on average. In the Philippines, labor force surveys from the 1990s provide information on quarterly earnings. These are divided by the number of average hours worked a quarter so as to yield an hourly wage rate. For the 2004 survey, earnings are reported on a daily basis. These are divided by the average number of hours worked in a day to get hourly wages. As in the case of the other two countries, attention is restricted to workers working 40 hours or more a week (for both surveys).

Figure 6.2 **Percentage Distribution of Urban Full-time Wage and Salaried Workers, by Production Sector**



concrete conclusions from being made. It is better to focus instead on comparing *within-country* trends in wage inequality.⁷²

⁷² As the previous footnote clearly suggests, there are many differences across labor force surveys, making international comparisons hazardous, especially on account of the different reference periods used for collecting data on the duration of work as well as earnings. (This applies not just across countries, but even within a given survey for a specific country.) Nevertheless, we tried to alleviate these comparability problems by focusing on full-time workers, i.e., workers employed for 40 hours or more a week.

Men earn more than women on average (an exception is in the Philippines in 2004), reversing the finding of the previous section that female-headed households had higher per capita expenditures. Some other patterns are that average wages increase by level of education, as one would expect; agricultural workers earn the least; and highly skilled occupations (comprising managerial, professional, and technical occupations) earn on average 71–151% more than other occupations. In the case of India, wage and salaried workers belonging to scheduled castes or scheduled tribes earned on average around 32% lower than workers not belonging to this group in 2004 and 30% lower in 1983.

Inequality in wages is highest in India by several measures. The Gini coefficient of real wages, for example, was around 41 in 1993. For roughly the same year, the Gini coefficient was 39 and 35 in Indonesia and the Philippines, respectively (last row of Table 6.2). Additionally, inequality in wages has increased sharply over the last 10 years or so in the case of India, with the Gini coefficient increasing by around 6.6 percentage points between 1993 and 2004. In contrast, it declined sharply in the case of Indonesia (to 33.9) and stayed roughly the same in the Philippines. Growing wage inequality in India, especially in terms of top wages versus the rest, can also be seen by comparing the evolution of average real wages by quintile (data rows 2–6). There is also evidence of growing wage inequality by education groups, as may be seen from Figure 6.3.

Wage Regressions

The first step in carrying out the regression-based decomposition of Fields (2003) entails regressing the log of real wages on a set of explanatory variables that include age and its square (in order to capture experience); gender (two categories); education (four categories: below primary education, primary, secondary, and tertiary or college); occupation (two categories: highly skilled comprising managers and professional/technical occupations, and the rest); production sector (agriculture, industry, and services); location in state/region (categories vary by country); and in the case of India, social group (two categories: scheduled caste or scheduled tribe, and others).

The included explanatory variables are able to explain 34–51% of the total variation in (the log of) real wages. As is typically found in studies of this type, age (our proxy for experience) enters positively while its square enters negatively, and men earn more than women. Significantly, the extra earnings of men diminish over time in each of the three countries.

Table 6.2 Average Weekly Real Wages and Inequality, Urban Full-time Employees (2002 US\$ prices)

| Group | India | | | Indonesia | | Philippines | |
|--|-------|-------|-------|-----------|-------|-------------|-------|
| | 1983 | 1993 | 2004 | 1994 | 2004 | 1994 | 2004 |
| Overall | 10.60 | 14.11 | 18.17 | 17.99 | 23.04 | 28.54 | 33.58 |
| Bottom 20% | 2.78 | 3.37 | 3.96 | 5.65 | 8.75 | 8.19 | 10.57 |
| Lower-Middle 20% | 5.73 | 6.92 | 7.30 | 10.15 | 14.36 | 18.47 | 21.51 |
| Middle 20% | 8.97 | 11.21 | 11.27 | 14.06 | 18.55 | 24.58 | 27.55 |
| Upper-Middle 20% | 12.71 | 17.40 | 21.13 | 19.34 | 25.33 | 32.47 | 36.32 |
| Top 20% | 23.02 | 31.71 | 47.22 | 40.96 | 48.44 | 59.07 | 71.96 |
| Gender | | | | | | | |
| Male | 11.34 | 14.90 | 19.20 | 19.51 | 24.70 | 29.21 | 33.42 |
| Female | 6.64 | 10.24 | 13.90 | 13.45 | 18.67 | 27.42 | 33.80 |
| Education | | | | | | | |
| Below Primary | 6.29 | 7.73 | 8.05 | 11.01 | 13.32 | 16.02 | 17.76 |
| Primary School | 8.78 | 10.54 | 11.17 | 13.54 | 16.39 | 18.80 | 20.57 |
| Secondary School | 13.42 | 16.37 | 18.29 | 19.72 | 23.66 | 24.86 | 26.21 |
| Tertiary and Above | 19.92 | 25.09 | 32.97 | 38.68 | 40.26 | 42.39 | 52.80 |
| Social Group | | | | | | | |
| Scheduled Tribes/Castes | 7.82 | 10.34 | 13.19 | n.a. | n.a. | n.a. | n.a. |
| Other | 11.21 | 14.94 | 19.47 | n.a. | n.a. | n.a. | n.a. |
| Production Sector | | | | | | | |
| Agriculture | 4.12 | 5.46 | 5.97 | 15.10 | 16.41 | 19.62 | 22.77 |
| Industrial | 10.17 | 12.95 | 14.93 | 17.51 | 20.92 | 28.71 | 31.57 |
| Services | 11.46 | 15.70 | 20.76 | 18.53 | 25.03 | 29.07 | 34.82 |
| Occupation | | | | | | | |
| Highly Skilled | 18.49 | 24.63 | 35.78 | 26.31 | 33.97 | 45.05 | 57.39 |
| Other | 9.26 | 12.04 | 14.23 | 15.29 | 19.24 | 24.36 | 33.58 |
| Gini | 38.10 | 40.53 | 47.16 | 38.62 | 33.86 | 35.03 | 35.19 |
| <p>Note: Data on real hourly wages in India and the Philippines are converted into weekly wages by multiplying the hourly wage data by 40. Data on real monthly wages in Indonesia are divided by 4.29 (30/7) in order to convert these into real weekly wages. All real wage data are originally in local currency units and have different base years. These are rebased to 2002 and converted into US dollars using the average market exchange rates for 2002 reported in World Development Indicators Online.</p> <p>Source: Authors' estimates using unit-level data from labor force surveys.</p> | | | | | | | |

Table 6.3, which is based on wage regressions that do not also control for production sector and occupation, presents the wage differentials between education groups (the differentials for each level of education expressed relative to the previous level of education controlling for other observable individual characteristics), as well as the R-squared from the regressions.⁷³ Figure 6.4 depicts those wage differentials graphically. As can be seen, the wage differential between college and secondary education is quite high. It is highest in the Philippines (110%) followed by India (87%) and Indonesia (61%) (all in 2004). However, the sharpest increase in this differential is in India—an increase of around 37% percentage points. In contrast, the wage differential between college and secondary education in Indonesia declined between 1994 and 2004 (from 81% to 61%).

The wage differential between secondary education and primary education declined in all three countries.

That between primary education and less than primary education also declined in the Philippines, but not in India or Indonesia (between 1993 and 2004).

Table 6.3 Wage Differentials between Education Groups

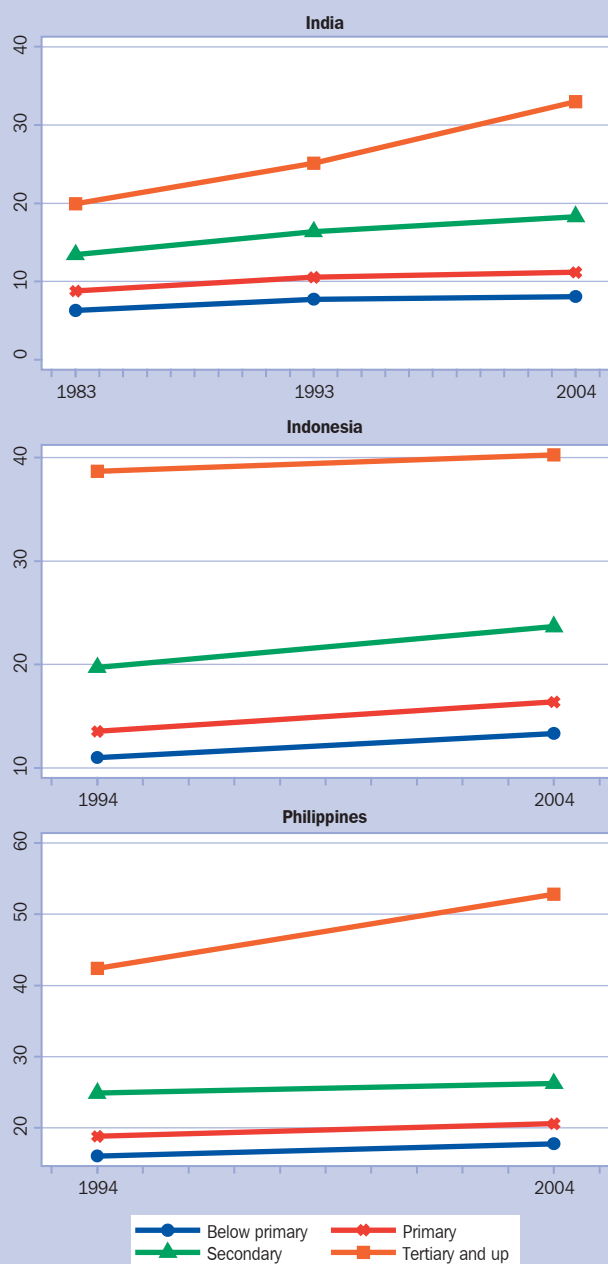
| Education Level | India | | | Indonesia | | Philippines | |
|--------------------|-------|------|------|-----------|------|-------------|------|
| | 1983 | 1993 | 2004 | 1994 | 2004 | 1994 | 2004 |
| Primary | 0.37 | 0.32 | 0.36 | 0.30 | 0.30 | 0.26 | 0.19 |
| Secondary | 0.55 | 0.51 | 0.45 | 0.43 | 0.42 | 0.45 | 0.35 |
| Tertiary and Above | 0.46 | 0.50 | 0.87 | 0.81 | 0.61 | 0.85 | 1.10 |
| R-squared | 0.49 | 0.33 | 0.49 | 0.41 | 0.41 | 0.34 | 0.41 |

Source: Authors' estimates using unit-level data from labor force surveys.

Interestingly, the increase in wage differentials between the college educated and secondary educated are robust to controlling for production sector and occupation in India, but not the Philippines. Table 6.4 reports the wage differentials between education groups when production sector of employment and occupation are also included in the wage regressions. It reports as well the wage differentials across different production sectors (relative to agriculture) and in a highly skilled

⁷³ The estimated coefficients for each of the three levels of education are converted into the percentage differential in wages relative to the previous level of education as: $[e^{b_{i,j} - b_{i,j-1}} - 1]$ for the various education levels i .

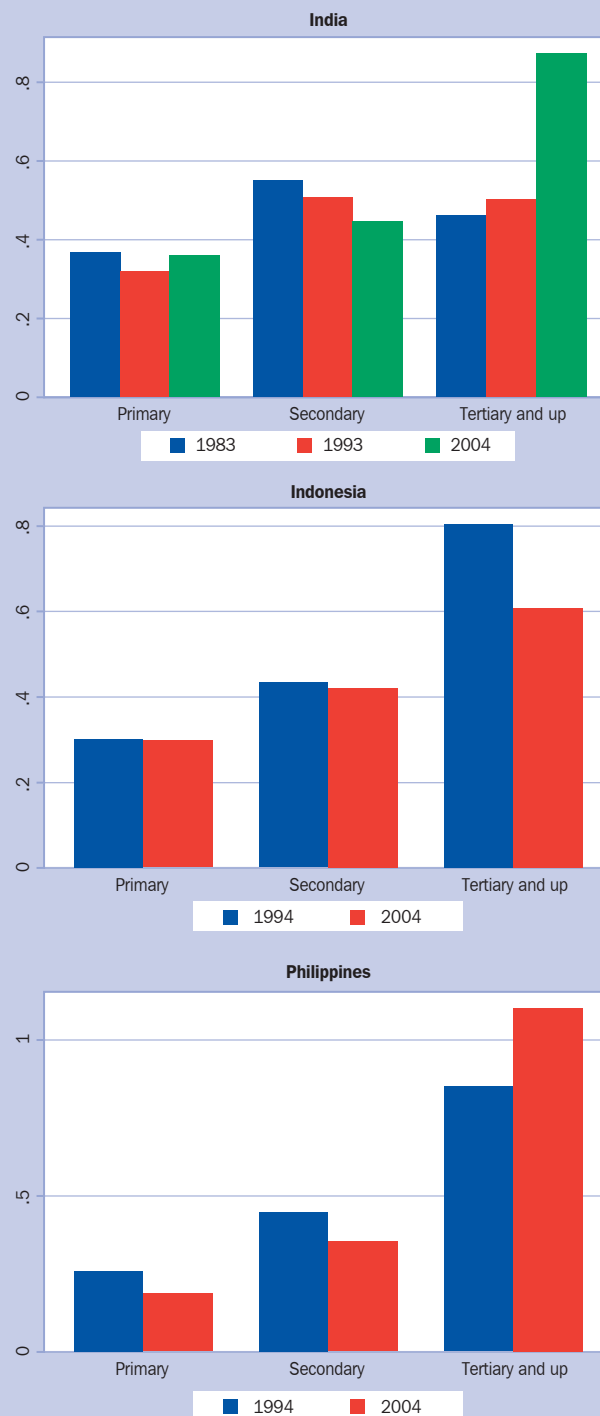
Figure 6.3 Average Weekly Real Wage, by Level of Education, Urban (2002 US\$ prices)



occupation (relative to other occupations).⁷⁴ The wage differentials for the college educated are now lower, especially in the Philippines; only in the Indian case do these wage differentials continue to show an increase over the 1990s and early 2000s.

