Public Disclosure Authorized

Public Disclosure Authorized

WPS5080

Policy Research Working Paper 5080

A Comparative Perspective on Poverty Reduction in Brazil, China and India

Martin Ravallion

The World Bank
Development Research Group
Director's Office
October 2009



Policy Research Working Paper 5080

Abstract

Brazil, China and India have seen falling poverty in their reform periods, but to varying degrees and for different reasons. History left China with favorable initial conditions for rapid poverty reduction through market-led economic growth; at the outset of the reform process there were ample distortions to remove and relatively low inequality in access to the opportunities so created, though inequality has risen markedly since. By concentrating such opportunities in the hands of the better off, prior inequalities in various dimensions handicapped poverty reduction in both Brazil and India. Brazil's recent success in complementing market-oriented reforms with progressive social policies has helped it achieve more rapid poverty reduction than India, although Brazil has been less successful in terms of economic growth. In the wake of its steep rise in inequality, China might learn from Brazil's success with such policies. India needs to do more to assure that poor people are able to participate in both the country's growth process and its social policies; here there are lessons from both China and Brazil. All three countries have learned how important macroeconomic stability is to poverty reduction.

This paper—a product of the Director's office, Development Research Group—is part of a larger effort in the department to monitor and explain progress against poverty in developing countries. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at mravallion@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Produced by the Research Support Team

A Comparative Perspective on Poverty Reduction in Brazil, China and India

Martin Ravallion[1]

Development Research Group, World Bank
1818 H Street NW, Washington DC, 20433, USA

[1] This paper aims to synthesize, and draw lessons from, the results of a World Bank research project on pro-poor growth, supported by the Bank's Research Committee. The author collaborated with a number of people on this project over a number of years. The early work on the topic was for India, in collaboration with Gaurav Datt. The research for China was mainly done with Shaohua Chen, while for Brazil the work was done with Francisco Ferreira and Phillippe Leite. (Specific papers are cited in the references.) For comments on this paper the author is grateful to Francisco Ferreira, Rinku Murgai and Dominique van de Walle. These are the author's views and should not be attributed to the World Bank or any affiliated organization.

The long-standing debates about how best to fight poverty in the developing world are reflected in the experiences of Brazil, China and India. All three countries have embarked on programs of market-oriented economic reforms. China was the first, where 25 years of a control economy left large potential gains from reform by the time that process started in the late 1970s. Brazil and India followed in earnest in the early to mid 1990s, though (in both cases) there had been tentative earlier efforts at reform.

All three have also seen progress against poverty in their reform periods, though at differing rates. In terms of the pattern of growth and distributional change, China and India have had more in common; both have seen rapid growth, but with rising inequality (with more of both in China). Brazil saw little growth but falling inequality.

There are some similarities among the three countries in their policies over the last 15 years, notably in the importance attached to macroeconomic stability, especially bringing inflation under control. But there are some big differences too, such as in the role played by policies directly aimed at redistributing incomes. When one looks more closely at their histories and policy regimes, Brazil and India turn out to have more in common with each other than with China. But each of these countries has something to teach the others. And other developing countries that have been less successful against poverty can learn from both the strengths and weaknesses of the approaches taken by all three countries.

This paper does not attempt to survey the (large) literature on poverty and growth in these countries, and many important contributions are not explicitly mentioned. It aims more narrowly to distill a few key lessons from a World Bank research project that has tried to measure and understand the progress against poverty of these three countries. The paper starts with a comparison of their overall performances, before examining each in turn. The last section tries to draw out some themes and lessons.

Performance against poverty

National household surveys are used for measuring poverty and inequality all three countries, supplemented by data on prices and from the national accounts and population censuses. Thankfully, all three countries have a time series of reasonably comparable national sample surveys spanning their reform periods. (China’s first such survey is for 1981, just after reforms began. For Brazil and India the surveys include pre-reform periods.) The surveys

measure household incomes (for Brazil and China) and household consumption expenditures (for India). (I will return to this difference.) For most of the discussion, a common poverty line is used, set at $1.25 a day converted using purchasing power parity (PPP) exchange rates for consumption in 2005; this is the average poverty line found in the poorest 15 countries. I will also use a line of $2.00 a day at 2005 PPP, which is the median poverty line for all developing counties with the available data (Ravallion et al., 2009). Differences with national poverty lines will also be noted. Poverty is measured by the headcount index, namely the percentage of the population living in households with income per person below the poverty line. Inequality is measured by the Gini index, given by half the mean absolute difference between all pairs of incomes normalized by the overall mean.[2] Growth rates are measures from national accounts. There are a number of issues concerning the data sources, as reviewed in the Appendix.

Table 1 provides summary statistics for all three countries for 1981, 1993 and 2005; 1993 is the mid-point, and is also a natural choice given the changes in the policy regimes of Brazil and India around that time. Notice that the table gives results for both the surveys mean and a "mixed mean" given by the geometric mean of the survey mean and its predicted value based on private consumption expenditure (PCE) per person from the national accounts (NAS); see the Appendix for further details. This method is not considered better, as it makes some strong assumptions (notably that the relative distribution based on the surveys is appropriate for the mixed mean). Rather it provides a sensitivity test, motivated in large part by concerns about the large and growing gap between the survey-based consumption aggregates from India's National Sample Surveys and those from India's NAS.[3] The following discussion focuses mainly on the survey-based measures, though noting any important differences with the mixed method, notably for India.

Figure 1 gives the headcount indices for nine reference years. Figure 1(a) is based on the national household surveys, while 1(b) uses the mixed method.

Given the very different initial levels of poverty, I shall measure the rate of progress by the proportionate annual rate of poverty reduction—the difference between the growth rate in the number of poor and the overall population growth rate—rather than in percentage points per

[2] The headcount index and the Gini index have been the most popular measures in the literature and policy discussions, but they are not necessarily the best. The headcount index does not reflect distribution below the line and the Gini index need not reflect well how distributional shifts impact on poverty.

[3] Note that the mixed method may well exaggerate the extent to which economic growth (as measured from national accounts) reduces poverty.

year.[4] Table 2 gives the (compound annual) growth rates for the measures of average income or consumption and the poverty measures; the table also gives the growth rates of the total population, so the growth rates in the numbers of poor can be readily calculated. (Notice from Table 2 that the growth rates of the survey mean for India have been appreciably lower than consumption per capita as measured in the NAS.)

