CHAPTER TWO

Conceptualizing and Measuring Poverty

Amartya Sen

THEORY AND PRACTICE

The period of intense exploration of conceptual foundations of normative measurement that Tony Atkinson's (1970) classic paper on the evaluation of inequality initiated seems to have given way to a relative neglect of conceptual issues, replaced by greater involvement with actual measurement and estimation, applying well-established approaches and measures. It is not that these empirical exercises have not been worthwhile. Certainly, we know a great deal more about the state of inequality and poverty in the world than used to be the case. But there is room for more conceptual questioning and greater foundational scrutiny at this time, both for reexamining old problems (they rarely go away) and for addressing new questions that have emerged in the contemporary world. Indeed, the practical world is a constant source of conceptual challenge, and it is right that we should try to reassess our concepts and ideas in the light of the manifest problems that empirical work identifies.

Let me illustrate with the recent factual debates on the state of inequality and poverty in China—a subject that has engaged much high-powered attention in the last few years. Over the last two decades China has had an altogether exceptional record of rapid economic growth, which has boosted the country's average income faster than anywhere else in the world. The impact of China's fast economic growth can be seen also in the swift reduction in China of the number of poor people—the population below what is agreed to be the minimally acceptable income level. Although the exact estimates of the extent of the decline of poverty in China remain an important

subject of debate as well as further empirical research, the fact of a sweeping poverty reduction is not under dispute. In fact, China is recognized to be the principal factor behind whatever downward trend that can be seen in the incidence of poverty in the world as a whole. Indeed, the trend of world poverty looks totally different depending on whether or not China is included in the world statistics.

Despite such success, there are reasons for concern that demand further investigation and scrutiny. First, the poverty-removing character of Chinese economic expansion was much sharper in the early post-reform period than it was later. Second, although the concern in the field of poverty is comparative deceleration, in the related but distinct perspective of inequality, the problem takes the form of an actual increase in income inequality. For example, the Gini coefficient, a commonly used measure of the extent to which the actual income distribution differs from a hypothetical distribution in which each person receives an identical share, seems to have jumped from 0.382 to 0.452 between 1988 and 1995, a remarkably speedy increase in light of international historical experience.¹

There have been other estimates as well, and for slightly different periods, but the basic result that there has been quite a large increase in income inequality in China seems hard to dispute. For example, Ravi Kanbur and Xiaobo Zhang (2001), using a somewhat different method, calculate that the Gini coefficient for income inequality in China went up from 0.217 in 1985 to 0.303 in 1999—again a remarkably big jump.² Kanbur and Zhang find similar results also with another measure of inequality, namely, a "generalized entropy index" from a class of measures that Theil (1967) first explored (another measure on which I will comment further, later on in this chapter).

This development has a profound influence not just for China, but also for the world.³ Again, concentrating on the Gini coefficient as a measure of inequality, Branko Milanovic (2002) finds, using household surveys across the world, that the Gini coefficient for the world as a whole (based on a broad sampling of countries) has gone up from 0.628 in 1988 to 0.660 in 1993. In explaining the causation of this retrograde movement, Milanovic identifies the powerful influence of the contrast between the "slow growth of rural per capita incomes" in China (among other populous Asian countries) compared with the "fast growth of urban China" (along with the OECD countries). Indeed, the rural-urban contrast in Chinese income growth alone is responsible for a sizeable share of the rise of the world Gini coefficient.

So there is an important issue to be addressed here in discussing poverty and inequality in China. The continued great achievements in income growth seem to have been accompanied, in the more recent years, with an intensification of inequality, and even the tremendous accomplishment in poverty reduction has been uneven over time and regionally disparate.

CRITICAL EVALUATION ISSUES: SPACE AND MEASURES

The statistics with which the inequality literature is concerned have been primarily that of incomes. This focus is the case with the recent Chinese discussions on inequality and poverty as well. The "space" of incomes has been the principal—often the unique—focus of attention of those who have to examine the trend of inequality and poverty in the world, including these trends in China. The dominance of the income perspective has been remarkably large in empirical works on inequality and poverty.