⁷⁴ The estimated coefficients for occupations and industrial sectors are converted into the percentage differential in earnings relative to the omitted category: $[e^{b_{ij}} - 1]$.

Figure 6.4 Wage Differentials between Education Groups



While wage differentials accruing to highly skilled occupations increase over time in both India and the Philippines, they decline in Indonesia. An increase in returns to highly skilled occupations seems to account for the decline in return to college education in the Philippines. This is because highly skilled occupations

Table 6.4 Wage Differentials across Education, Production Sector, and Occupation Groups

| Individual Characteristic | India | | | Indonesia | | Philippines | |
|---------------------------|-------|------|------|-----------|------|-------------|------|
| | 1983 | 1993 | 2004 | 1994 | 2004 | 1994 | 2004 |
| Primary | 0.30 | 0.26 | 0.30 | 0.27 | 0.27 | 0.22 | 0.16 |
| Secondary | 0.49 | 0.45 | 0.39 | 0.35 | 0.37 | 0.42 | 0.30 |
| Tertiary and Above | 0.38 | 0.41 | 0.64 | 0.69 | 0.51 | 0.70 | 0.66 |
| Industry | 0.56 | 0.47 | 0.45 | 0.18 | 0.20 | 0.46 | 0.45 |
| Services | 0.44 | 0.39 | 0.44 | 0.04 | 0.09 | 0.11 | 0.18 |
| Highly Skilled | 0.29 | 0.28 | 0.42 | 0.28 | 0.21 | 0.30 | 0.63 |
| R-squared | 0.51 | 0.34 | 0.51 | 0.43 | 0.43 | 0.38 | 0.49 |

Source: Authors' estimates using unit-level data from labor force surveys.

are also intensive in workers with college degrees. Indeed, the return to the highly skilled occupation relative to the remaining occupations more than doubles in the case of the Philippines. These patterns are important to keep in mind, and we will come back to them later.

Accounting for Inequality

How important are the various individual characteristics in accounting for the levels of inequality across years in the three countries? Table 6.5 contains some answers. In all countries and years, education is the single most important factor accounting for explained inequality (i.e., that share of total wage inequality that can be accounted for by the variables we observe and that we have included in our analysis). Age tends to account for the second largest share of explained inequality. An exception is the Philippines in 2004, where occupation accounts for about 35% of explained inequality.

Table 6.5 Contribution of Individual Characteristics to Explained Inequality

| Individual Characteristic | India | | | Indonesia | | Philippines | |
|----------------------------|-------|------|------|-----------|------|-------------|------|
| | 1983 | 1993 | 2004 | 1994 | 2004 | 1994 | 2004 |
| Age (%) | 10.1 | 17.2 | 18.1 | 16.8 | 15.2 | 11.0 | 5.8 |
| Gender (%) | 18.9 | 13.7 | 11.3 | 15.5 | 9.1 | 6.0 | 2.9 |
| Social Group (%) | 0.2 | 0.1 | 0.5 | ... | ... | ... | ... |
| Production Sector (%) | 5.3 | 4.9 | 2.6 | 0.0 | -1.0 | 4.7 | 1.7 |
| Occupation (%) | 7.4 | 8.2 | 11.8 | 11.9 | 12.4 | 13.5 | 35.3 |
| Education (%) | 49.4 | 52.7 | 53.3 | 42.8 | 54.6 | 62.0 | 52.6 |
| Geography ^a (%) | 8.7 | 3.3 | 2.4 | 13.1 | 9.7 | 2.8 | 1.7 |
| R-squared | 0.51 | 0.34 | 0.51 | 0.43 | 0.43 | 0.38 | 0.49 |

a Geographic categories are different for each of the three countries: states for India, provinces for Indonesia, and regions for the Philippines.

Source: Authors' estimates using unit-level data from labor force surveys.

A common finding in all three countries is the diminishing share of wage inequality that can be explained by gender. Additionally, social group is negligible in accounting for inequality in India. This is probably due to the lower educational attainments of this group (and the resulting underrepresentation in highly skilled occupations that this would imply), and

is something that is being picked up by the education categories in Table 6.5.

Next, in the case of India, for which the Gini coefficient increased between 1983 and 2004 (and 1993 and 2004), we can ask how much of the increase was due to various individual characteristics. Table 6.6 describes the results in the first two data columns. Around 52% of the increase in the Gini coefficient between 1983 and 2004 is driven by unknown factors (the residual term). Of the remaining, education accounts for 34% of the change. But changes in the age profile of workers are not far behind, accounting for almost 26% of the increase in inequality.

Table 6.6 Contribution of Individual Characteristics to Change in Gini Coefficient

| Individual Characteristic | India | | Indonesia | Philippines |
|----------------------------|-----------|-----------|-----------|-------------|
| | 1993–2004 | 1983–2004 | 1994–2004 | 1994–2004 |
| Age (%) | 28.8 | 25.8 | 11.7 | -279.6 |
| Gender (%) | 11.9 | -10.9 | 25.9 | -184.7 |
| Social Group (%) | 1.6 | 0.9 | ... | ... |
| Production Sector (%) | -0.9 | -4.5 | 3.1 | -205.0 |
| Occupation (%) | 25.4 | 15.3 | 3.1 | 2,703.8 |
| Education (%) | 81.5 | 34.3 | -18.7 | 542.6 |
| Geography ^a (%) | 1.8 | -12.4 | 15.6 | -40.7 |
| Residual (%) | -50.0 | 51.5 | 59.2 | -2,432.1 |
| Change in Gini Coefficient | 6.63 | 9.06 | -4.75 | 0.16 |

a Geographic categories are different for each of the three countries: states for India, provinces for Indonesia, and regions for the Philippines.

Source: Authors' estimates using unit-level data from labor force surveys.

Occupation accounts for about 15% while gender and state of residence turn out to be equalizing. As noted earlier, the differential between males and females in earnings has declined over time and explains the equalizing role of gender. As for the role of state of residence, the survey data – both in this section as well the previous – seem to suggest that gaps across states have become narrower. This is different from what an examination of state per capita GDP data (up to 1997 at least) would tell us. The effects of production sector of employment and of caste, especially, are found to be very small.

Summary

Focusing on the group of urban full-time wage and salaried-workers, there are several interesting features of the data. First, the education mix is changing. In particular, this group is becoming more educated. This is more clearly seen in the case of India, where there has been a substantial increase in the share of college graduates and an almost as large decrease in the share of workers without a primary education.

Second, the countries differ to a great degree in terms of what has happened to inequality in wages. At one end is India, where the Gini coefficient increased by 6.6 percentage points between 1993 and 2004. Wages of the top 20% in particular have risen quite sharply in India since 1993. In sharp contrast, the Gini coefficient has declined by a little less than 5 percentage points in Indonesia. In the Philippines, the Gini coefficient has remained fairly stable.

Third, and on a more positive note, the gender gap in wages has diminished in all three countries.

Fourth, what factors account for wage inequality? Observable characteristics of workers account for between a third and a half of total inequality. Of this, education accounts for 40–50% of the explained inequality. And in the one country where wage inequality has widened—India—education accounts for the bulk of the total increase.

Finally, what in turn is happening within education? Wage differentials between education groups have declined since the early 1990s in Indonesia. In the Philippines, only wage differentials accruing to the college educated have increased. But this appears to be driven by highly skilled occupations. Controlling for these shows wage differentials to have fallen at all three levels of education in the Philippines.

It is only in India that an increase in wage differentials for college education (and primary education) remain robust to controls for these highly skilled occupations. This sharp increase in wage differentials, combined with the equally steep rise in the proportion of urban full-time wage and salaried workers with a college degree, would therefore appear to be important drivers in increasing wage inequality in India.

More generally, the growing “convexity” in returns to education—i.e., increasing wage differentials between the college and secondary educated along with stagnant or even declining wage differentials between the secondary and primary educated in several instances—suggests that the “power of basic education systems to combat inequality has declined” (ADB 2007a, p. 318). What explains this growing convexity? In the next section we discuss this in the context of a more general discussion of what the literature tells us about the drivers of inequality in developing countries.

7. Looking Further Into the Causes of Inequality

The discussions in Sections 4–6 highlighted the following about inequality and its proximate determinants in developing Asia. First, measures of relative inequality in expenditures/incomes have increased in many DMCs over the last 10 years or so. Absolute inequality—in terms of the gaps in per capita expenditures/incomes between the top 20% and bottom 20%, in particular—have increased virtually everywhere.

Second, in most countries where relative inequality has increased, however, expenditures/incomes have increased at all points along the distribution so that economic well-being, as captured by households’ access to goods and services, has improved.

Third, the rising inequality is nevertheless of concern. In particular, it has been driven by low growth in the expenditure and incomes of the poor—the very group of people whose expenditures and incomes are low to begin with.

Fourth, factors such as education, occupation, and location account for a large part of that component of inequality which can be captured by observable household and individual characteristics.

Fifth, these same factors can account for a considerable amount of the change in total inequality—though the degree varies by country, of course. For example, while the analysis of Section 5 shows differences in educational attainment exerting upward pressure on the Gini coefficient in all three of the countries examined in detail there—India, Philippines, and Viet Nam—rural-urban differentials are found to be contributors to increasing inequality in only the Philippines and Viet Nam. Similarly, the analysis of Section 6 shows that differences in educational attainment across households exert upward pressure on the Gini coefficient for wages and salaries in India and the Philippines, but not in Indonesia.

Finally, as noted in Section 2, there are wide inequalities in nonincome outcomes, such as those relating to nutrition, health, and education.

In this section, we look deeper into the reasons for inequality and changes in it. In what follows, we focus on income/expenditure inequality and try to provide some broad (but necessarily tentative) answers to what are in fact fairly difficult questions. We rely not only on what the analysis in Sections 5 and 6 tells us about the *proximate* (or immediate) drivers of inequality in the DMCs covered there, but also the broader literature on inequality and its *policy* drivers as well. Before getting to this discussion, however, it is useful first to briefly review what international comparisons of inequality tell us about its correlates. Such a discussion is a good starting point for thinking about the drivers of inequality and changes in it.

7.1 Correlates of Inequality: International Comparisons

Drawing on studies that have examined the correlates of inequality across countries, Fields (2001) points to some patterns that emerge. First, inequality tends to be lower in socialist countries than elsewhere. The factors responsible no doubt include the patterns of asset ownership and government spending in socialist countries. By extension, countries with a relatively large share of public sector employment in the total and extensive government intervention (in price setting, industrial and trade regulation, etc.), and large public expenditures on social spending, are generally those with lower inequality (all else being equal).

Second, countries with a larger share of agriculture (in output and/or employment) tend to have lower inequality. Interestingly, countries with a large share of mineral exports in total output tend to be more unequal, a result that is quite likely driven by the unequal ownership of the resource in question and the capital-intensive nature of production.

Third, measures of economic dualism also appear to be correlated with inequality. For example, a higher ratio of nonagricultural production to agricultural production tends to be associated with higher inequality.

Fourth, countries with high levels of asset inequality tend to have high levels of income inequality. In principle, asset inequality can be of several types—for example, inequality in the distribution (or access) to land, in financial capital, or in human capital (from education/training and experience). Traditionally, an important correlate of income inequality is land inequality. Capital has typically been so unequally distributed in developing countries that inequality

in income from capital can explain very little of the inequality in total incomes.

The effects of human capital as captured through education are more complex. Theoretically, whether inequality increases or decreases as a result of an expansion in education depends on the evolving supply of and demand for different levels of education. Empirically, while studies using data up to the 1980s generally found higher rates of literacy and education to be associated with lower inequality (controlling for other factors), it is unclear what recent data would show. As we have seen in the case of India, especially, and the Philippines, earnings differentials between the college educated and those with less education have increased over time—a phenomenon that can be described as increasing “convexity” in returns to education (ADB 2007a). This finding is also found in data from the PRC (Park et al. 2004), Nepal (World Bank/DFID/ADB 2006), Thailand (ADB 2007a), and Viet Nam (Nguyen et al. 2007). Of course, increases in convexity do not necessarily imply that inequality will increase. As in the case of the Philippines discussed in Section 6, increasing returns to college education have been associated with a stable level of inequality as other factors countered the tendency for inequality to increase. (We discuss the issue of education in more detail in the next subsection.)