The data suggest that, around the time its reforms began, China had one of the highest proportions of the population living in poverty in the world. In 1981, a staggering 84% of the population lived below a poverty line of $1.25 per day in 2005 prices and converted to RMB at purchasing power parity in 2005. The best data available suggest that only four countries (Cambodia, Burkina Faso, Mali and Uganda) had a higher headcount index than China in 1981. By 2005, the proportion of China's population living in poverty had fallen to 16%—well below the average for the developing world of 26%. The proportionate rate of poverty reduction over 1981-2005 was an impressive 6.6% per annum (and slightly higher using the mixed method), with the number of poor falling by 5.5% per annum.

Using the same poverty line for Brazil, the proportion of the population in poverty is appreciably lower than in China, and fell from about 17% to 8% over 1981-2005. The proportionate rate of poverty reduction of 3.2% per annum is certainly not China's rate but it is still impressive.[5] The rate of poverty reduction rose from 2.3% to 4.2% between the periods 1981-1993 and 1993-2005. Given population growth rates (which declined between the two periods), the number of poor went from being virtually constant in the pre-reform period to a decline of 2.7% per annum. The difference between the two periods is even more marked using the mixed method, which indicates no progress against poverty in the 1981-1993 period, but a rate of reduction in the headcount index of 5.1% per annum post 1993. Using the $2 a day line, we see a somewhat slower pace of poverty reduction and a narrowing of the difference between the "reform" and "pre-reform" periods using the surveys alone, though the mixed method also suggests that virtually all the poverty reduction was in the latter period.[6]

[4] The proportionate rate of poverty reduction is calculated by a compound growth rate between end points. Alternatively one can use a regression of the log of the variable in question on time using all observations. The two will only give (to a close approximation) the same answer if the end points are on the regression line. I also used the regression method for the poverty measures and I shall note anything more than non-negligible differences.

[5] The rate is slightly higher (3.6%) using a regression of the log poverty rate on time.

[6] Ferreira et al. (2009) provide estimates for Brazil's national poverty line, which is about $3 a day.

In 2005 India's "$1.25 a day" headcount index was 42%, as compared to 16% in China and 8% in Brazil. India had a lower headcount index than China until the mid 1990s (Figure 1a). India's headcount index was 60% in 1981, well below China's. (Using a poverty line close to India's official line, which is almost exactly $1.00 a day at 2005 PPP, the headcount index fell from 42% in 1981 to 24% in 2005.) At 1.5% per annum for the $1.25 line, India's proportionate rate of poverty reduction was lower than either Brazil or China, and was actually slightly higher in the earlier (1981-1993) period. It was not sufficient to prevent a rise in the number of poor given population growth rates (Table 2). Less poverty reduction occurred at the $2.00 line, although this is to be expected given how many people live below the $2 line.

As expected, the mixed method has the biggest impact on the assessment of India's record against poverty. Using this method, the proportionate rate of decline in the $1.25 a day headcount index over 1981-2005 doubles, to 3.0% per annum, implying falling numbers of poor. The post-1993 period now has a slightly higher rate of progress against poverty than the earlier period. And China overtook India some seven years later using the mixed method. However, even using the mixed method, India has not performed as well in terms of poverty reduction as Brazil in the post-1993 period.

Growth performances do not mirror this record on poverty. China had the highest growth rate, as well as the highest rate of poverty reduction. China achieved a long-term growth rate for GDP per capita of about 9% over this period (though this may be overestimated somewhat; see the Appendix for details). India had a growth rate of almost 5% per annum in its reform period while in Brazil the annual growth in per capita GDP was slightly over 1% in its reform period. So Brazil achieved a higher rate of progress against poverty than India with a lower growth rate. Brazil's growth rates rose in the reform period, though only to about 1.3% per year. The trend rate of growth in India's GDP per capita in the period 1951-1991 was under 2% per annum, but it was more than double this rate in the period after 1991.

Another way of seeing the difference is to calculate the proportionate change in poverty per unit growth in GDP per capita—the growth elasticity of poverty reduction.[7] From Table 2 we see that the elasticity—calculated as the ratio of compound growth rates—was highest for Brazil

[7] This can be thought of as the "total elasticity", as distinct from the "partial elasticity" holding relative distribution constant (as derived by Kakwani, 1993); on this distinction see Ravallion (2007). Naturally, the total elasticity also reflects distributional changes, which are clearly of interest in this context. On alternative definitions of this elasticity see Heltberg (2004).

for all poverty measures; for example, the elasticity is about -4.3 for growth in GDP per capita over 1981-2005 and using the $1.25 a day line, while for China the corresponding elasticity is about -0.8. [8] For India it is -0.4 (-0.8 using the mixed method).[9]

These are large differences in the impact of a given rate of growth on poverty, notably between Brazil (on the one hand) and China and India (on the other). To put the differences in perspective, Table 3 gives the proportionate rates of poverty reduction implied by each combination of growth rate and elasticity. (These calculations illustrate the size of the differences in elasticities; it is not claimed that it was feasible, on economic or political grounds, for Brazil, say, to attain China's growth rate while keeping its own elasticity.) Suppose, for example, that India had Brazil's elasticity; then India's growth rate would have delivered a rate of poverty reduction of 15% per annum—well above even China's rate. Even with China's elasticity, India's rate of poverty reduction would have been more than double that implied by the surveys (though similar to that implied by the mixed method), and certainly enough to bring down the number of poor. Or if China had India's elasticity (based on the surveys) it would have seen a rate of poverty reduction less than half its actual rate.

What lies behind these large differences in the elasticity of poverty reduction to economic growth? Later I will examine the roles played by initial conditions and policies. But one factor is already evident in the summary statistics in Table 1. Inequality, as measured by the Gini index, rose over time in the (initially) low inequality countries (China and India) and fell in the high-inequality country (Brazil).[10] Naturally, rising inequality will tend to dampen the impact of growth on poverty, while falling inequality will tend to enhance that impact. This pattern is suggestive of "inequality convergence," as implied by neoclassical growth theory,[11] although an equally plausible explanation is "policy convergence": pre-reform policy regimes in some countries kept inequality "artificially" low while in others they kept it high (Ravallion, 2003a).

---

[8] Even accepting Maddison's (1998) downward revision to China's growth rate (see Appendix), the elasticity is only -1.0.