Within that space of incomes, the specific measure that has been most widely used is the Gini coefficient. This is especially so in the literature related to Chinese inequality, even though it is sometimes supplemented by other measures, such as the generalized entropy index. The choice of an exact measure is a subject matter that needs to be identified for further scrutiny.

The measure of poverty most commonly used in examining poverty in the world in general, and specifically in assessing poverty in China, is the head-count measure of poverty. It has been used both in terms of the absolute number of the "poor" people below the poverty line, and in proportionate terms: as the fraction of the total population who have below-poverty-line income. This measure has sometimes been supplemented by other measures, such as the aggregate size of the income shortfall of the poor (expressed as a fraction total income), and also "aggregate squared poverty gap" (P₂) as the proportionate sum of the squared gaps between the poverty line threshold and the actual income of poor persons respectively (a measure that was, in fact, devised by Cornell economists Foster, Greer, and Thorbecke).⁴

Questions can be raised both about (1) the appropriateness of the *space* of incomes, and about (2) the specific *measures* used in the income space. It is useful to address these conceptual issues not just to see how robust the recent findings are, but also—and indeed much more importantly—to place future assessments of inequality and poverty in the world, including in China, on a robust intellectual footing. We have to see how the choice of space and

that of measure tallies with the motivation that makes us interested in evaluating inequality and poverty in the first place. The measurement of inequality and poverty has to be in line with the motivating concerns related to equity and justice.

SPACE: INCOMES AND CAPABILITIES

I begin with the choice of space, that is, the determination of the variables in terms of which inequality and poverty are to be assessed. Is income the right space? In fact, in many ways it must be so. Inequality of incomes cannot but be relevant to evaluative assessment, because income is a general-purpose means the shortage of which can reduce a person to serious deprivation. Furthermore, in explaining major economic catastrophes, sudden downturns of incomes of the vulnerable population have great explanatory power.

This connection is well illustrated, for example, by the recent "Asian economic crisis," beginning in 1997, which afflicted countries such as South Korea, Indonesia, and Thailand, where the income decline of those who lost jobs (and who had no social security support) served as the prime mover for the tremendous hardship that ensued. Similarly, the Russian economic crisis of the late 1980s and the 1990s with its botched attempt at sudden privatization and marketization, can be, to a considerable extent, explained by how incomes took a sudden downturn.

To turn to a different—and an enormously distressing—matter, in a troubled period in China's own history, in the causal process that led to the starvation and massive mortality that followed the failure of the "Great Leap Forward," a central role was played by declines in incomes and entitlements, properly estimated. Although a fall in food output and availability was a major factor behind the sharp drop in entitlements (as is the case in some famines but not in others), a fuller understanding of the *pattern* of deprivation and its distribution over the population requires us to go beyond the food availability statistics (while taking due note of them). Indeed, failures of entitlement closely linked with declines in incomes and economic solvency provide a more effective perspective on starvation than concentration on food alone can provide.⁵

The entitlement approach to famines takes food supply to be one factor among many that can influence a collapse of entitlements and drastically reduce the command that vulnerable groups have over food needed for consumption and survival. The command over food depends on income levels, appropriately assessed, including taking note inter alia of the influence of production (including food production) and distribution arrangements (including that of food). It is important to see food availability as one influence among others that affect entitlements, without its being the only influence, nor necessarily the most important causal factor. Because this point is often missed (and it is often wrongly presumed that entitlements must be independent of food availability), the fact that food availability figures among other factors in the determination of entitlements is worth stressing.⁶

The analysis of Justin Lin and Dennis Yang (2000) has shown precisely how the perspective of entitlements, in which incomes (when they are adequately characterized) play a major role, can provide an illuminating explanation of the pattern and intensity of the deprivation that occurred in China during 1959–1961.⁷ No matter what other space we use for assessing inequality and poverty, there will almost always be room for discriminating use of incomes and income-related statistics, particularly in explaining major deprivations related to economic causes.