7.2 Inequality in Developing Asia: Proximate Drivers and Policy Drivers

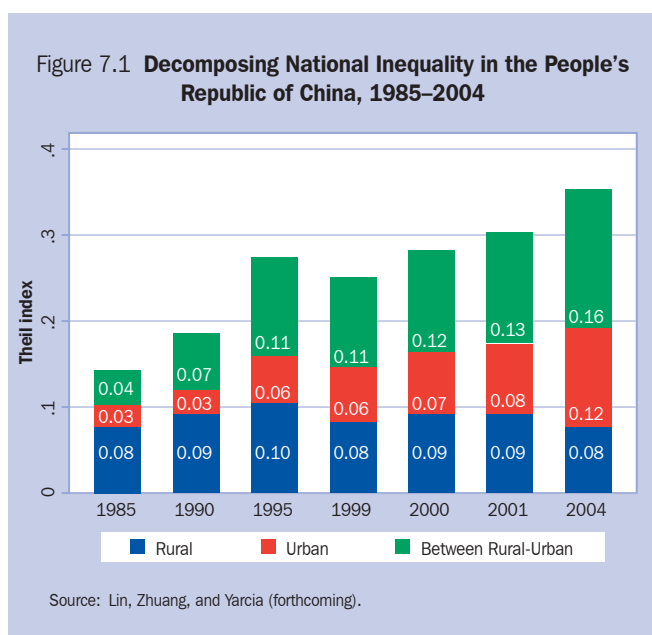
Proximate Drivers: Unevenness in Growth

A useful way to think about the increases in inequality taking place in many DMCs, where aggregate growth has been high in recent years, is in terms of whether growth has been uneven, and in which dimensions. This approach follows the recent work of Chaudhuri and Ravallion (2007), who focus on the cases of the PRC and India. The authors point to three ways in which growth has been uneven in these two countries: (i) across provinces in the PRC and states in India; (ii) sectorally, as growth in agriculture has lagged behind growth in the secondary and tertiary sectors with the result that urban incomes have grown faster than rural incomes; and (iii) at the household level, such that incomes at the top of the distribution have grown faster than those in the middle and/or bottom.

What do the data that we have analyzed in the previous three sections tell us if we look at them through the above lens? The aggregated data for the PRC in Section 4 are certainly consistent with the

above. Although those data cannot distinguish between provinces, the differences that are clearly evident are those between average expenditures across rural areas and urban areas, and the high growth of expenditures/incomes at the top end of the distribution (recall Table 4.5 and the two charts for the PRC in Figure 4.11).

Using grouped data on income distributions for 1985–2004, Lin, Zhuang, and Yarcia’s (forthcoming) findings suggest that the main contributor to both inequality today, as well as increases in inequality over the period studied, consists of the differentials in average incomes across rural and urban households. At the same time, uneven growth in incomes among urban households has become a prominent source of the more recent increases in inequality (i.e., over 2001–2004). These patterns can be seen in Figure 7.1, which decomposes national inequality as measured by the Theil index, GE(1), into inequality *within* each of the rural and urban sectors and inequality *between* the rural and urban sectors in the PRC in 1985–2004.



The observations also seem to apply in the case of Viet Nam. Rural-urban gaps in expenditures have increased over time. Further, together with regional differences, rural-urban differences can explain a large component of the increase in inequality as measured by the Gini coefficient. As seen in Section 5, the two factors account for 108.4% of the increase in the Gini coefficient between 1993 and 2002; in other words, had some other factors not worked to damp increases in inequality, the Gini coefficient would have registered an even larger increase than it actually did on account of regional and rural-urban differences together. (At the

same time, differences in educational attainments across households are the single most important household characteristic associated with the increase in the Gini coefficient.)

Studies for other countries are also supportive of the importance of uneven growth across sectors and regions as an important driver of increasing inequality. Thus in the case of Cambodia, which as we saw in Section 4 experienced a fairly large increase in the Gini coefficient between 1993 and 2004, a recent study has highlighted uneven growth between the agriculture sector and nonagriculture sector, as well as lower growth in rural areas relative to urban areas, as key drivers of the increases in inequality (World Bank 2006). As the study notes, a majority of Cambodia’s labor force is in agriculture. Thus low growth of this sector puts a constraint on the incomes of agriculture’s labor force. Why has growth been low? A lack of physical infrastructure (especially that relating to irrigation as well as the transportation network), increasing landlessness, and declining availability and accessibility of common property resources have all contributed.

The situation in Nepal is also similar to that in these three countries. Underlying the large increases in inequality documented in Section 4 has been very unequal growth across urban and rural areas (World Bank/DFID/ADB 2006). While real per capita expenditures increased by 42% in urban areas between 1995/96 and 2003/04, rural areas saw only 27% growth. Given that rural areas start out with lower expenditures/incomes, the lower growth rates only served to widen dramatically the urban-rural gaps. Similarly, while real average per capita expenditures rose by about 30% in Kathmandu and the rural Western Hills and Eastern Terai regions, they increased only by about 5% in the rural Eastern Hills region. Finally, an important dimension of widening inequality has been dramatic increases in the returns to higher education as well as employment in professional occupations (along with self-employment in manufacturing and services). The fact that professionals and the self-employed in manufacturing and services represent only a little over 10% of the total population thus helps explain why inequality has increased so rapidly in Nepal.

For India, bringing in the most recent data⁷⁵ seems to shift the locus of drivers of inequality squarely to uneven growth at the level of households, itself most strongly associated with returns to higher education

⁷⁵ That is, micro data from 2004 and comparing these with data from 1993, rather than comparing data from 1993 with data from 1999.

and managerial and professional/technical occupations (recall Tables 5.5 and 6.5). Also, as seen from the analysis of Section 5, average per capita expenditures in rural areas grew a little faster than those in urban areas between 1993 and 2004 (1.4% versus 1.2% a year; Table 5.2).

Of course, the mildly faster growth of expenditures/incomes and rural areas is starting from a much lower base. Absolute measures of inequality show widening gaps in urban/rural expenditures and incomes in India: while average real monthly per capita expenditures grew by around Rs93 in rural areas over this period, they grew by Rs123 in urban areas.

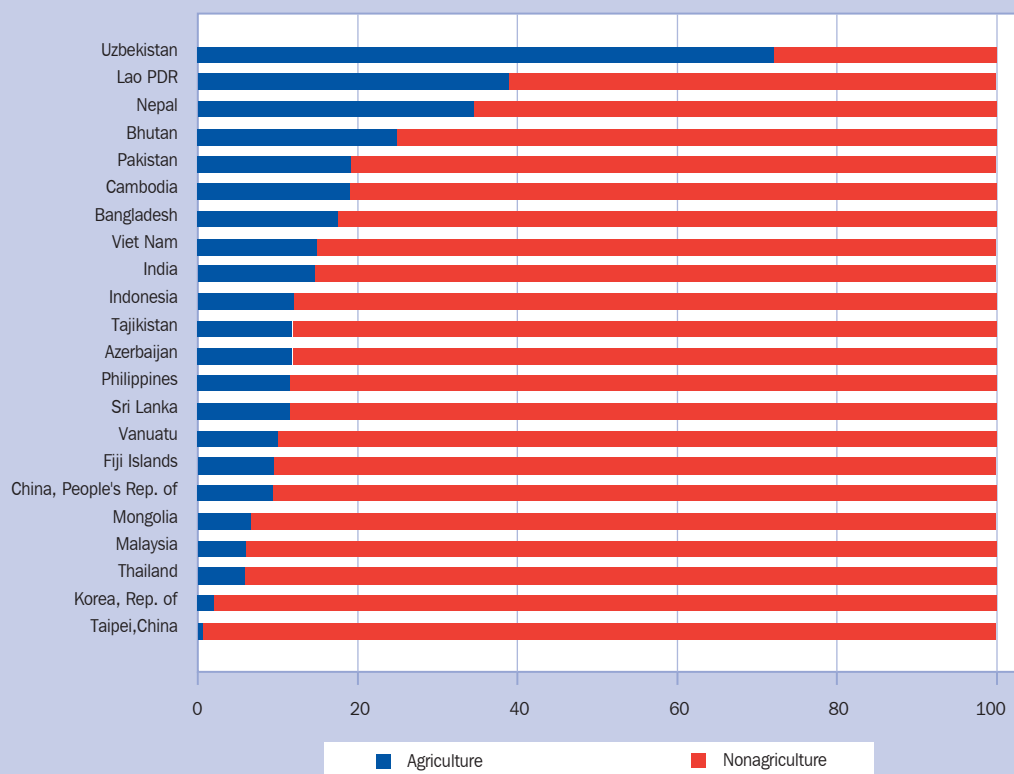
More generally, growth in the agriculture sector has been far more limited than that in industry and services in most DMCs. As may be seen from Figure 7.2, only in a handful of DMCs has agriculture accounted for 20% or more of total growth over a period of one to three decades (ADB 2007b). Table 7.1 covering 10 DMCs, shows that average annual growth rates

in agriculture during 1991–2005 declined relative to 1980–1990 in eight DMCs. In contrast, growth rates for industry and services increased in the more recent period in 50% of cases. In itself, neither of these two features of agricultural growth in developing Asia is a problem. Indeed, faster growth in industry and services is integral to economic development and structural transformation. A problem arises, though, when a large proportion of total employment is agricultural employment at very low productivity. Thus, in a majority of DMCs, including those with very large populations (such as PRC, India, Indonesia, Pakistan, and Bangladesh), agriculture has continued to account for 40% or more of total employment, at very low levels of productivity relative to the industry and services sectors (Table 7.2).

Policy Drivers

What policy factors account for these patterns—in which growth in urban areas, in certain (leading) regions, and in nonagriculture sectors, and incomes accruing to

Figure 7.2 Contribution to Total Output Growth: Agriculture versus Nonagriculture (%)



Note: Growth is for the following periods: 1970–2004 for People's Republic of China; India; Republic of Korea; Taipei, China; Indonesia; Malaysia; Philippines; Thailand; Pakistan; and Sri Lanka; 1970–2002 for Fiji Islands; 1973–2004 for Nepal; 1979–2001 for Vanuatu; 1980–2003 for Bhutan; 1980–2004 for Bangladesh; 1981–2004 for Mongolia; 1985–2003 for Tajikistan; 1985–2004 for Viet Nam; 1987–2004 for Uzbekistan; 1989–2004 for Lao PDR; 1992–2004 for Azerbaijan; and, 1993–2004 for Cambodia.

Source: Table 3.1.8 of ADB (2007b).

Table 7.1 Growth Rates of Gross Value Added by Sector, 1980–1990 and 1991–2005 (%)

| Developing Member Country | Agriculture | | Industry | | Services | |
|---------------------------|-------------|-----------|-----------|-----------|-----------|-----------|
| | 1980–1990 | 1991–2005 | 1980–1990 | 1991–2005 | 1980–1990 | 1991–2005 |
| Bangladesh | 2.32 | 2.98 | 4.79 | 7.11 | 3.74 | 4.88 |
| China, People's Rep. of | 5.54 | 3.85 | 10.00 | 12.67 | 11.78 | 10.11 |
| India | 4.40 | 2.74 | 6.89 | 6.20 | 6.39 | 7.93 |
| Indonesia | 3.98 | 2.42 | 7.77 | 5.11 | 7.28 | 5.08 |
| Malaysia | 3.07 | 1.63 | 7.12 | 7.26 | 6.81 | 6.79 |
| Nepal | 3.79 | 2.77 | 7.40 | 5.68 | 3.46 | 5.35 |
| Pakistan | 4.30 | 3.81 | 8.03 | 5.01 | 6.56 | 4.79 |
| Philippines | 1.44 | 2.48 | 1.03 | 3.08 | 3.66 | 4.41 |
| Sri Lanka | 2.93 | 1.43 | 4.53 | 5.55 | 5.23 | 5.62 |
| Thailand | 3.70 | 1.75 | 9.82 | 6.43 | 7.60 | 4.06 |

Source: World Bank, World Development Indicators Online.

those with high levels of education—have outstripped their counterparts' (i.e., rural incomes, lagging regions, agricultural incomes, and incomes of those with less than a college degree)? The discussion on the cross-country correlates of inequality (Subsection 7.1 above) focused mainly on what explains levels of inequality.

role for the public sector would put upward pressure on inequality. Similarly, if inequality is lower when agriculture accounts for a relatively large share of output or employment, rapid growth in other sectors (as seen from Figure 7.1 and Table 7.1) will be associated with some upward tendency in inequality.