[9] Slightly higher elasticities are obtained using consumption from NAS or (even higher) survey means for measuring growth rates; using the national poverty line (of about $1.00 per day) also gives a slightly higher elasticity; for further details see Datt and Ravallion (2009).

[10] The Gini index is not necessarily the best way of measuring inequality from the point of view of explaining differences in progress against poverty (as explained in Datt and Ravallion, 1992). However, it is the most widely understood measure of inequality.

[11] See Benabou (1996). The cross-country evidence is also suggestive of inequality convergence, even after allowing for likely biases in standard tests; see Ravallion (2003a).

The rise in inequality was far greater for China than India. The Gini index in India rose from about 0.31 around 1990 to 0.33 in 2005, as compared to a rise from 0.29 to 0.42 in China's reform period (Table 1). However, there are reasons for caution in this comparison. First, there are data concerns. India's inequality measure is based on consumption rather than incomes. Consumption inequality tends to be lower.[12] Income measures (from a different survey) suggest that inequality in India may well be far higher (Appendix). The other side of the coin to the rising gap between aggregate consumption from the sample surveys and that from the national accounts may well be that the rise in inequality has been underestimated. India may not be a low inequality country after all.

A second reason for caution is that there are important dimensions of inequality in India that are not evident in a conventional inequality index based on consumption or income. (This is true of China and Brazil as well, but India is where the concern is clearly greatest.) I refer to inequalities associated with identity, such as gender or caste, and inequalities in access to key social services, particularly health care and schooling.

The rest of this article discusses the differing performances against poverty of these three countries, and what factors came into play, including initial conditions, changes in income distribution associated with the pattern of growth, and policies, including direct interventions aiming to reduce inequality. The discussion begins with China.

China: Substantial but uneven progress against poverty

While certainly impressive in the aggregate, China's progress against poverty has been uneven over time and space. As can be seen from Figure 1, Progress was far greater in some periods (the early 1980s and mid-1990s) than others (the late 1980s). And far more progress was made in coastal than inland areas (Ravallion and Chen, 2007). This variance contains some lessons for China and other countries hoping to emulate China's success against poverty.[13]

An important role was played by the geographic and sectoral pattern of growth. Like most developing countries, living standards tend to be lower in rural areas of China, but China's disparities between rural and urban areas are particularly large. Around 1980, the chance of being poor was about 10 times higher in rural areas than urban areas. Thus it was very important

[12] Consumption smoothing by households is the likely reason; low incomes in a given year are supplemented from savings or borrowings, and unusually high incomes are used to supplement wealth or pay off debts.

[13] For an attempt to draw lessons for Africa from China's success see Ravallion (2009a).

that the reforms started in the rural economy. From about 1980 onwards, China undertook a series of pro-market economic reforms, starting with the Household Responsibility System (HRS) and supported by other reforms to liberalize markets for farm outputs and inputs.[14] The scale of this reform is nothing short of amazing. The collectives were dismantled and virtually all of the farmland of the world's most populous country was allocated to individual farmers, and the allocation of land within communes appears to have been relatively equitable.[15] Farm-households were then responsible for providing contracted output quotas to the state, but were free to keep (and sell) everything in excess of their quota. This system had much better incentives for individual production, since farmers kept the marginal product of their labor. These reforms to incentives and associated steps toward freeing up markets for farm outputs were clearly the main reason for the dramatic reduction in poverty in China in the early 1980s.

Growth in the rural economy accounted for the majority of China's success since 1980 (Ravallion and Chen, 2007). Looking back over the period since 1981, one finds that rural economic growth in China had a far higher poverty impact than urban economic growth. Similarly, growth in the primary sector (mainly agriculture) did more to reduce poverty than growth in either the secondary (mainly manufacturing) or tertiary (mainly services) sectors. Indeed, judged by the impact on poverty nationally, China's primary-sector growth had about four times the impact of growth in either the secondary or tertiary sectors (Ravallion and Chen, 2007).[16] The provincial panel data analysis by Montalvo and Ravallion (2009) suggests that virtually all of the growth impacts on poverty worked through the primary sector.

The sectoral pattern of China's growth has slowed the pace of poverty reduction. Both mean income and long-run growth rates have also been lower in rural areas, yielding economic divergence between China's cities and their rural hinterland. This has been particularly strong

[14] On the importance of these reforms in stimulating agricultural growth at the early stages of China's transition see Fan (1991) and Lin (1992). For a recent overview of the history of economic policies see Brandt and Rawski (2008).

[15] The forces for and against this outcome were clearly similar to Vietnam, as studied by Ravallion and van de Walle (2008), who find that the process there resulted in a relatively equitable allocation of land. Unlike China, Vietnam also took the further step of creating a market in land-use rights; the results of Ravallion and van de Walle (2008) suggest that this increased the inequality of landholdings over time, but was nonetheless a poverty-reducing policy reform. In the case of China, agricultural land remained subject to non-market (administrative) re-allocation.

[16] These results are based on regressions of the proportionate rate of poverty reduction over time on the growth rates by sector, weighted by their shares of output. If the composition of growth did not matter then the coefficients on the share-weighted growth rates would be equal across different sectors. Instead, one finds large and significant differences. For details see Ravallion and Chen (2007) (using national time series data) and Montalvo and Ravallion (2009) using provincial panel data.

since the mid-1990s. Similarly, while there was rapid agricultural growth in some periods, including the early 1980s, the sector's growth rate has since tended to decline. One expects agriculture's share of national output to fall with sustained economic growth in any developing country, but in China the relatively poor performance of the farm sector (both relative to other sectors, and compared to the first half of the 1980s) has constrained the pace of poverty reduction that was possible with China's (high) aggregate growth. The indications of strong externalities on rural development in China generated by the agricultural sector (as found by Ravallion, 2005) also point to the possibility of aggregate inefficiencies stemming from policy biases in favor of other sectors. To help assess the role of the sectoral imbalance in the growth process, imagine that the same aggregate growth rate was balanced across sectors. Such balanced growth would have taken half the time—10 years rather than 20 years—to bring the headcount index down to 10% (Ravallion and Chen, 2007).

Progress was also geographically uneven with some provinces seeing far more rapid reduction in poverty than others. Coastal areas fared better than inland areas. The trend rate of decline in the headcount index for China's inland provinces was less than half of that seen in the coastal provinces. However, while provinces with higher rural income growth tended to have higher poverty reduction, income growth rates were no higher in provinces where growth would have had more impact on poverty nationally.