However, having said that, it is also necessary to ask whether the space of incomes, despite its relevance, can really be the appropriate informational basis for assessing *equity and social justice in general*, and if it is inadequate, why it is so? These questions relate to our understanding of what the underlying goals of development are, and how, in particular, the quality of human life and substantive freedoms enjoyed by people can be best assessed. Whereas income is merely one of the *means* of good living, we have reason enough to look directly at the quality of life that people are able to lead, and the freedom they enjoy to live the way they would like. If life consists of various things that people are able to do or be (such as being able to live long, to be in good health, to be able to read and write, and so on), then it is the capability to function that has to be put at the center stage of assessment.

It is precisely the distinction between incomes, on the one hand, and well-being and freedom of persons, on the other, that drives a wedge between income information and the evaluative foundations of justice and equity.⁸ Not only can the interest in capability influence the assessment of inequality, but also poverty has to be seen, in this perspective, as failures of certain basic capabilities (rather than of lowness of income per se).

Indeed, in the fourth century BC, Aristotle had pointed out, at the very beginning of his *Nicomachean Ethics*, that income and wealth are only instrumentally valued, and we have to go deeper to understand what makes human life rich and human freedoms effective. As he put it, "wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else." That distinction had, in fact, been noted, in one way or another, in other ancient civilizations as well, including China (for example in the writings of Confucius). Similarly, in India, Gautama Buddha's famous quest in search of enlightenment, two centuries earlier than Aristotle, was directly linked to his recognition that income and wealth (which, as a prince of a prosperous kingdom, he plentifully had) could not prevent, for anyone, the adversities of illness, old age, and death, nor the penalty of ignorance, illiteracy, and lack of enlightenment.¹⁰

If we see development in terms of enhancement of human living and the freedom to live the kind of life that we have reason to value, then there is a strong case for focusing on "functionings" and the "capability" to function. The capabilities of relevance are not only those that relate to avoiding premature mortality, being in good health, being schooled and educated, and other such basic concerns, but also various social achievements, including—as Adam Smith (1776) emphasized—being able to appear in public without shame and being able to take part in the life of the community.¹¹

It cannot, of course, be doubted that having a higher income will, *given other things*, help the achievement of a larger capability to function. But income is only one input among many (our capabilities also depend, for example, on social and political opportunities), and furthermore, given the level of income, our capability prospects depend also on personal factors (such as proneness to inherited diseases) and on the environment (including the epidemiological environment) in which people live.

CAPABILITY POVERTY AND RELATIVE DEPRIVATION

The connection between income and capability is also made more complex by the relevance of relative deprivation. As Adam Smith noted, the social capabilities may depend on a person's relative income vis-à-vis those of others with whom he or she interacts. A person's ability to be clothed appropriately (or to have other items of consumption goods that have some visibility or social use), given the standards of the society in which he or she lives, may

be crucial for the capability to mix with others in that society. This relates directly to relative income vis-à-vis the general level of prosperity in that community. A relative deprivation in terms of income can, thus, lead to absolute deprivation in terms of capabilities, and in this sense, the problems of poverty and inequality are closely interlinked. For example, being relatively poor in a rich country can be a great capability handicap, even when one's absolute income is high in world standards. In a generally opulent country, more income is needed to buy enough commodities to achieve the *same social functioning*. This foundational idea relates to a number of contemporary concerns, for example "social exclusion." ¹²

Some implications of Smith's focus on relative income in assessing poverty are worth separating out because of their extensive reach. First, because the absolute deprivation of social capabilities depends on relative deprivation of incomes, clearly the assessment of poverty in the space of capabilities cannot be divorced from the extent of income inequality. This connection indicates that the increasingly common global tendency in public discussion (and sometimes in public policy analysis) to argue in favor of an exclusive concentration on poverty removal, rather than being concerned also about inequality, is intellectually hard to sustain. Although it is easy to see that income poverty and income inequality are distinct phenomena, nevertheless capability poverty relates inseparably to income inequality. An often-articulated political attitude, which takes the form of saying, "I do care about poverty, but don't give a damn about inequality," not only reflects a remarkably narrow approach to morality but also raises issues of inconsistency, given the causal linkages that make inequality and poverty so interdependent.