Table 7.2 Value Added Per Worker by Sector and Share of Agricultural Employment (constant 2000 US\$), Selected Developing Member Countries

| Developing Member Country | Year | Share of Agricultural Employment (%) | Value Added Per Worker | | |
|---------------------------|------|--------------------------------------|------------------------|----------|----------|
| | | | Agriculture | Industry | Services |
| East Asia | | | | | |
| China, People's Rep. of | 2002 | 44.1 | 600 | 4,961 | 5,080 |
| Hong Kong, China | 2001 | 0.3 | 17,096 | 34,115 | 52,534 |
| Korea, Rep. of | 2004 | 7.9 | 12,302 | 38,978 | 22,775 |
| Mongolia | 2003 | 40.2 | 516 | 1,686 | 1,396 |
| Southeast Asia | | | | | |
| Cambodia | 2004 | 60.3 | 412 | 1,685 | 1,116 |
| Indonesia | 2004 | 44.0 | 748 | 5,111 | 2,153 |
| Malaysia | 2004 | 14.8 | 6,606 | 17,317 | 7,882 |
| Philippines | 2004 | 37.0 | 1,134 | 5,728 | 3,130 |
| Singapore | 2001 | 0.3 | 16,384 | 54,957 | 35,748 |
| Thailand | 2004 | 42.6 | 1,028 | 9,163 | 5,407 |
| Viet Nam | 2004 | 57.9 | 367 | 2,251 | 1,509 |
| South Asia | | | | | |
| Bangladesh | 2003 | 51.7 | 389 | 1,772 | 1,389 |
| India | 1999 | 60.8 | 432 | 1,602 | 2,039 |
| Nepal | 1998 | 76.1 | 270 | 1,061 | 1,292 |
| Pakistan | 2002 | 42.1 | 929 | 1,823 | 2,383 |
| Sri Lanka | 2003 | 34.3 | 1,334 | 2,714 | 3,389 |
| Central Asia | | | | | |
| Azerbaijan | 2001 | 39.3 | 635 | 5,993 | 1,098 |
| Kazakhstan | 1999 | 33.5 | 1,142 | 5,376 | 2,198 |
| Kyrgyz Republic | 1999 | 52.7 | 494 | 1,676 | 644 |
| Tajikistan | 1997 | ... | 410 | 1,095 | 1,031 |
| Uzbekistan | 1999 | ... | 1,171 | 1,585 | 1,556 |

Sources: ADB (2005); World Bank, World Development Indicators Online.

But it also offers clues about the policy changes that may have led to increased inequality. For example, the fact that socialist countries have had the lowest levels of inequality would imply that their transition to a more market-based economy and a diminishing

In what follows, we discuss briefly three dimensions of policy that may be important drivers of the unequal growth we have just described. The complexity of the issues involved necessarily means that the discussion cannot be definitive.

Neglect of Agriculture

The relatively slow growth of agriculture—certainly relative to the growth of industry and services, but also relative to agricultural growth before the 1990s—is one explanation for uneven growth across sectors (rural/urban, agriculture/nonagriculture). Additionally, because the bulk of the poor in much of developing Asia rely on agriculture for their livelihoods, its slow growth can also account for relatively slow growth in the incomes/expenditures of the poor.

What can explain this pattern of growth? The specific reasons for this vary by country. However, there appear to be some common features, including a slowdown of public investment in rural infrastructure, stagnation in resources devoted to developing and spreading new agricultural technologies, and rapid depletion of natural resources. In some countries, a policy environment that has kept private investment away from agriculture seems to have exacerbated the lack of public investment.

Transition

An important feature of the economic landscape of many countries in the region during the 1980s and 1990s was a dramatic move from socialism and strong public sector influence to greater reliance on markets. Privatization of public enterprises, liberalization of trade, deregulation of industrial relations, and dismantling of administrative prices were seen in various DMCs including the PRC, Viet Nam, and the Central Asian republics (and even some nonsocialist countries, in particular, India).

It should not be surprising that the net effect of all this would be to put upward pressure on inequality in many of the countries undergoing this transition. In the PRC, for example, the Bureau of Labor and Personnel determined the wages of all workers in urban areas from the late 1950s to the late 1970s. There were eight distinct grade levels for factory workers and technicians and 24 levels for administrative and managerial workers. Increases in wages were based on seniority, and wage differentials across levels were quite small (Zhang et al. 2005). A transition from centrally planned to progressively more market-based systems for production, employment, and wage-setting decisions in the PRC's urban sector began in the early to mid-1980s. For example, wages were allowed to respond in accordance with various profit-sharing arrangements, and the creation of special economic zones led to the emergence of a new set of enterprises that received much more freedom in production and labor issues (Tao 2006).

Returns to education, especially college or postsecondary education, seem to have responded to these institutional changes. Using data from six PRC provinces (to estimate returns from education via Mincerian earnings regressions as in Subsection 6.2 for India, Indonesia, and the Philippines), Zhang et al.'s (2005) analysis reveals, for example, that the returns to college education relative to high school increased from 12% in 1988 to 37% in 2001.⁷⁶ Why was this gain so dramatic? Reviewing different options (including a possible role for trade and foreign direct investment), Zhang et al. conclude that the transition from centrally planned to market-oriented decision making on production and labor issues was the decisive factor. Overall, a fairly similar process seems to have taken place in Viet Nam with the market-oriented reforms (*Doi Moi*) ushered in since 1986 (Nguyen et al. 2006).

Market-oriented Reforms and International Integration

More broadly, virtually all economies in the region have undertaken a variety of market-oriented reforms and integrated themselves more closely with the international economy (the main exceptions being the two city-economies of Hong Kong, China and Singapore, economies that have been very open and market oriented for at least the past several decades). How may market-oriented reforms and international integration have contributed to uneven growth and affected inequality?

The specific channel that was discussed above in the context of the transition economies, where wage setting moved from being guided by central planning to being set by market forces, is an obvious contributor to uneven growth in incomes across households. Beyond that, however, the channels become more complicated. Market-oriented reforms entail a move of economic decision making away from the public sector to the private sector, and are affected through the deregulation of domestic industrial policies, privatization, etc. Market-oriented reforms can also include trade and investment liberalization as well as financial liberalization.⁷⁷ Trade and investment liberalization have been particularly

⁷⁶ Returns to technical school versus high school as well as high school versus junior high also increased. However, returns to junior high school versus primary school have not displayed a consistent trend.

⁷⁷ Trade liberalization essentially involves the substitution of nontariff barriers to trade (for example, quantitative restrictions, performance requirements, and voluntary export restrictions) with tariff barriers and a reduction in these tariff barriers over time. Investment liberalization, in comparison, involves the removal of restrictions on investment decisions by private agents, both domestic and foreign. Finally, financial liberalization involves the movement toward market determination of interest rates and the removal of restrictions on the inflows and outflows of foreign and domestic private capital.

important in integrating developing Asian countries with the global economy.⁷⁸ Liberalization of investment regimes has usually accompanied trade liberalization quite closely and, in any case, the overall thrust of these policy changes are quite similar. How have these policy changes affected inequality? How are they connected to uneven growth?

Regional inequality. As noted earlier, uneven growth across regions/states within countries has been an important contributor to increases in inequality (in some countries). The interplay between market-oriented reforms; international integration; and structural features such as geography, agglomeration economies (whereby firms derive benefits from locating close to other firms), and history (especially an unequal initial distribution of infrastructure) are probably important drivers of uneven growth across regions/states. In the case of the PRC, there appears to be a general consensus that sharpening income disparities between coastal and interior regions have been driven by the country's increased openness. As Lin (2005) notes, an important feature of that country's global integration is the depth of concentration of international trade along the east coast. An important reason for this is that east coast provinces have considerably lower transportation costs to the PRC's major international markets such as Hong Kong, China; Japan; and the US.⁷⁹

Similarly, in the case of India the process of industrial deregulation (an important component of market-oriented reforms in the country from the mid-1980s to the early 1990s) has increasingly led commercial considerations rather than government mandates to determine the choice of location in investment decisions (Kumar 2006). Why should this contribute to unevenness in growth across regions? As a plant-level study of industrial location in India finds, new private-sector industrial investments in the country typically take place in existing industrial districts and coastal districts. Industrial investments by the public sector,

however, are less likely to be made in such districts, in line with considerations such as a concern for balanced regional development (Lall and Chakravorty 2005). Since investments by the private sector have outstripped investments by the public sector, overall investments have become more concentrated within the country. This, of course, raises another question: Why does the private sector locate in existing industrial districts and coastal districts? Lall and Chakravorty find that it is profitable for them to do so. In particular, industrial diversity *within* a given district or metropolitan area is associated with lower costs of production for a given plant.

More generally, the interplay between market-oriented reforms and economies of agglomeration appear to have given certain regions within countries an edge when it comes to economic growth. Indeed, this interplay has been recently linked to increasing inequality in Southeast Asia and East Asia's middle-income countries (Gill and Kharas 2007).

The relative⁸⁰ returns to labor. As noted above, differential returns to education and occupations—a facet of unevenness in growth across households—are one of the most important drivers of inequality and changes in it. What, if any, role have market-oriented reforms and international integration played in increasing these differentials? We try to answer this question in terms of the effects of trade (and investment) liberalization.

The conventional wisdom is that liberalization would benefit a country's abundant factor of production. More specifically, given the abundance of labor in many parts of developing Asia, international integration, or globalization as it is more commonly known, has been expected to increase the relative rewards to labor and thereby lower inequality. The conventional wisdom seems to have played out in this manner in the case of the newly industrialized economies in the mid-1960s–1970s when these economies opened up to foreign trade (Wood 1997).⁸¹

Since the 1980s, however, the evidence has pointed to a contemporaneous increase in measures

⁷⁸ Liberalization of financial markets, especially in terms of the removal of restrictions on the inflows and outflows of private capital, has been more uneven across countries. Moreover, the experience of the financial crisis of 1997/98 in several Southeast and East Asian economies has led policy makers and economists alike to reconsider the wisdom of liberalizing financial flows in a context of weak domestic supervision and regulation of the financial sector. In so far as the effects of financial liberalization, especially the liberalization of international capital flows, is concerned, several researchers have linked them to increasing inequality and a tendency toward crises (Cornia and Court 2001).

⁷⁹ Interestingly, even among coastal provinces, those in which trade is more important tend to have higher wages on average. Indeed, Lin (2005) finds that around 25% of the wage differences in coastal provinces and 15% of the wage differences in interior provinces can be explained by trade-related variables.

⁸⁰ "Relative" is important. As we have already seen from the data in Sections 4–6, average per capita expenditures and incomes have increased across the board in almost all DMCs examined. However, some groups of households and earners, typically those at the top end of the distribution, have experienced higher growth in expenditures and incomes. It is the differentials in growth in expenditures and incomes among different segments of the population that matter for inequality – hence the emphasis on "relative."

⁸¹ The *manner* in which these economies opened up to foreign trade is, however, disputed by scholars.

of globalization and inequality across the developing world. Indeed, as Goldberg and Pavcnik (2007) note in their recent survey of the distributional effects of globalization in developing countries, two clear trends emerge from the available data. First, the exposure of developing countries to international markets, whether in terms of measures of protection, share of trade in GDP, or foreign direct investment, etc., has increased dramatically in recent years. Second, the overall movement of the various available measures of inequality is in the upward direction. While causality is difficult to establish, the available evidence has “provided little support for the conventional wisdom that trade openness in developing countries would favor the least fortunate (at least in relative terms)” (Goldberg and Pavcnik 2007). Why might greater openness have led to greater inequality? Two specific factors are worth highlighting, namely the bargaining power of labor, and new technology.

With regard to the bargaining power of labor, some have argued that greater openness to trade may increase inequality by reducing the bargaining power of labor (see, for example, Rodrik 1997). Since greater openness makes it easier to import all kinds of goods—capital inputs, finished goods, and intermediate goods—it can make it easier to replace the services of domestic workers via the import of capital inputs or the products they were producing. In this way, trade liberalization can erode the bargaining power of workers vis-à-vis the owners of capital in the sharing of profits.⁸² Further distinguishing workers in terms of skilled and unskilled, it is the latter who may be expected to suffer the brunt of the reduction in bargaining power.

In terms of the second specific factor, links between greater openness and new technology have also received considerable scrutiny in terms of explaining the association between openness and growing inequality. Two channels that rely on these links are based on the following observations. First, closer integration with global markets has led developing countries to experience greater inflows of technology (embodied in

imported capital goods, for example) from industrial countries. If new technology is designed to be used by skilled, or highly educated workers (which is entirely plausible given conditions in the industrial countries where new technologies are invariably developed—i.e., conditions of relative abundance of skilled workers), then greater openness could well be associated with increasing returns to skilled or highly educated workers, and hence growing inequality.

Second, a considerable part of trade is made in intermediate products, a phenomenon sometimes referred to as global production sharing or outsourcing. It has been argued that outsourcing also raises returns to skilled labor in *both* industrial and developing countries (Feenstra and Hanson 1996, 2003). Why should this be so? Prior to any outsourcing, industrial countries generally specialize in products or tasks that are skill intensive and developing countries in products or tasks that are less skill intensive. For an industrial country firm contemplating outsourcing, it will usually make most sense to outsource less skill-intensive products or tasks. It is easy enough therefore to see that outsourcing will raise the relative demand for skilled workers in industrial countries. However, outsourcing will also raise the relative demand for skilled workers in the developing country. This will happen when the product or task that is outsourced is itself more skill intensive than the average product or task that is produced/carried out in developing countries. Through either channel, greater openness will be associated with increasing inequality.

To the extent that higher educational attainments can proxy for high levels of skills, the finding that returns to higher education (postsecondary or college) have increased in many DMCs over a period in which trade has also been accounting for a steadily increasing share of GDP is consistent with the trade/technology and inequality linkages just described.