The pattern of China's growth has not been a purely market-driven process. While unbalanced growth is to be expected in a developing country, the widening coastal-interior gap was a product of policy making, which favored the coastal areas that already had favorable initial conditions. Similarly, the government has influenced the sectoral composition of growth, such as when its priorities shifted to non-farm sectors in the mid 1980s. A number of specific policy instruments were used to influence the pattern of growth, including:[17] subsidized prices for key inputs (including energy, utilities and land), weak or weakly enforced regulations (including environmental protection); favored treatment for industry in access to finance, especially for large (private and state-owned) enterprises; restrictions on labor movement through the Hukou system and discriminatory regulations against migrant workers in cities; and local administrative allocation of land, with the effect that out migrants from rural areas face a high likelihood that they will lose their agricultural land rights.

[17] For further discussion on these points see the useful overview in Kuijs and Wang (2006).

Prices played a role in two ways. First, China's gradualism left further opportunities for pro-poor reform down the road by bringing the prices received by farmers for their contacted quotas up to market levels. The first stage of China's rural economic reforms created a foodgrain procurement system whereby the government effectively taxed farmers by setting quotas and fixing procurement prices below market levels (to assure cheap food for far less poor urban consumers). This gave the government a powerful anti-poverty lever in the short-term, by raising the procurement price, as happened in the mid-1990s, helping to bring both poverty and inequality down. Second, sharp increases in the overall price level adversely affected the poor (both absolutely and relatively). The time periods of higher inflation saw higher poverty measures, and this is a distributional effect given that it persists after controlling for economic growth (Ravallion and Chen, 2007; Montalvo and Ravallion, 2009).

The historical legacy of China's low level of inequality at the outset of the reform period helped assure that the poor could contribute to, and benefit from, growth-promoting policies. Low inequality tends to mean that the poor not only have a larger share of the pie, but also a larger share of the increases in the size of the pie.[18] Importantly, China's initially low income inequality came with relatively low inequality in key physical and human assets. Low inequality in access to farmland in rural areas appears to have been particularly important in ensuring that China's agricultural growth was pro-poor. On breaking up the collectives it was possible to assure that land within communes was fairly equally allocated. (However, marked inter-commune inequality remained, given that household mobility was restricted.) With a relatively equal allocation of land—through land-use rights rather than ownership—the agricultural growth unleashed by the rural economic reforms of the early 1980s helped bring rapid poverty reduction.

Relatively low inequality in access to basic health and education also helped. For example, the (gross) primary enrollment rate in China around 1980 was well over 100% of the relevant age group, the adult literacy rate (proportion of people 15 years and older who can read and write) was 66% in 1981 (and rose to 93% in 2007), and the infant mortality rate was well under 50, with life expectancy at birth was 65 years (Table 1). These are good social indicators by developing country standards even today—similar in fact to India's, but 25 years later, and better than India's at the time that country's economic reforms started in earnest. As Drèze and Sen (1995) observe, China's achievements in basic health and education predate its economic

[18] For evidence on this point see Ravallion (1997, 2007).

reforms. So, while socialism proved to be a generally inefficient way to organize production, a positive legacy was the relatively low inequality in health and schooling at the outset of China's reform period. This has undoubtedly helped in assuring that the subsequent farm and (especially) non-farm growth was poverty-reducing.

The favorable initial conditions in terms of inequality (in various dimensions) combined with the early emphasis on agriculture and rural development assured a rapid pace of poverty reduction in China during the first half of the 1980s.

China's rapid economic growth has been accompanied by a steep rise in inequality. The trend rate of increase in the Gini index was 7 percentage points per decade, implying that China will reach Brazil's current level of inequality by 2025. While a trend increase in inequality is evident, the increase is not found in all sub-periods: inequality fell in the early 1980s, in the mid-1990s, and again in 2004. Favorable initial conditions meant that China's growth could bring rapid gains to the poor, but rising inequality started to dull the gains.

The upward pressure on inequality over most of the reform period has come from a number of sources, including the freeing up of labor markets and an associated rise in the returns to schooling. Arguably, some of this was "good inequality," at least initially, as it came with the creation of new economic opportunities.[19] But other inequalities have been less benign in that they generated inequality of opportunity. In this respect, the emerging inequalities in health and schooling in China have created concerns for future growth and distributional change. The large geographic disparities in living standards are symptomatic of deeper biases in public resource availability, which also contribute to unequal opportunities, depending on where one lives.

While basic schooling was widespread in China at the outset of the reform period around 1980, some significant inequalities in educational attainment remain in China, and these have become an increasingly important source of unequal opportunities. A junior high school education, and in some instances, a senior high school education, has become a de facto prerequisite for accessing non-farm work particularly in urban areas, where wages far exceed the shadow wages in farming. Thus, lack of schooling is now a very important constraint on prospects of escaping poverty in China, as elsewhere.

[19] On the distinction between "good" and "bad" inequalities see Chaudhuri and Ravallion (2006). Also see the discussion in Bourguignon et al. (2007).

The pattern of growth has also influenced the evolution of inequality in China, reflecting both good inequalities (as resource flows respond to new opportunities) and bad ones (as some poorly endowed areas are caught in geographic poverty traps). Rural and, in particular, agricultural growth tended to bring inequality down in China, and lack of growth in these sectors in some periods has done the opposite (Ravallion and Chen, 2007). Rural economic growth reduced inequality within both urban and rural areas, as well as between them.

Was rising inequality simply the price that China had to pay for growth and (hence) poverty reduction? That is a difficult question, but it should not be presumed that such a trade-off exists. That depends crucially on the source of inequality; when it comes in the form of higher inequality of opportunity it is likely to entail a cost to aggregate growth prospects (World Bank, 2005). China's experience actually offers surprisingly little support for the view that there is an aggregate trade-off. There are a number of empirical findings that lead one to question that view. First, while it is true that inequality tended to rise over time, the periods of more rapid growth did not bring more rapid increases in inequality; indeed, the periods of falling inequality (1981-85 and 1995-98) had the highest growth in average household income. Second, the sub-periods of highest growth in the primary sector (1983-84, 1987-88 and 1994-96) did not typically come with lower growth in other sectors. Finally, the provinces with more rapid rural income growth did not experience a steeper increase in inequality; if anything it was the opposite (Ravallion and Chen, 2007). The provincial panel-data analysis in Montalvo and Ravallion (2009) suggests that, as far as poverty is concerned, there was little or no trade off between the sectoral pattern of growth and the overall level of growth, given that Montalvo and Ravallion find no evidence that non-agricultural growth helped reduce poverty.