Second, Smithian reasoning indicates why poverty is hard to eradicate just by raising the average level of income, without also addressing issues of inequality of incomes. In particular, the phenomenon of poverty in rich countries can be better understood through the perspective of relative deprivation. Adam Smith analyzed the relevance of relative position vis-à-vis others in society in the following way:

A linen shirt, for example is, strictly speaking, not a necessary of life. The Greeks and Romans lived, I suppose, very comfortably though they had no linen. But in the present times, through the greater part of Europe, a creditable day-labourer would be ashamed to appear in public without linen shirt, the

want of which would be supposed to denote that disgraceful degree of poverty which, it is presumed, nobody can well fall into without extreme bad conduct. Custom, in the same manner, had rendered leather shoes a necessary of life in England. The poorest creditable person of either sex would be ashamed to appear in public without them. (Smith 1776, Vol. 2, Book V, ch. 2)

Similarly, today, a person in New York may well suffer from poverty despite having a level of income that would make him or her immune from poverty in Bangladesh or Ethiopia. This is not only because the capabilities that are taken to be minimally basic tend to change as a country becomes richer, but also because even for the same level of capability, the needed minimal income may itself rise, along with the incomes of others in the community. For example, in order to take part in the life of the community, or for children to be able to communicate with others in the same school, the bundle of commodities needed may include a telephone, a television, a car, and so on, in New York, in a way that would not apply in Addis or in Dhaka (where an adult may be able to participate in social affairs and children can talk to each other without these implements).

Thus, even the same minimal capability has varying commodity demands and divergent requirements of minimal income in different societies, involving systematic connection with incomes of others in the community in which a person lives. One further implication of this linkage is that given the peer pressure that operates in favor of social capabilities (often at the expense of other needs), even physical deprivation, such as undernourishment, can occur in richer countries at levels of family income at which elementary nutritional deprivation would be very rarely seen in poorer countries. The social pressure operating particularly on adult consumption patterns also helps to explain the much discussed odd phenomenon of "hunger in America," particularly given the levels of income of families with hungry members (often the children), which can be much above income levels at which hunger can be observed in poorer economies.¹³

Third, the pivotal role of the consumption patterns of others in the same community, or in a group with which a person interacts, also indicates why poverty cannot but be assessed in purely individual terms. The understanding that no person is an island is quite central to the assessment of poverty, and correspondingly, to the appropriate evaluation of the bite and reach of inequality. I shall have to come back to this issue when discussing the axiomatic

demands on formal measures of inequality and poverty, in particular the requirement of decomposability.

CAPABILITY AND EQUITY IN CHINA

How does the choice of space affect our assessment of inequality and poverty in China? Involvement in the space of some elementary functionings and capabilities has been an important feature of Chinese economic policy right from the founding of communist China. Through a visionary commitment to basic education, elementary health care, and social epidemiology, China made early achievements in levels of schooling, literacy, basic health, and longevity that far outshone those of many countries with much higher levels of GNP or real national income per head.

This early accomplishment of China related, from one perspective, to the average of the country, but it also reflected a sharp decline in the traditional inequalities in education, health, and life expectancy as well as a sharp reduction in the deprivation of basic economic capabilities (and in this sense, of capability poverty). It is worth recollecting also that these achievements predate the economic reforms, because China already had an extended base of elementary education and basic health care when the reforms were initiated in 1979. Income poverty still remained very high, because China's real economic growth was not particularly comprehensive or spectacular before the reforms, but it would be a serious mistake not to note the great achievements of China in reducing capability poverty and capability inequality in the *pre-reform* period.

As it happens, when the economic reforms were ultimately introduced, China's astonishing performance was inter alia drawing on what it had already achieved in health and education, because its economic expansion is greatly facilitated by the educational achievements and quality of health of the working population. Nevertheless, there is no question that the prereform achievements in health and education, accomplished by 1979, badly needed the supplement of the enhancement of real incomes, because many other capabilities depend greatly on economic means. There is also no doubt that rapid economic growth—with fast decline in income poverty—after 1979 would not have occurred but for a radical economic reform. It is in this light that the poverty reduction in post-reform China, with its particular focus on income poverty, has to be appropriately assessed. The post-reform

experience of China, especially in the early years, was both drawing on prereform achievements and also changing its special involvement with health and education, compared with income levels and the economic means of families and individuals.