Whether or not it is the trade/technology story as described above that is driving the increasing convexity of returns to education is an issue that needs to be examined more closely. Among other things, definitions and measures of “skills” and “skill-biased technical change” are all somewhat controversial. Moreover, there are other channels that could explain why returns to college education have gone up and that do not need to rely on technological changes, but that may still be linked to market-oriented reforms. In particular, increases in returns to postsecondary or college education can be linked to the increasing returns to specific occupations that also require, or are typically staffed by, people with a college education. In Mexico, for example, a rapid increase in earnings of professionals

⁸² Hasan, Mitra, and Ramaswamy (2007) use industry-level panel data from India’s formal manufacturing sector along with industry-specific information on average tariff rates and nontariff barrier (NTB) coverage ratios to examine whether the country’s trade liberalization, begun in earnest in 1991, has made the demand for labor more elastic. They find that estimates of labor demand elasticity are larger after 1991 and larger in industries with lower tariff rates or NTB coverage ratios. Hasan, Mitra, and Ramaswamy also find that the share of the wage bill in either total output or value added is lower in the more open trading environment after 1991, and is lower in industries that have lower barriers to trade. For example, controlling for industry and location (via the introduction of industry-location fixed effects), their estimates of labor share equations suggest that labor shares would decline by around 4% (as a share of total output) and 5% (as a share of value added) for a reduction in tariffs from 150% to 40%.

and administrators was a key driving force behind increases in the returns to postsecondary education over a period of trade reforms, a finding that has been attributed to greater demand for individuals who could respond to the rapid changes introduced by the reforms (Cragg and Epelbaum 1996). As readers may recall, the patterns of returns to college education—with and without controls for such managerial and professional/technical occupations seen for India and, especially, the Philippines—in Section 6 are consistent with this.

The specific channels through which market-oriented reforms have influenced wage inequality are important to disentangle, however, since the policy implications can differ, depending on which channels are more relevant. For example, to the extent that increasing returns to postsecondary education are driven by the returns to particular occupations (or industries, for that matter), increasing the share of college education in the population will not do much to raise incomes generally or damp increases in inequality (though it will probably reduce the returns to college education).⁸³ Put differently, even if it is feasible to raise the educational attainments of a large majority of young adults, it is not possible for everybody to be a manager.

Summing Up

Overall, the interplay between market-oriented reforms, globalization, and the introduction of new technology is probably an important part of the story of unequal growth across households—though perhaps not in the same form that many studies have considered. All else being equal, it is the more educated who will most likely be able to make the most of the opportunities that market reforms and international integration bring. This may be because the education itself confers special advantages to individuals (e.g., engineering degree holders who could capitalize on the boom in information technology by virtue of their computer programming experience). Alternatively, the individuals who are most able to seize the opportunities are the ones most likely to have a college education in the first place (e.g., English-speaking young adults who could capitalize on the boom in information technology-enabled services).

A more general point is that a fast-changing economic environment can create substantial economic rents, the surplus above and beyond the income needed to pay owners of labor and capital. How these rents are distributed depends partly on the institutional

framework of a country. Where it is strong and progressive, these rents can be taxed for financing public goods without creating distortions (Gill and Kharas 2007). However, where it is weak, economic rents could lead to rent-seeking behavior and become detrimental to the process of economic growth itself.

8. Public Policy and Inequality

What should be the response of public policy to inequality? As we have seen from the evidence in this chapter, increasing inequality in developing Asia reflects not so much “the rich getting richer and the poor getting poorer”, but the rich getting richer faster than the poor. Moreover, as suggested by the previous section, it is quite likely that fast growth of incomes among the rich has been driven in one way or another by the opportunities unleashed by market-oriented reforms, international integration, and new technologies. One way to deal with growing inequality would be to significantly roll back reforms and engagement with the international economy. However, this is unlikely to be feasible. It would also be undesirable. Lewis’ (1983) view that development is inherently inequalitarian may not be strictly correct in the aggregate, but there appears to be considerable force behind his point that the process of development is unlikely to start in every part of an economy at the same time. The gains from market-oriented reforms and international integration may be seen in a similar way.⁸⁴

At the same time, as we have also seen, the historical record does not show declining inequalities to be an automatic outcome of continued economic development. Given that high levels of inequality and/or rapidly increasing inequality can imply slow improvements in the economic well-being of the poor even in a growing economy, and can also undermine both social cohesion and the quality of policies and institutions, public policy cannot simply ignore inequality.

A pragmatic way forward would be to focus on policies that would significantly lift the incomes of the poor—defined broadly here to include not only those living in extreme poverty but also those such as the \$2-a-day poor—by enabling them to access the opportunities that reforms and integration bring,

⁸³ Moreover, rapid expansions in the supply of any given level of education may well be associated with declining quality of that education (on average, at least).

⁸⁴ For example, while the relationship between trade policies and economic growth continues to be the subject of much debate among economists, there is significantly wider agreement that autarkic trade policies would stifle economic growth. For a review of the evidence on the links between trade and growth, see Rodriguez and Rodrik (2000).

while recognizing and limiting the very real danger that concentrations of income and wealth pose for social cohesion and growth-promoting policies and institutions. In what follows, we first provide some broad principles for policy making vis-à-vis the issue of inequality. Second, we discuss some specific areas of policy focus.

8.1 Broad Principles for Policy

Equalizing opportunities

Not all inequality is undesirable. Many of the data on inequality presented in this chapter refer to inequality in *outcomes*. Differences in outcomes, such as differences in incomes across individuals, typically reflect some combination of differences in the *efforts*, i.e., the set of actions that are under the control of the individual, and differences in the *circumstances*, i.e., factors, including economic, social, or biological ones, that are outside the control of the individual (Roemer 2006).⁸⁵

The inequality that results from differences in efforts are acceptable and even desirable to the extent that they reflect the incentives that an economy provides to its citizens for working harder, looking out for new opportunities, and taking the risks entailed in seizing them. However, inequalities resulting from differences in circumstances are not only ethically unacceptable, they result in wasted productive potential and misallocation of resources.⁸⁶ From this perspective, it is circumstance-based inequalities that give rise to *inequality of opportunities* and that must be the target of public policies aimed at reducing inequalities, a point also emphasized in World Bank (2005).

Making a clean distinction between effort and circumstances is not straightforward, however. In the real world, there is bound to be a plethora of circumstances leading to inequalities in opportunity. There can also be differences of opinion on what constitutes circumstances and what constitutes

effort.⁸⁷ But even with these difficulties, it is relatively easy to identify the most extreme circumstances that severely limit opportunities for many people. These circumstances relate, especially among the poor, to social exclusion; lack of access to high-quality basic education, health care, and social protection; and lack of access to income- and productivity-enhancing employment opportunities. Such circumstances are not only fundamentally unfair, they are also likely to work as serious constraints to poverty reduction, social cohesion, and economic growth; such circumstances must form a primary target of policy.⁸⁸

Expanding employment opportunities for the poor involves policies that expand opportunities for the poor and nonpoor

It is not the case that only policies with a favorable impact on the distribution of opportunities should be considered. It is the overall policy framework, and how the various policies interact and complement one another to promote opportunities for the poor, which matter (World Bank 2005). For example, policies that improve productivity and incomes in the rural sector and the urban informal economy are vital for generating better employment opportunities for the poor. Such policies also need to be combined with policies that generate employment opportunities more generally in the economy, including those for the nonpoor, however. As

⁸⁷ While race, caste, and gender certainly qualify as circumstances in which individuals find themselves, and as clear and worthy targets of policy to attack when opportunities are limited on account of these, things become murkier as we broaden the list of opportunity-affecting circumstances that individuals may find themselves in. How about being born to parents who do not instill good work ethics in a child? Is the child then responsible for his or her low effort as a working adult? At a different level, are the vastly high sums paid to CEOs in many countries truly commensurate with their effort? Yet another layer of complexity enters when effort is a function of circumstances. For example, faced with discrimination in the labor market, an individual may well decide to forgo expending effort.

⁸⁸ The distinction between circumstance-based inequality and effort-based inequality is similar to Chaudhuri and Ravallion's (2007) distinction between "good" and "bad" inequalities. Good inequalities reflect rewards to effort and reinforce market-based incentives needed to foster innovation, entrepreneurship, and growth. Bad inequalities stem from circumstances that are outside the control of individuals and that limit a person's access to opportunities. Social exclusion, geographic poverty traps (i.e., a situation whereby residence in a well-endowed area enables a poor household to eventually escape poverty; the same household, were it living in a poor area, would find it this very difficult), corruption, lack of access to education and health care, and lack of access to financial services such as credit and insurance all lead to bad inequalities. Chaudhuri and Ravallion (2007) argue that (i) in addition to being intrinsically unfair, bad inequalities are constraints on growth and poverty reduction; (ii) even good inequalities can turn bad, however, as those who are rewarded by the market use some of these rewards to engage in rent-seeking activities and/or change the "rules of the game"; and (iii) bad inequalities can drive out good ones as persistence of bad inequalities reduce society's tolerance for even good inequalities.

⁸⁵ Roemer also considers policy to be a factor influencing a person's income relative to that of others. By only considering effort and circumstances, we are implicitly treating policy as part of the circumstances that an individual faces.

⁸⁶ Circumstances are doubly pernicious. In addition to the first-round disadvantages they create—as when access to education, health care, job opportunities, etc., is unevenly distributed—they can create second-round disadvantages by affecting the amount of effort that an individual in unfortunate circumstances is willing to make.

argued in ADB (2007b), policies that promote structural change are crucial for economic development. It may well be the case that the first beneficiaries of structural change are the nonpoor.

Similarly, a policy that improves access to finance may well, in the first round, benefit mainly lower-middle-income groups running small and medium enterprises. But the second-round effects of these policies may be quite beneficial for the poor. In the case of improvements in access to finance, for example, dynamism among small and medium enterprises should turn out to be pro-poor on account of the employment opportunities they can generate.

Another illustration of this principle may be seen in the context of trade policy. As noted in Section 7, a large body of empirical work suggests that trade liberalization, and globalization more broadly, have increased inequality. It is quite likely that this increase has arisen because the opportunities from globalization are best seized by those with specific attributes (for example, a college education and the ability to speak fluent English) or those located in specific regions (e.g., coastal regions). The concern with inequality in opportunities does not imply that policies that liberalize or encourage trade be avoided. In the first place, the overall benefits from trade can be large. Moreover, trade liberalization may be poverty reducing even if it increases inequality.⁸⁹

Second, in so far as the distributional impacts of trade policy are concerned, well-designed social protection mechanisms and skills and training programs could be useful to mitigate some of the adverse distributional impacts that may accompany an increase in import competition. Similarly, where the export response of trade liberalization is muted—for example, the failure of labor-intensive exports to take off—a careful assessment of factors preventing the export take-off needs to be made, and the issue resolved.

Some redistribution will be inevitable in promoting greater equality of opportunity

Redistribution can occur at many levels. At one level, it can involve the redistribution of assets, such as land or access to it. At another level, it can involve realignment of the recipients of public expenditures and public investments. For example, some amount of switching of public expenditures from tertiary education to basic

education, and from urban to rural areas (from current norms and levels) may be critical for improving the access of the poor to basic social and physical infrastructure. Indeed, as Figure 8.1 reveals using household survey data from the Philippines, access to electricity and clean drinking water can be highly skewed (Ali and Son 2007).

The feasibility and effectiveness of carrying out any such redistributions will depend on various factors including those relating to “voice” and political power.⁹⁰ Encouraging accountability and giving voice to the disadvantaged facilitate redistributions and thus become important goals for public policy as well. Lindert (2004), in his path-breaking study of social spending in the contemporary industrial world, points to the important role of the spread of political voice in driving governments to devote more of their resources in spreading education and health care among the population at large.

Getting the design of redistributive policies right is critical

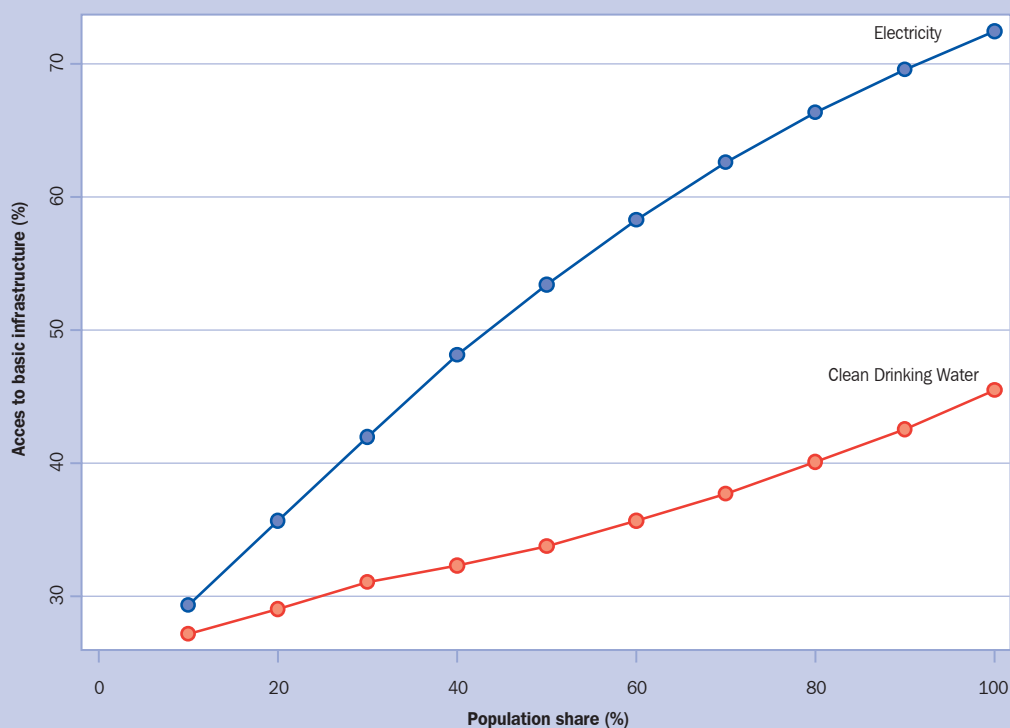
Correct design is crucial for securing the intended effects.⁹¹ Equally, it is vital that redistributive policies do not hurt the growth process. This may happen if redistribution damps the incentives for investment (say, through an overly steep tax on incomes or assets). It can also happen in other ways. For example, writing in the context of the Indian experience, Panagariya (2006) argues that, “Virtually all anti-growth and anti-poor policies India has been struggling to shed for two decades had their origins in the pursuit of equity...