Looking forward, it will be harder for China to maintain its past progress against poverty without addressing the problem of rising inequality. To the extent that recent history is any guide to the future, we can expect that the historically high levels of inequality found in China today will inhibit future prospects for poverty reduction. High inequality is a double handicap; depending on its source—especially how much comes from inequality of opportunity—it means lower growth and a lesser share for the poor in the gains from that growth. Inequality is continuing to rise in China and it is becoming an important factor inhibiting the prospects for future poverty reduction. At the outset of China's transition period to a market economy, levels of poverty were so high that inequality was not an important concern. That has changed.

Direct redistributive interventions have not been prominent in China's efforts to reduce poverty. Enterprise-based social security remained the norm, despite the dramatic changes in the economy, including the emergence of open unemployment and rising labor mobility. However, there are signs that this is changing. The "Minimum Livelihood Guarantee Scheme," popularly known as *Dibao*, has been the Government of China's main response to the new challenges of social protection in the more market-based economy. This program aims to guarantee a minimum income in urban areas, by filling the gap between actual income and a "*Dibao* line" set locally.

Such policies can be expected to play a more important role in the future. Even given the level of inequality in China today, there is a new potential for reducing poverty through redistributive policies. A simple way of quantifying that potential is to ask how much one would need to tax the "non-poor" in China to eliminate poverty.[20] There would be (understandable) resistance to taxing the middle class to finance a *Dibao*-type program. So let us suppose (for the sake of this illustrative calculation) that a linear progressive income tax could be levied on all those in China living above (say) the US poverty line, and that the revenue generated was used to finance redistribution in favor of the poorest, sufficient to bring everyone up to the international poverty line of $1.25 a day (say). The necessary marginal rate of taxation can be readily calculated.[21] The answer is a tax rate of 36% in 2005, i.e., those Chinese living above the US poverty line, would need to pay a tax of roughly one third of the difference between their income and the US poverty line to bring everyone in China up to the $1.25 a day line.[22] (The average tax rate would start at zero for those at the US poverty line, and then rise as income rises above that line). Later we will see how this compares to Brazil and India. However, the more important point here is that if one repeats this calculation in 1981, it is clear that such a policy would have been utterly impossible at the outset of China's reform period: the required marginal tax rate then

[20] Of course, this is a rather stylized and hypothetical question. It is not claimed that such a policy is politically or economically feasible. But at least it gives us a way of measuring the capacity for reducing poverty through redistribution, given the distribution of income in China.

[21] Consider two poverty lines, z_U and z_L with $z_U > z_L$. The marginal tax rate τ on incomes above z_U (yielding a tax in amount $\max[\tau(y - z_U),0]$ on income y) needed to generate the revenue to bring everyone up to the lower poverty line can be readily derived as $\tau = PG(z_L)z_L / [\bar{y} - (1 - PG(z_U))z_U]$ where $PG(.)$ is the poverty gap index and $\bar{y}$ is the overall mean. For further discussion of this measure of the capacity for redistribution see Ravallion (2009d).

[22] For China in 2005, $PG(1.25)$=4.0% and $PG(13)$=73.8% while $\bar{y}$ = $3.55 per day at 2005 PPP.

would have far greater than 100%, i.e., the poverty gap was so large then, and the country so poor, that redistribution was not a realistic option.

However, while in theory a program such as *Dibao* would eliminate poverty, the practice appears to fall well short of that goal, due largely to imperfect coverage of the target group (Ravallion, 2009b) and horizontal inequity between municipalities, whereby the poor living in poor areas fared worse in access to the program (Ravallion, 2009c). Reforming the program and expanding coverage are challenges looking forward.

Brazil: Poverty reduction with little economic growth

The period of economic stagnation in the 1980s and early 1990s in Brazil was marked by hyperinflation, as a result of accumulated fiscal deficits and an accommodating monetary policy. This was a period of Latin American macroeconomic populism, with persistent budget deficits, high inflation, trade distortions, extensive government ownership of productive enterprises in certain sectors and an inefficient social security system that did not reach the poor. Through a combination of de-indexation of labor contracts and an exchange-rate based stabilization policy (known as the Real Plan), the government finally managed to control inflation in 1994. This also marked the conclusion of a process of trade liberalization, which had begun in 1988 with tariff reductions and the removal of quantitative restrictions.

The new policy regime from the mid-1990s onwards conformed fairly closely to the "Washington Consensus:" macroeconomic stability, fiscal prudence, trade reform and privatization of some state-owned enterprises.[23] However, one important difference to the Washington Consensus is that the new policies were accompanied by significant reforms to social security and assistance transfers, which also became better targeted over time.[24]

Brazil clearly has a larger capacity for using redistribution to address its poverty problem than China. Consider again the marginal tax rate on the non-poor (by US standards) needed to fill all the poverty gaps (by the $1.25 a day standard). We saw that in China, that would require a marginal tax rate on incomes about the US poverty line of 36%. By contrast, in Brazil in 2005, it would only require a marginal tax rate of only 0.7%![25] Even for the $2 a day line, the necessary

[23] For further discussion see Ferreira et al. (2009) and, on trade policies, Ferreira et al. (forthcoming).

[24] See Barros et al. (2006), Soares et al. (2006), Ferreira et al. (2008) and Ferreira et al. (2009).

[25] Recalling the earlier notation, for Brazil in 2005, $PG(1.25)=1.6\%$ and $PG(13)=52.3\%$ while $\overline{y}$ = $9.16 per day at 2005 PPP.

marginal rate would only be 4%. (Using $3 a day, which is close to Brazil's national poverty line, the tax rate rises to about 12%.) Of course, realizing this potential in practice is another matter.