There is a case, I believe, for reexamining the focus of research on inequality and poverty in contemporary China, with greater concentration on disparities and deprivations of basic capabilities. There is a very strong case for supplementing the powerful work that has occurred—and is continuing to occur—on income inequality and income poverty with a similarly extensive investigation of the trends of inequality and poverty in such variables as mortality, morbidity, education, and other indicators of capability that may or may not relate closely to income inequality and income poverty. To some extent this investigation is already happening, and even in this book, there are a number of chapters on issues that link closely with capability inequality and capability deprivation. It would be very useful to integrate a capability-based overall assessment of the attainments and adversities in contemporary China.

I might mention that there may be some prima facie reason to think that China's situation can be an important area of investigation. The rise in income in the post-reform period has been so exceptionally fast that the slowness of progress in other areas has tended to receive comparatively little attention. For example in the field of life expectancy, when China introduced economic reforms in 1979, China was ahead of India by about 14 years (with a life expectancy at birth in India of around 54 years and in China of about 68 years). The gap seems now to have narrowed to perhaps 7 years or so (with India's life expectancy at 64 years and China's at 71 years). Of course, it gets harder to expand life expectancy further as the absolute level rises. But nevertheless it is perhaps of some significance that the state of Kerala in India (with a good educational base and an extensive system of health services, and effective multi-party, participatory politics) now has substantially higher life expectancy than China, namely 74 years (with 72 years for men and 76 years for women), even though in 1979, Kerala was well behind China. Similarly, while Kerala had an infant mortality comparable to China's around 1979, that rate has continued to drop in Kerala in a way it has not quite happened in China, so that today Kerala's infant mortality rate of 10 per thousand is about a third of China's infant mortality of around 30 per thousand. 15

40 Amartya Sen

Although these are mainly aggregative statistics, they have proximate connections with capability poverty, and indirect ones even with capability inequalities. Also, a number of policy questions can be better evaluated with more explicit and definitive studies on the inequality and poverty of basic capabilities, and these questions could aid the making of public policy. The financing of medical care and health insurance may be one such field. I should perhaps also add that one of the positive influences on the success of health care and the reach of school education (especially for girls) in Kerala is the nature of public discussion on this issue. So the issue of public participation is not only of interest as a constitutive component of a basic capability, but also as a strong influence on other capabilities, related to longevity, health, and education.

DECOMPOSABILITY: GINI COEFFICIENT AND OTHER MEASURES

Let me now move away from the issue of space (and the importance of capabilities) and come back to the more familiar income perspective that is central to so much of the current work on inequality and poverty. As was mentioned earlier, no matter what other perspectives are introduced and pursued in this field, interest remains in the assessment of income inequality and income poverty. It is in this context particularly worth asking whether the specific measures of income inequality and income poverty that are standardly used are indeed appropriate. It is also relevant to inquire whether the distinction as well as the connections between incomes and capabilities have any bearing on this complex question.

As I noted earlier, the most commonly used measure of income inequality in China—and indeed also elsewhere—is the Gini coefficient. Some economists have argued that this measure is defective because it is not decomposable, and many applied economists hold a quite well-developed opinion that non-decomposable measures should be, as far as possible, avoided.

What exactly, we must ask, is decomposability? Why is it taken to be important? And is that reasoning correct? ¹⁶ The interest in decomposability, related particularly to inequality measures, can be traced to the *analysis* of variance, a traditional method of evaluating "how much" of the variance in a variable (such as income) can be "explained" by relevant characteristics that—directly or indirectly—influence income (such as age, sex, race,

POVERTY AND INEQUALITY

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Essays by Amartya Sen, Martha C. Nussbaum, François Bourguignon, William J. Wilson, Douglas S. Massey, and Martha A. Fineman

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