⁹⁰ In the context of equalizing access to land, for example, it is worth noting that the most successful redistributions have taken place in fairly unusual political and historical circumstances. In the cases of the Republic of Korea and Taipei, China, for example, these took place against the backdrop of foreign occupation prior to and right after World War II. In the PRC and Viet Nam, egalitarian distribution of land took place in the context of communist revolutions. Is the redistribution of land possible in less extreme circumstances? While the answer to this question may well be “No,” recent experience does suggest that a variety of land reforms that improve the access of disadvantaged groups to land is possible.

⁹¹ For example, equity-related concerns have prompted the Indian Government to reserve 27% of positions in institutions of higher education managed by the central Government for “Other Backward Classes.” While it may well be that caste-based discrimination denies educational opportunities to the disadvantaged, a policy of reservations applied to higher education may not be a particularly effective remedy. For example, household survey data reveal that the underrepresentation of disadvantaged social groups in higher education can mainly be accounted for by their low higher secondary school completion rates (Hasan and Mehta 2006). Thus, the primary distortions creating unequal representation in college appears to lie earlier in education. Attention to the quality of basic education, not college reservation, may well be the economically “first-best” response.

⁸⁹ For example, Hasan, Mitra, and Ural (forthcoming) find that Indian states and regions that became more open to trade (as captured by having steeper declines in employment-weighted nontariff barriers) saw faster reductions in poverty.

Figure 8.1 Access to Electricity and Clean Water, Philippines, 1998
(opportunity curves for access to basic infrastructure)



Note: The opportunity curve captures both (i) the average opportunities available to the population, and (ii) how opportunities are shared or distributed among the population. When population share is 100, the point on the opportunity curve represents the mean opportunity available to the society: 46% and 73% of the population had access to clean drinking water and electricity, respectively. Note that individuals in the population are arranged in ascending order based on per capita income.

Source: Ali and Son (2007).

To be sure, equity-orientated policies that improve opportunities for the poor without compromising efficiency and growth do exist. The catch, however, is that once equity becomes central to policy making, self-interested lobbies capture the policies in the name of fairness. The policies then adopted are precisely those that impede growth and poverty alleviation.”

The challenge of designing redistributive policies that are well targeted, effective, and funded through mechanisms that do not detract from economic growth is certainly formidable. But the need for redistributive policies will not go away—especially if increasing inequalities turn out to be an enduring feature of developing Asia over the next two or three decades. It is imperative for all concerned stakeholders, especially policy makers, to learn from the mistakes and successes of past attempts at redistribution.

8.2 Key Areas for Policy Interventions

If equalizing opportunities becomes a central guiding theme for policy making, what does this mean in practical terms? In what follows we discuss some specific areas where policy action is needed, or needs

to be reinforced. We frame the remaining discussion in this subsection in terms of two broad areas requiring attention. The first covers policies that (i) improve access to basic health care and basic education, and (ii) strengthen social protection systems. The second enables the poor—defined broadly—to raise their incomes. Put differently, these are the set of policies that expand economic opportunities and ensure that the poor are in a position to benefit from them.

While the discussion on policy issues below does not become too specific, it does require public finance and public investments. Moreover, whether resolution of these issues requires a *greater* amount of public finance or not will depend on country circumstances, of course. But it seems safe to assume that a greater amount of public finance will be needed in many cases. How should governments mobilize these funds? A useful set of basic principles for mobilizing tax revenues in ways that minimize efficiency costs without undermining equity considerations is put forward in World Bank (2005). The principles include: making the tax base as broad as possible, keeping tax rates as low as possible, keeping indirect taxes as progressive as possible, raising personal income tax collections, making more

use of property taxes, considering inheritance taxes, and avoiding implicit taxes.

Basic Health, Basic Education, and Social Protection

Primacy of Ensuring Access to Basic Health and Basic Education

Inequalities stemming from circumstances start early in life. Particularly pernicious are the effects of malnourishment, poor health more generally, and lack of basic education. Ensuring that all members of society have access to basic health care (including adequate nourishment) and education is central to any attempt at equalizing opportunities.⁹² As we saw in Section 2, the poor are especially disadvantaged in this regard. The public sector has a crucial role to play in ensuring access to basic health and education. ADB (2006) provides a comprehensive discussion of the issues involved in meeting this challenge. Nevertheless, it is useful to go over some key points.

First, the public sector's role is indispensable for financing health and education, especially for the poor. While public financing for health and education is often lower (as a proportion of GDP) the lower the national income is, there is nevertheless room in some low-income countries for raising the resources available for the poor. Country-specific factors encompassing historical, political, and social considerations can be important determinants of whether social expenditures are relatively high or low.⁹³ In the case of Kerala state in India, for example, the vision and leadership demonstrated by local rulers in promoting education among the population in pre-independence India have been described as important factors explaining the superior human capital indicators of that state even today (Banerjee, Iyer, and Somanathan 2007). Conversely, support for public education has been weak where local elites have viewed education as a potential threat to their positions and/or skewed public finance for education toward supporting higher education.

Second, while public finance of health and education need not imply public provision, the reality is one of

a dominant role of the public sector. Unfortunately, evaluation of the services seems to show more instances of ineffective, rather than effective, public provision. While this appears to be partly the result of financial constraints—for example, a World Health Organization study found health systems to be largely ineffective below a certain amount of expenditure outlays, even after controlling for government-related effects (Murray and Evans 2003)—a failure of accountability on the part of governments seems to be an important part of the story.

Meeting both challenges—i.e., raising the amount of public financing for services that reach the poor, and ensuring that service delivery is of adequate quality—will not be easy. Commitment by the political leadership of a country, as well as a willingness to experiment with new modalities for improving the quality and effectiveness of delivery, are probably both necessary.⁹⁴ In so far as modalities for improving public service delivery is concerned, a growing body of work, including that based on carefully conducted impact evaluations, is shedding light on what types of approaches are working. While the specifics of what works and what does not depends on country context and local conditions, carefully targeted, results-focused interventions, and the use of nongovernment organizations for service contracting, along with standard “bricks and mortar” improvements in health and education infrastructure, appear to be highly effective in improving health and education outcomes among the poor (ADB 2006).⁹⁵

Social Protection as a Mechanism for Managing Risk and Accessing Economic Opportunities

Traditionally, social protection is equated with social assistance provided to vulnerable groups with no other means of support, such as victims of natural disasters or civil conflict, victims of health shocks, handicapped people, or the destitute poor. In this way, social protection has essentially been a “coping” mechanism. This rationale for social protection remains important.

⁹² It is obvious that good health has both intrinsic and instrumental value, as does basic education. As far as the instrumental value of basic education is concerned, several studies reveal how access to basic education has enabled farmers to switch from traditional to more productive modern techniques (see, for example, Foster and Rosenzweig 1996), as well as to switch from farming to nonfarming activities.

⁹³ There are several reasons for this, such as the relaxation of budgetary constraints and changing relative price structures—especially the price of nontradable labor inputs—as incomes rise, etc.

⁹⁴ Indeed, as noted in Banerjee, Iyer, and Somanathan (2007), many of the major expansions in public schooling have taken place as a result of top-down interventions. While these have also often involved colonial or autocratic regimes (for example, the building of more than 61,000 primary schools between 1973/74 and 1978/79 during the Suharto regime), the more general point is that a leadership committed to expanding public services can do so even if there is little (certainly explicit) pressure on it.

⁹⁵ For example, school meal programs have been found to be effective in several countries including Bangladesh and India in terms of improving not only schooling outcomes but also health indicators among recipients; yet they have not been particularly important in the Philippines.

Longitudinal studies of rural households clearly show the dramatic impact that illness can have on a household's poverty status over long periods of time.⁹⁶ But a growing body of evidence indicates that social protection systems serve two other purposes as well.

Seizing Economic Opportunities⁹⁷

By allowing individuals to better manage risks, social protection systems can enable vulnerable individuals to invest in potentially high-return activities. This is particularly important in an increasingly competitive and market-oriented environment where new (but often riskier) technologies and opportunities are available. Enabling vulnerable households to take advantage of these would not only improve their welfare but also stimulate economic growth through more productive use of assets and inputs and higher human capital accumulation.⁹⁸

The impact of vulnerability on productivity and profits. Vulnerability to income variability can lead individuals and households to underinvest in those high-risk activities that can maximize productivity or profits. This is most clearly documented in agriculture. Faced with highly uncertain weather- and technology-related environments, households engaged in agriculture resort to suboptimal choices to cope with risk due to limited insurance and credit availability. Some households are forced to make decisions to reduce the income risk they are exposed to by taking production or employment decisions to smooth income. This is direct income smoothing. Other households make non-optimal decisions to deal with the effects of income shocks, i.e., in the face of reduced income they try to smooth consumption through various means. This is called consumption smoothing. Both these decisions are usually non-optimal in terms of maximizing current and/or future productivity and profits.

Investing in human capital. Risk aversion and vulnerability to income shocks can curtail other kinds of investments with potentially high returns. Vulnerable households tend to discount the future highly, and investment decisions of a longer-term nature are likely to

be negatively affected by this discounting. Households sometimes hesitate to invest in the education of their children, or may pull them out of school as a result of economic shocks. This can have a detrimental impact on the economy in the long run where human capital investments are suboptimal. In addition, these kinds of decisions can also have the same entrapment effect discussed earlier (i.e., where vulnerability and poverty perpetuate further vulnerability and poverty, due to lack of education).

Unemployment, Income Loss, and Resistance to Market-Oriented Reforms⁹⁹

A related benefit of a well-designed system of social protection is that it can enable labor markets to match workers with jobs efficiently, particularly in the formal sector. In many countries in the region, existing mechanisms of coping with risks are provided through the worker's job (health insurance, disability benefits, pension program, etc.). Moreover, in some countries, India being a very prominent example, regulations that provide job security have allowed the government to avoid providing workers with social protection in the first place. In either case, it is only natural to expect workers in the formal sector to resist layoffs, even when these make perfect economic sense from the point of view of the enterprises to which they belong. If, however, workers could count on systems of social protection to provide (i) some basic protection from the loss of income and other job-related benefits (such as health insurance), (ii) efficient labor exchanges that increased the speed and quality of matching job seekers with available jobs, and (iii) subsidized retraining programs, it is likely that the resistance of workers – not only to layoffs, but also to more flexible rules for layoffs in countries where regulations providing job security exist and are binding – would be diminished.

Expanding Economic Opportunities

The second set of policies that are important for equalizing opportunities are those that expand the set of *economic*, or income-generating, opportunities available to the poor especially (again defined broadly). As we have seen from the evidence from previous sections, economic growth has raised expenditures/incomes of the poor and nonpoor alike. However, this increase among the poor has typically been far lower than among the nonpoor. What types of policies will ensure that the incomes of the poor rise more rapidly than they have? In what follows, we discuss briefly some of these policies.

⁹⁶ For example, a study of villages in rural India demonstrates that the illness of a key earning member as long as 25 years ago can drive a family both into a poverty trap, as a result of the loss of that member's earnings, as well as a debt trap, resulting from efforts either to meet consumption needs at the time of the illness or to meet expenses to treat the illness.

⁹⁷ This draws on Sipahimalani-Rao (2006).

⁹⁸ In this way, social protection policies act not only as "safety nets" but also as "springboards" to enable vulnerable households to break out of the poverty-vulnerability trap by allowing them to invest in building human capital and to make profit-maximizing decisions (World Bank 2001).

⁹⁹ This draws on ADB (2005).