In attempting to realize that potential for helping to reduce poverty through redistribution, and important role was played by various cash transfer programs. These included both non-contributory, unconditional, transfers as well as Conditional Cash Transfers (CCTs) targeted to poor families, which have played an important role from the late 1990s onwards. CCTs were targeted to poor families conditional on their children staying in school and obtaining basic health care. This was done under a series of programs, which were later consolidated (and extended to include conditions on child health care) under *Bolsa Família,* which grew to cover 11 million families, or about one quarter of the population—rising to about 60% of the poorest decile in terms of income net of transfers (Fiszbein and Schady, 2009, Figure 3.1).[26] The targeting to poor families used a proxy-means test, based on readily observed covariates of poverty (including location).

CCTs have emerged in a number of developing countries in recent times, following early examples such as the Food-for-Education program in Bangladesh and the *Progresa* program (now called *Oportunidades*) in Mexico.[27] They are essentially a response to credit-market failures that bite hardest for the poor, combined with a desire to reduce the cost to the next generation of these market failures. The credit market failure entails underinvestment by poor parents in their children's schooling. Only by attaching the transfer to behavior can one hope to induce the optimal amount of schooling for those children. Perhaps as importantly, the conditions (often called "co-responsibilities") applied to transfer recipients have made CCT programs more politically acceptable and (hence) sustainable.

The economy-wide reforms from the mid-1980s allowed modest positive growth, but the impact on poverty was disappointing. Unlike China, Brazil is a high inequality country, with a Gini index that was a little under 0.60 in the mid 1990s, while it was less than half that figure in China in the early 1980s. Brazil's higher inequality meant that, with no change in inequality, Brazil would have needed even higher growth than China to attain the same rate of poverty reduction. Underlying this high inequality of incomes, one finds inequality in human resources

[26] The average transfer payment was about 5% of pre-transfer income. The poorest families receive a transfer even if they have no children.

[27] For a useful overview see Fiszbein and Schady (2009).

development, notably schooling attainments, which have a marked income gradient in Brazil. These inequalities limited the ability of the poor to participate in, and to benefit from, aggregate economic growth.

However, there is a very important difference between Brazil in its reform period (after the mid-1990s, say) and China (and also India, which I return to). Brazil saw a reduction in inequality over time, including inequality between regions and between urban and rural areas (Ferreira et al., 2008). As we saw earlier, this was the key factor that allowed Brazil to reduce poverty despite modest growth.

Similarly to China, the pattern of Brazil's growth mattered to the outcomes for the poor. While it was growth in the agricultural sector that had the dominant role in reducing poverty in China, in Brazil it was in the services sector, which was consistently more pro-poor than growth in either agriculture or industry. There was a lower growth rate in the services sector after 1994, which had a (small) negative effect on the rate of poverty reduction. So the reform pattern of growth was not pro-poor.

However, this change in the pattern of growth in Brazil was more than compensated for by slightly positive overall growth after 1994. In fact, the bulk of Brazil's poverty reduction in the period since the mid 1980s took place after 1994. Using regression decomposition methods, Ferreira et al. (2009) find that the main factors bringing down the poverty measures from 1994 onwards were the substantial reduction in inflation rates (under the Real Plan) and the expansion and reforms to the Federal government's social assistance spending, including on *Bolsa Familia*.[28] Indeed, in the absence of these transfer policies, and given the generally poor performance in terms of economic growth, Ferreira et al. (2009) estimate that the headcount index in Brazil (using Brazil's own line) would have been about 5 percentage points higher in 2004.

The poverty impacts of social assistance spending, inflation and other changes in the policy environment entailed distributional effects on poverty (given that they are still found after one controls for the growth effect). The effect of the sectoral pattern of growth also embodied a distributional effect, in addition to a pure growth effect.

[28] Unlike Mexico's CCT, the PROGRESA (later renamed *Opportunidades*), Brazil did not invest heavily on impacts evaluations of *Bolsa Familia*, so it is difficult to infer impacts. Ferreira et al. (2009) rely on time series data. Soares et al. (2006) use instead inequality decomposition methods calibrated to household survey data. They find that, although the size of the average transfer was low, the excellent targeting meant that *Bolsa Familia* alone could account for one fifth of the decline in inequality in Brazil after the programs' introduction.

But the dominant distributional effects were from macroeconomic stabilization and social spending. The cumulative total effect on poverty of these two elements of the policy package was far larger in magnitude than the effects of changes in the level and composition of economic growth (Ferreira et al., 2009). Looking forward, we can expect that the higher levels of schooling for the children of poor families (such as promoted by the CCT programs) will help promote more pro-poor growth.

Two main lessons emerge from the Brazilian experience. First, reforms to social policies to make them more pro-poor can play an important role in sustaining poverty reduction, even during a period of economic stagnation. Second, sensible macroeconomic and trade policies need not hurt the poor and, in the specific case of taming hyperinflation, are likely to make a significant contribution in the fight against poverty, even when that is not the primary objective.

India: Growth with disappointing outcomes for the poor

There has been much debate about whether economic growth has helped reduce poverty in India. In an old but formative debate, some scholars argued that the agricultural growth process stimulated by the green revolution brought little or no gain to the rural poor, while others pointed to farm-output growth as the key to rural poverty reduction.[29] Armed with more data and a richer model of the channels linking farm productivity to poverty, Datt and Ravallion (1998a) find that higher farm productivity (output per unit area) brought both absolute and relative gains to India's rural poor, with a large share of the gains coming through higher real wages with higher farm productivity.

There has also been a debate about how much urban economic growth has benefited the poor. The optimism of many of India's post-independence planners that the country's largely urban-based and heavily protected industrialization process would bring lasting longer-term gains to both the urban and rural poor has not been shared by most observers then and since. Removing these distortions offered hope for a more pro-poor nonfarm growth process.