Improving Productivity and Incomes in the Rural Economy¹⁰⁰

A majority of the poor in developing Asia continue to reside in rural areas. For example, around 77% of the total poor (in terms of the official poverty line) in India's major states lived in rural areas in 2004.¹⁰¹ Moreover, their livelihoods are intimately connected to agriculture. These factors suggest that policies aimed at improving productivity in the agriculture sector, and in rural areas more broadly, will be important for raising incomes of the poor. This is not to deny the importance of policies that generate growth of industry or services, or the urban sector. In fact, economic development is all about structural transformations – transformations that involve a diminution of the traditional rural economy based on agriculture and expansion of modern industry and services, as well as urbanization (ADB 2007b). However, from the point of view of reducing underemployment and raising incomes of the poor, the pursuit of a policy package that is mainly focused on expanding the modern sector with a heavy urban bias has limitations. A critical issue is how large the labor pool is in the rural economy. If it is very large (as in many DMCs), it is unlikely that the modern sector will be able to absorb it to the point that wages in the rural sector will increase significantly. For this reason, it is necessary to pursue a complementary policy of increasing the supply price of labor directly in the rural sector by raising productivity in agriculture.¹⁰²

Increased public investments of different types have a critical role to play in allowing farm productivity and incomes to improve. In addition to the investments in basic health and education already discussed, improving the access of the rural poor to irrigation, electricity, transport services, agriculture extension services, and financial services (including credit and insurance) are all vital for raising farm productivity, and thereby incomes from agriculture (Bolt 2004). At the same time, if ownership or access to land is highly skewed, increases in agricultural productivity may well be associated with only minor increases in farm incomes of the poor (and also leave the supply price of labor essentially unchanged). In such cases, implementing mechanisms for improving the access of the poor to land is essential.

¹⁰⁰ A comprehensive discussion is provided in ADB (2005).

¹⁰¹ See Section 5 for a list of these states.

¹⁰² When a large portion of the labor force is employed in the primary sector, it is the productivity of this sector that sets the supply price of labor in the rest of the economy, and unless the external sector of the economy is large relative to GDP, wages in the economy will not increase unless the supply price goes up through an increase in physical productivity in agriculture (e.g., increasing yields per acre) (Mazumdar 1999).

Increased productivity on the farm also brings benefits for the nonfarm rural economy.¹⁰³ In the first place, rural roads, electrification, and improved financial services also benefit the expansion of the nonfarm sector. Second, increased incomes from improved farm productivity typically have a beneficial impact on the nonfarm economy by raising demand for its output.¹⁰⁴ But more needs to be done for the rural nonfarm economy given its tremendous potential.¹⁰⁵ For example, producer services entailing technical assistance, assistance with business plan formulation and accessing price information, and trade fairs, etc., are all needed.

Urbanization and the Development of New Centers of Growth

While rates vary across developing Asia, the region as a whole is seeing fairly rapid rates of urban growth.¹⁰⁶ Globally, urbanization has been closely linked to the reduction of poverty and increasing incomes in today's industrial countries. The situation of developing Asia is unlikely to be different. However, DMCs face several challenges in ensuring that their experience with urbanization is also one associated with reductions in total poverty – and not just the transmutation of the rural poor into the urban poor – and with steadily rising incomes.

It is widely believed that a central driving force behind the development of modern urban centers is increasing returns to scale in the modern industry and services sectors. This, combined with the presence of positive externalities from locating close to consumers and other producers and low transportation costs, is probably the main reason behind the formation of megacities. But the drive to urbanize is not always sustainable (Tandon 2005). There are several historical examples of urban centers declining after long periods of sustained growth, mostly as a result of the negative externalities of large populations living close together

¹⁰³ The rural nonfarm economy is dominated by small, highly labor-intensive enterprises engaged in agricultural processing, manufacturing, and services. Often, their small scale and labor intensity generate meager earnings. Given the close links between agriculture and the nonfarm economy, especially the part related to agroprocessing, measures that raise productivity and value added in agriculture also benefit the nonfarm economy. However, special attention needs to be given to the nonfarm sector, beyond efforts to raise agricultural productivity.

¹⁰⁴ See ADB (2005) for more detailed discussion.

¹⁰⁵ This potential, and the benefits of realizing it, are perhaps best seen in the light of the PRC's experience with township and village enterprises. See Lin (2004) for details.

¹⁰⁶ Already in 2003, nine out of 20 global megacities – i.e., those with populations of 10 million or more – were located in DMCs (Tandon 2005).

overcoming the economic advantages that urbanization affords. Several of Asia's megacities are in danger of experiencing a level of overcrowding that represents a real threat to overriding the positive economic advantages, such as generating large numbers of well-paying and productive jobs.

Significantly, the majority of Asia's urban population still lives in smaller cities and towns, many of them in peri-urban areas. A key challenge over the medium term will be to develop the smaller cities and towns into vibrant centers of economic growth. Promoting the agglomeration of industry and services sector activity there would appear to be a logical step in promoting large-scale employment opportunities. For example, studies have shown that enterprises in small towns tend to grow faster than those in outlying areas. This is due to various economies of agglomeration.

Encouraging such new agglomerations will not be easy, however, as investments and resources tend to seek the better infrastructure of existing large cities. Improving the infrastructure of small towns and improving the regulatory environment—including the system of land rights—will probably be essential. These investments could, however, have large payoffs and relieve the pressures on Asia's megacities. Measures will also be required to facilitate migration from backward regions. Factors that inhibit migration include explicit policy-induced restrictions on migration, such as the *Hukou* system in the PRC (Tao 2006), limited public housing facilities in emerging economically dynamic locations, and the fact that it can be “dangerous to travel outside of one's social network” (Banerjee and Duflo 2007). A key challenge is designing effective and viable systems of social protection for new migrants, as well as the family members of migrants who remain in rural locations (especially if they are critically dependent on the migrant for their well-being).

Harnessing Private Initiative for Generating New Economic Opportunities: The Role of Industrial Policies¹⁰⁷

While market forces and private initiative are today widely acknowledged to be potent generators of economic opportunities, one can contrast two fairly different views on the policies and processes that can get entrepreneurs excited about investing in an economy (Rodrik 2003). One view emphasizes cumbersome and

misguided government regulations as the constraints to entrepreneurship and a vibrant private sector. Another emphasizes market imperfections in developing countries. According to this approach, the issue is not one of getting government out of the way of the private sector, but rather the challenge is for government to find ways to crowd-in private investment.

According to the first view, government-imposed imperfections, which include macroeconomic instability and high inflation, arbitrary regulations, and corruption, among others, are holding back the private sector. According to the second view, however, economies can get stuck in a “low-level equilibrium” due to the nature of technology and markets, even when government policy does not penalize entrepreneurship (Rodrik 2003 and 2004).¹⁰⁸

Both of these views have merit, because both factors may be at work, even within the same country. Thus while learning externalities may be holding back certain types of investments, other investments could be constrained by too burdensome regulation. Consider the wide range of regulatory policies on starting and closing a business. These may easily result in lower entry than otherwise; they may also lead to a lack of competition for existing firms. The result is not only lower investment than otherwise, but also lower efficiency among incumbents. Similarly, regulatory hurdles in closing a business prevent firms that are currently inefficient from exiting the market. They may also deter entry, by artificially raising the cost of exiting if market conditions ultimately prove too difficult.

However, industrial policies may also have a crucial role to play in generating new economic opportunities by encouraging restructuring, diversification, and technological dynamism beyond what market forces on their own would generate. Policies for economic restructuring and diversification—essentially, industrial policies—need not be restricted to industry. They also apply to the development of nontraditional activities in agriculture or services. Additionally, the use of industrial policies should not imply that governments make production and employment decisions. Instead, their use requires governments to play a strategic and coordinating role in the development of nontraditional activities—activities where the underlying costs and

¹⁰⁷ A comprehensive discussion is provided in Chapter 10 of Felipe and Hasan (2006).

¹⁰⁸ Rodrik (2003) points out that, even though developing countries need not create new technologies, they do need to adapt technologies that are new to them. This process of adaptation usually requires a certain amount of human capital internal to the individual and the firm. But, crucially, both the costs of and returns to adaptation are often subject to externalities.

opportunities are unknown to begin with and unfold only when such activities start. The main challenge is getting the design of industrial policy correct in many DMCs, where markets and institutions are less developed than in industrial countries. More research in uncovering the nature and processes that can lead to more effective public-private partnerships in expanding economic opportunities is likely to be a high value-added activity.

9. Concluding Remarks

While developing Asia's economies continue to grow at some of the fastest rates in the world, concerns about widening inequalities in standards of living, and of the poor being bypassed by growth, are becoming widespread. The motivation for this special chapter stems from these concerns. Although inequalities exist in many dimensions relevant to human welfare—including access to basic health care and education, political voice, and justice—this chapter has focused on income inequalities and how these have evolved over the last decade. For this, the chapter has relied on data from nationally representative household surveys of income and, especially, consumption expenditure. These are considered by many experts to be a more reliable measure of a household's access to goods and services than income in countries with large agrarian populations and self-employed workers.

A review of these data reveals that measures of relative inequality increased in many DMCs over a roughly 10-year period spanning the early-1990s to the early-2000s. In terms of the Gini coefficient for incomes and expenditures, increases were seen in 15 out of 21 DMCs, with especially large increases in Bangladesh, Cambodia, PRC, Lao PDR, Nepal, and Sri Lanka. In the case of the PRC, the Gini coefficient is estimated to have grown to around 47 in 2004—a figure in stark contrast to numbers associated with the “equity with growth” experience of developing Asia's four NIEs (especially the Republic of Korea and Taipei, China), and closer to the much higher figures typically associated with Latin America.

As for absolute inequality, these have increased virtually everywhere. Thus, even in the case of countries such as Indonesia and Malaysia, where Gini coefficients have declined over the last decade, the absolute dollar

gap between per capita expenditures/incomes of the top 20% and bottom 20% has increased.

What factors account for increases in inequality? Decompositions of inequality indicate that differentials in incomes between rural and urban areas, between leading and lagging subnational regions, and especially between the college educated and the less educated have been key drivers of increasing inequality.

These increases have, however, usually taken place alongside gains in average expenditures and incomes for the poor as well. Thus, the increases in inequality in Asia are not so much a phenomenon of “the rich getting richer and the poor getting poorer.” Instead, a more accurate description of the situation is one where the rich have grown richer faster than the poor. As a result, poverty rates have declined in the region, despite growing inequality.

Nevertheless, rising inequalities are a concern. They suggest a slower pace of poverty reduction for a given amount of growth. In other words, economic growth, which has been so crucial to poverty reduction in region, may lose some of its effectiveness if inequalities continue to grow. Rising inequalities also represent a potential threat to the sustainability of the process of growth itself. Not only can they introduce or exacerbate costly social divisions, they can also adversely affect the quality of policies and institutions fundamental for economic growth. The latter effect can take place either through debilitating forms of populism, or through the capture of policies and institutions by elites for their own benefit.

For these reasons, rising inequalities cannot be ignored by policy makers in the region, and in fact, many countries have explicitly recognized this (Ali and Zhuang 2007). In India, the 11th Five-Year Plan combines the objective of raising economic growth with making it more “inclusive.” In the PRC, the creation of a “harmonious society”—a concept very closely related to closing widening gaps between different sections of society, and thus tackling growing inequality—has been accorded top priority in its own 11th Five-Year Plan. In Thailand, a key element of its “sufficiency philosophy” is growth with equity. A similar theme can be found in Viet Nam's socioeconomic development strategy.

A variety of policy initiatives has been put in place or are in the planning stage. In broad terms, these initiatives are headed in the right direction. As noted above, an

important element in the growing inequality is slow growth of rural incomes. An important factor for this is slow growth of agriculture—a sector on which a large proportion of the rural population depends, directly or indirectly. But growth of the rural nonfarm sector could also be better. Initiatives such as *Bharat Nirman* in India—which seeks to expand rural electrification and rural roads, among other things—and large increases in expenditure on the agriculture sector alongside reductions in agricultural taxes and fees in the PRC, are being undertaken precisely to address rising urban-rural disparities (Chaudhuri and Ravallion 2007). Similarly, India's National Rural Employment Guarantee Act, which guarantees 100 days of employment a year for at least one adult in every rural household, and the PRC's *Dibao* (minimum livelihood guarantee scheme) are social protection schemes designed to help the poorest and most vulnerable. Finally, increases in outlays for basic education and health care, especially in disadvantaged rural areas, are being planned in many countries.

Implemented effectively, these various policy initiatives could prove to be important instruments in fighting poverty. They could also damp increases in inequality—not just inequality in outcomes such as incomes and expenditures, but also inequality in opportunities, including those stemming from a lack of access to basic education and health care.

It is important to recognize that some of the increases in inequality seen in the region may be a natural outcome of the development process. The process of economic development is unlikely to start in every part of an economy at the same time and rising inequality is not unusual during periods of rapid growth and major structural change. The increasing earnings differentials between the college educated and less educated in many countries in the region may reflect just such a phenomenon. In particular, DMCs have

embraced greater market orientation and international integration. It may well be that the more educated are the best placed to make the most of the opportunities that market reforms and international integration are bringing. Why exactly this is happening—again a contrast may be made with the NIEs' earlier “growth with equity” experience—is important for the design of public policy and deserves careful study.

More generally, the fact that increasing inequality may be intimately tied to market-oriented reforms and globalization does not call for them to be “rolled back.” Their overall gains can be quite large. Instead, policy actions are required on several fronts. First, complementary policies that can counter the negative distributional impacts of market-oriented reforms and globalization are needed (for example, better social protection systems and appropriate skills and training programs).

Second, a determined effort involving a partnership between the public and private sectors is needed to develop new economic activities and industries that generate new employment opportunities that do not bypass the poor.

Finally, policy makers have to focus on radically improving the *quality* of basic health care and education available to Asia's disadvantaged. Inequalities in life start early—and they begin with extreme circumstances that deny millions the opportunity to have adequate nutrition, health, and basic education. The key challenge to public policy here lies in not just increasing the amount of public expenditures—as many governments in the region now seem to be committing themselves to—but also ensuring that these are well targeted, effective, and funded through mechanisms that do not detract from economic growth.

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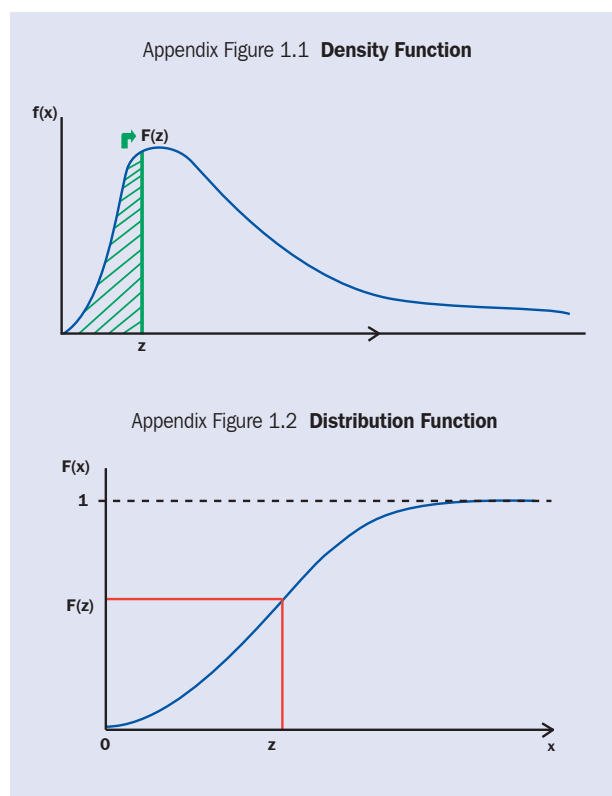
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Appendix 1

Describing Income Distribution Data

Statistical distributions are used in describing the distribution of income among the population in a given country. Information on statistical distributions is encapsulated in the *density function*, $f(x)$, or the *distribution function*, $F(x)$. The distribution function in particular is intuitive and has information that is easy to understand. For any given income level, x , the distribution function gives the proportion of the population whose incomes are less than or equal to x . For example, if z represents the poverty line then $F(z)$ shows the proportion of the population who are poor. The figures below show the density and distribution functions of a given income distribution. For any given income level, x , the distribution function value, $F(x)$, is given by the area (shaded in the figure below) under the density function $f(x)$ up to the level x .



A number of useful descriptive statistics such as the mean (per capita) income, median income, and various numerical measures of inequality can also be derived once the information on $f(x)$ or $F(x)$ is given.

It is usually convenient to study the nature and properties of the income distribution by using a specific representation of the income distribution. Distributions like the Pareto, log-normal, generalized Gamma,

Weibull, generalized Beta, and many others are used in modeling income distribution data. Kleiber and Kotz (2003) provide an excellent introduction to the whole range of statistical distributions used in studying inequality.^{109, 110}

Appendix 2

Estimating the Variance for Measures of Income Inequality

When income distributions are compared across areas or across time, the sampling variability or the precision of estimates from survey data has to be accounted for, especially when conclusions need to be drawn using formal statistical inference. Without the standard errors of the estimates, these measures of income inequality can only be descriptive rather than inferential tools.

Estimating the variance of measures of income inequality, such as the Gini coefficient and Lorenz curve, is not straightforward because the variance structure is intractable for these measures, since they are nonlinear functions and some of them depend on the ordered observations or quantiles. Moreover, income data are usually from surveys that have complex sampling design. Because of these issues, the current approaches veer away from conventional variance estimation methods, instead employing approximate variance estimation techniques.

A few of these techniques used are resampling, linearization, and some variation of conventional variance estimation methods. Resampling methods, such as jackknife and bootstrap, require high computing power because both methods multiply the original sample many times over. The jackknife procedure generates new samples by deleting one or more data points from the original sample. An estimate of the statistic of interest is computed from each of the new samples and the variance of the estimate is derived from this set of estimates. The bootstrap approach estimates the sampling distribution of a population from a set

¹⁰⁹ In order to be able to make use of these distributions, it is important to select a suitable distribution and fit it to the income distribution data collected. These data can be in the form of incomes of a large number of individuals selected randomly from a given population (unit record data) or it can be in the form of grouped data where income distribution data are provided in a compressed form, either of the average income and income share within different income class intervals, or of the income shares of different size classes (such as income share of the bottom 10%, top 20%, etc.).

¹¹⁰ Of course, data on income distribution from a given country may also be presented in the form of a Lorenz curve, as we have seen in Section 4.1.

of new samples that were generated by drawing with replacement from the original data.

Although the computation of variance using the linearization method is simple, this method involves theoretical derivation of the variance estimator and density estimation. An adaptation of the conventional variance estimation method is the grouped balanced half-sample method in which sampled primary sampling units (PSUs) in each stratum are randomly divided into two groups and the balanced replication variance estimation method is applied on the basis of the two groups.

Kovacevic and Binder (1997) obtained the following approximate variance estimator using the linearization method:

$$v_{EE} = \sum_h \frac{n_h}{n_h - 1} \sum_c (u_{hc}^* - \bar{u}_h^*)^2,$$

where u_{hc}^* varies by measure. Given that w_i is the survey weight of the i^{th} sample unit, the cumulative distribution function (CDF) is

$$\hat{F}(y) = \frac{\sum_{i \in S} I\{y_i \leq y\} w_i}{\sum_{i \in S} w_i}$$

then for the Gini index,

$$u_{hc}^* = 2 \frac{\hat{A}(y_{hci}) y_{hci} + \hat{B}(y_{hci}) - \hat{\mu} \frac{\hat{G} + 1}{2}}{\hat{\mu}}; \quad A(y) = \hat{F}(y) - \frac{\hat{G} + 1}{2};$$

$$\text{and } B(y) = \sum_s w_{hcj} y_{hcj} I(y_{hcj} \geq y)$$

For the Lorenz curve,

$$u_{hc}^* = \frac{(y_{hci} - \xi_p) I\{y_{hci} \leq \xi_p\} + p \xi_p - y_{hci} \hat{L}(p)}{\hat{\mu}}$$

Kovacevic and Yung (1997) conducted an empirical study of the methods mentioned above and concluded that the linearization method performed considerably better than the other methods because it rendered variance estimates with the smallest relative bias, the smallest relative variation, and very good coverage properties in terms of the 95% confidence interval. Bootstrap is considered the better resampling method because the jackknife method performed poorly for all measures except the Gini index.

The linearization and bootstrap methods were compared using the per capita expenditure data from the 1994 and 2003 Philippine Family Income and Expenditure Survey and STATA algorithms that were developed specifically for applying these methods on complex survey data. It was found that both methods render very similar estimates of the Gini (ranging from 0 to 1 here) and its variance (Appendix Table 2.1). However, bootstrap required more computing power and took longer.

Appendix Table 2.1
Comparison of Linearization and Bootstrap Methods

| Method | Year | Gini (per capita expenditure) | Standard Error | 95% Confidence Interval | |
|---------------|------|-------------------------------|----------------|-------------------------|-----------|
| | | | | Lower | Upper |
| Linearization | 1994 | 0.4293854 | 0.00241783 | 0.4246465 | 0.4341243 |
| | 2003 | 0.4404104 | 0.00203525 | 0.4364214 | 0.4443994 |
| Bootstrap | 1994 | 0.4293854 | 0.0024726 | 0.4245393 | 0.4342315 |
| | 2003 | 0.4404104 | 0.0018878 | 0.4367104 | 0.4441104 |

Appendix 3

Distribution Data Used in Section 4

The analysis of Section 4 is based on grouped distributions of per capita expenditures/incomes. A key source of information is the World Bank's PovcalNet online database, which provides data on the distribution of per capita expenditures (or incomes).¹¹¹ PovcalNet also reports monthly mean per capita expenditures in purchasing power parity (PPP) 1993 (consumption) dollars corresponding to these distributions.

The information on distributions from the PovcalNet database has been augmented or replaced as follows.¹¹²

Bangladesh: distribution data are based on micro data from the Household Income and Expenditure Survey (2005).

Cambodia: distribution data are from the World Bank "Poverty Assessment 2006" report prepared by the World Bank's East Asia Department.

India: distribution data were obtained for National Sample Survey consumer expenditure survey of Round 61 (2004/05) from NSS Report No. 508.

¹¹¹ Available: <http://iresearch.worldbank.org/PovcalNet/jsp/index.jsp>.

¹¹² For consistency purposes, the analysis of Section 4 is based entirely on grouped distribution data. Thus, even where micro data were available, these were used to generate decile-based distribution data.

Republic of Korea: distribution data pertain to household income for urban wage-earning households published by the Korea National Statistical Office.¹¹³ Mean household income was divided by average household size to arrive at a proxy for mean per capita income.

Malaysia: distribution data are based on micro data from the Household Expenditure Survey for 1993/94 and 2004/05.

The Philippines: distribution data are based on micro data from the Family Income and Expenditure Survey 2003.

Taipei,China: distribution data pertain to annual household income reported in the World Institute for Development Economics Research World Income Inequality 2a database. Mean household income was divided by average household size to arrive at a proxy for mean per capita income.

Turkmenistan: distribution data are from reports of the Turkmenistan Living Standard Surveys of 1998 and 2003.

Viet Nam: distribution data came from the Government Statistics Office.

In all these cases, mean per capita incomes/expenditures were converted from local currency units into 1993 PPP dollars (and expressed in monthly terms) using (i) PPP exchanges rates (consumption) from the World Bank and Penn World Tables (Taipei,China); and (ii) CPIs from the World Development Indicators and national sources (as needed).^{114, 115}

Appendix 4

Regression-based Decompositions of Inequality

The results described in Tables 5.5, 5.9, 5.12 and Box Table 5.2.3 are based on the methodology of Fields (2003)

¹¹³ Since the share of the urban population was already about 76% in 1993, the limitation to the urban sector may not be that problematic.

¹¹⁴ Mean per capita expenditures for Cambodia, Lao PDR, and Viet Nam were expressed in 1993 PPP dollars using information contained in the World Bank's *East Asia Update* (various issues) used in conjunction with the World Bank's "Poverty Assessment 2006" for Cambodia.

¹¹⁵ Separate rural and urban CPIs were used to convert the monthly mean per capita expenditures into 1993 PPP dollars in the case of the Indian data for 2004/05.

and generated as follows. First, regression equations of the following form are estimated:

$$\ln(Y_{it}) = \alpha_i + \beta_i X_{it} + \varepsilon_{it}$$

where the subscript i refers to the household, Y refers to the per capita expenditures of the household, and X is a $j \times 1$ vector of explanatory variables composed of relevant household characteristics. Then the share of the log variance of per capita expenditures that is attributable to the j^{th} household characteristic, S_j , can be estimated as:

$$S_j(\ln Y) = \frac{\beta_j \times \sigma(X_j) \times \text{cor}(X_j, \ln Y)}{\sigma(\ln Y)}$$

where β_j is the estimated coefficient of the j^{th} household characteristic, and X_j is the value taken on by the j^{th} household characteristic. The S_j 's will be independent of the inequality measures used. The change in inequality over time can also be decomposed using the S_j 's estimated above. However, the results will depend on the inequality measure used. See Fields (2003) for details.

Appendix 5

| Appendix Table 5.1 Variable Categories | | |
|--|-------------------------------|---|
| Variable | Country | Categories |
| Rural/Urban | India, Indonesia, Philippines | 1. Urban |
| | | 2. Rural |
| Gender | India, Indonesia, Philippines | 1. Male |
| | | 2. Female |
| Production Sector | India, Indonesia, Philippines | 1. Agriculture |
| | | 2. Industry |
| | | 3. Services |
| Occupation | India, Indonesia, Philippines | 1. Highly skilled occupations (professionals, executives, managers, etc.) |
| | | 2. Other occupations |
| Social Group | India | 1. Scheduled tribe or scheduled caste |
| | | 2. Nonscheduled tribe or caste |
| Education | India | 1. Below primary (not literate, literate nonformal, below primary) |
| | | 2. Primary (primary, middle school) |
| | | 3. Secondary |
| | | 4. Tertiary and above (graduate and above) |
| | Indonesia | 1. Below primary |
| | | 2. Primary (primary, junior high school) |
| | | 3. Secondary (senior high school, diploma I/II) |
| | | 4. Tertiary and above (academy/diploma III, university/diploma IV) |
| | Philippines | 1. Below primary |
| | | 2. Primary |
| | | 3. Secondary |
| | | 4. Tertiary and above |