While there had been some steps toward economic reform in the 1980s, India's reforms only started in earnest in 1991, in the wake of a balance of payments crisis. A series of reforms supported the private sector and promoted a more open economy, with some efforts at

[29] For an overview of this debate see Datt and Ravallion (1998).

restructuring the public sector.[30] Significant steps were taken in trade and industrial policy, though (unlike China) agriculture has been neglected.[31]

The evidence from India's National Sample Surveys suggests that economic growth has been poverty reducing, including in the reform period. However, a number of factors appear to have dampened the impact on poverty. The rise in inequality is one factor, as noted by a number of observers.[32] Underlying this rise in inequality—and dulling the impact of growth on poverty—one finds signs of geographic and sectoral divergence in India's growth process (Datt and Ravallion, 2002, 2009).[33] One aspect of this is the urban-rural composition of growth. As in China (and most developing countries) absolute poverty measures are higher in the rural sector, though the urban-rural gap is not as large as found in China. (The ratio of mean consumption in urban areas of India to rural areas is about 1.3, which is about half the ratio of mean income in urban China to that in rural China; see Ravallion and Chen, 2007, and Datt and Ravallion, 2009.) India has also seen divergence over time between urban mean consumption and the rural mean, which has contributed to rising overall inequality. Additionally, inequality has risen within both urban and rural areas since the early 1990s (Datt and Ravallion, 2009).[34]

Like China, past research has pointed to the importance of rural economic growth to national poverty reduction in India, although there are signs that the process of economic growth is changing, making urban economic growth more pro-poor (Datt and Ravallion, 2009). There is evidence of a much stronger linkage from urban economic growth to rural poverty reduction in the early 1990s. While the attribution to economic reforms cannot be proven, these findings are at least consistent with the view that the reforms have fostered a process of growth in India's urban economy that has brought larger benefits to the rural poor.

However, a striking difference with China is found in the relative importance of different sectors to poverty reduction. Also in common with most (growing) developing economies,

---

30 For an overview of the reforms see Ahluwalia (2002).

31 Policy reforms in other areas (lower industrial protection and exchange rate depreciation) have brought indirect benefits to agriculture, notably through improved terms of trade, and some growth in agricultural exports. However, at the same time, the reform period saw a decline in public investment in key areas for agriculture, notably rural infrastructure.

32 See Ravallion (2000), Deaton and Dreze (2002) and Sen and Hiamnshu (2004).

33 This appears to proceed the reforms period starting in 1991. Bandyopadhyay (2004) finds evidence of "twin peaks" in India's growth process over 1965-97, whereby the divergence is between two "convergence clubs", one with low income (50% of the national mean) and one with high income (125%).

34 This is only true within urban areas if one corrects for changes in survey design, as discussed in Datt and Ravallion (2009).

India's trend rate of growth has been higher in the modern industrial and services sectors—both of which tend to be urban-based—than the agricultural sector. However, the importance of agricultural growth to China's success against poverty stands in marked contrast to India, where the services sector has been the more powerful force (Ravallion and Datt, 1996). In this respect India has more in common with Brazil. The most likely explanation for this difference lies in the initial distribution of assets, with access to agricultural land being much more equitably distributed in China than India. China's advantage in this respect reflected the historical opportunity created by the de-collectivization of agriculture and introduction of the "household responsibility system."

Similarly to both China and Brazil, periods of high inflation hurt India's poor (Datt and Ravallion, 1998a; Ravallion and Datt, 2002). We know more about the transmission mechanism in India, in which short-term stickiness in the wages for relatively unskilled labor played an important role (Datt and Ravallion, 1998a).

Performance has differed markedly between states of India, particularly in the extent to which non-farm economic growth has reduced poverty. This is linked in turn to differences in initial conditions, most notably in human development (Datt and Ravallion, 2002; Ravallion and Datt, 2002). Inequalities in human development have undoubtedly retarded poverty reduction in all three countries, but the problem is surely greatest in India. As already noted, India's schooling inequalities were clearly larger than those of China at the beginning of their reform periods. India had still not attained a 100% primary enrollment rate by 1990, although China had reached that level 10 or more years earlier (Table 1). Almost 80% of adults (15 years and older) in China were literate in 1990, as compared to slightly less than half in India. And in the early 1980s, when China was embarking on its economic reforms, two-thirds of adults were literate—still appreciably higher than in India when its main reform period started 10 years later.[35]

Gender inequalities at the outset of the reform period also stand out in India. The (absolute and proportionate) differences between male and female enrollment and literacy rates were higher for India (Table 1).[36] Only about one-in-three adult women (and only one-half of adolescent girls) were able to read and write at the time India embarked on its current reform

[35] For a good discussion of these and other differences between China and India in human development attainments ate the outset of their respective reform periods see Drèze and Sen (1995, Chapter 4).

[36] For a discussion of the reasons for this gender gap in India, including its historical roots in Brahminical tradition as well as more current biases in the schooling system and parental behavior see Drèze and Sen (1995, Chapter 6).

period; by contrast, when China embarked on its reforms 10 years earlier, over half of adult women and 70% of adolescent women were literate.[37] Over time, the gender gaps in education and literacy have been narrowing in India (Table 1).

India also lagged in its health attainments (Table 1). India's infant mortality rate in 1990 was 80 deaths per 1,000 live births, more than twice that of China in 1990, and there was also an eight year difference in life expectancy (60 years in India as compared to 68 years in China).

Sub-national differences in these and other inequalities also reveal their importance to poverty reduction. Across states of India, the differences in the impacts of non-farm economic growth on poverty reflect inequalities in a number of dimensions; low farm productivity, low rural living standards relative to urban areas and poor basic education all inhibited the prospects of the poor participating in growth of the non-farm sector (Ravallion and Datt, 2002). Interstate differences in initial levels of schooling appear to have been the dominant factor in explaining the subsequent impacts of non-farm economic growth on poverty. Those with relatively little schooling and few assets, or little access to credit, were less well positioned to take advantage of the new opportunities unleashed by market-oriented reforms. Sub-nationally, India's disparities in literacy rates are driven more by the differences in female literacy, which has greater explanatory power for rate of poverty reduction (Datt and Ravallion, 1998b).

The potential for using income redistribution to address India's poverty problem is far more limited than in China or (especially) Brazil. Repeating the hypothetical tax rate calculation made above for China and Brazil, it would be impossible to raise enough revenue from a tax on Indian incomes above the US poverty line to fill India's poverty gap relative to the $1.25 a day line; the required marginal tax rate would exceed 100%.[38] Indeed, even at a 100% marginal tax rate, the revenue generated could fill only 20% of India's aggregate poverty gap. Using the mixed method instead, the marginal tax rate still exceeds 100%, though only narrowly.[39]

India has had a long history of direct interventions, often aimed at fighting poverty, notably through food subsidies, farm-input subsidies, subsidized credit schemes and workfare schemes. The subsidies on food and fertilizers, in particular, have been costly in budgetary terms and economically inefficient; some of the poor have clearly benefited, but many have not, while

[37] The adolescent literacy rates are from Drèze and Sen, 1995, Table 4.2).

[38] Recalling the earlier notation, the value of $PG(13)$ is 86.7% in India. With a value of $PG(1.25)$ of 10.51% and mean consumption of $1.76, the required marginal tax rate would be almost 500%!

[39] The value of $PG(13)$ is 82.6% using the mixed method, while $PG(1.25)$ is 3.98% and mean consumption is $2.30.

many of the non-poor have. Survey data for 2004/05 indicate that India's the poorest wealth quintile are the least likely to have some form of ration card, to allow access to subsidized goods, and that the richest quintile are the most likely (Ajwad, 2006).

There are a number of reasons for caution in making an assessment of the poverty impacts of such programs, including political economy considerations.[40] But few careful observers would contend that India's record in using this class of policies to fight poverty is anything but mixed. By conventional assessments of who is "poor," these interventions have probably reduced poverty somewhat, but they have not been well-targeted and there have been persistent problems of corruption.[41]

There is much hope for the new *National Rural Employment Guarantee Scheme* (NREGS). This promises to provide up to 100 days of unskilled manual labor per family per year, at the statutory minimum wage rate for agricultural labor, to anyone who wants it in rural India. The scheme was rolled out in phases and now has national coverage. India has had much experience with such programs, going back to the Famine Codes of the late nineteenth century.[42] NREGS was heavily influenced by the famous *Employment Guarantee Scheme* (EGS) in Maharashtra, which started in the early 1970s. This aims to assure income support in rural areas by providing unskilled manual labor at low wages to anyone who wants it. The scheme was financed domestically, largely from taxes on the relatively well-off segments of Maharashtra's urban populations. The employment guarantee is a novel feature of the EGS idea, which helps support the insurance function, and also helps empower poor people. Those seeking relief must work to obtain support, and the work done can help develop badly needed public works, particularly in poor areas. The work requirement helps assure a degree of "self-targeting," in that non-poor people would not often be attracted to such work. The ability to provide self-targeted insurance against down-side risks has been a marked advantage of these schemes over other options, including the targeted transfers favored by Brazil. However, there are costs too, and these are often hidden; in particular, the work requirement imposes a cost on participants, namely their foregone income from other uses of their time.

---

[40] See Ravallion (2009) (in the context of an anti-poverty program in China, though the points made are reasonably generic). On the political economy of targeting see Gelbach and Pritchett (2000).

[41] For further discussion, including an analysis of the average and marginal incidence of these programs, see Lanjouw and Ravallion (1999).

[42] On India's Famine Codes see Drèze (1990).

Past research on these schemes has pointed to the importance of design features to realizing the potential benefits, notably that the wage rate is consistent with assuring the guarantee of employment, given the budget (Ravallion et al., 1993). The value of the assets created is also crucial to the cost-effectiveness in fighting poverty, relative to other schemes (Ravallion and Datt, 1995). Issues of program implementation and monitoring, and the scope for corruption, also figure prominently in concerns about whether the potential of NREGS will in fact be realized. NREGS incorporates a number of innovative design features that will help address these concerns, including the use of social audits and an advanced monitoring and information system. NREGS will certainly help reduce poverty in rural India, though how much impact it has remains to be seen.[43]

India can learn from other county's efforts (including Brazil's) at assuring that transfers and subsidies in the name of poverty reduction really do reach the poor and do so in a way that promotes positive behavioral changes (such as related to girls' schooling in India). The CCT programs used by Brazil and other countries merit India's attention, these would need to be adapted to the Indian context. (The proposed new national identity cards in India would help with the administrative control of such a program.) However, it would clearly be important to combine this type of incentive scheme for promoting investment in human capital of children in poor families with "supply-side" efforts in delivering better health and education services.

Conclusions

History is important to understanding the differences between these three countries in their progress against poverty. China's high pace of poverty reduction reflects both growth-promoting policies—to undo the damage left by past policy failures—and the advantageous initial conditions left by the pre-reform regime—notably the relatively low inequality in access to productive inputs (land and human capital), which meant that the poor were able to share more fully in the gains from growth.

By contrast, Brazil's pre-reform regime was one of high inequality, with distortions that probably kept inequality high. Brazil's historically high inequality has clearly been a constraint on progress against poverty; high inequality meant that a low share of the gains from growth

[43] An *ex ante* assessment suggested that NREGS on poverty are likely at the prevailing wage rates and budget allocations to the scheme, also given the likely deadweight losses (including foregone income of participants) (Murgai and Ravallion, 2005).

went to the poor, and the high inequality may well have retarded growth, which was low over most of the period, though picking up in the reform period. Nonetheless, Brazil has been doing well against poverty in its reform period, by combining greater macroeconomic stability with more effective and pro-poor social policies. While Brazil's macroeconomic instability of the past was rather extreme, the experiences of all three countries confirm the importance of keeping inflation under control; periods of higher inflation brought slower progress against poverty in all three countries. However, without substantially higher growth rates, it will be very difficult for Brazil to achieve China's success against poverty.

Since the late 1980s, rising inequality in China has attenuated the gains to the poor from growth and threatens the growth process looking forward. Indeed, without more effective efforts to redistribute, China is well on the way to becoming a high inequality country, like Brazil. In addressing the country's new inequality problem, China can learn from Brazil. Combining China's growth-promoting policies with Brazil's social policies would surely be a good formula for any country.

In some respects, India's record against poverty has more in common with China than Brazil, notably in the combination of growth with rising inequality and falling poverty. But if one probes more deeply there are also some similarities with Brazil. India's consumption inequality is relatively low, and certainly not as high as Brazil's income inequality, although India's level of income inequality is probably higher than consumption inequality, and by one assessment it is not much lower than Brazil's. India's (large) inequalities in other dimensions, including human development, have clearly handicapped the country's progress against poverty, particularly from non-farm economic growth, although there are some encouraging signs of greater poverty impact from the urban economic growth process in the reform period. Both countries have probably paid a price over time for high initial inequalities of opportunity.

In all three countries, the sectoral pattern of growth mattered to poverty reduction, independently of the overall rate of growth. In China, growth in the output of the primary sector (mainly agriculture) was the main driving force in poverty reduction, while in Brazil and India, the tertiary (services) sector was more important. The secondary (industrial) sector played a less important direct role in all three countries (though there may well be indirect effects via growth in the other two sectors). Given that different types of policies are needed to foster growth in

different sectors, the sectoral priorities of policy makers—which have varied over time within each country as well as between them—have mattered to progress against poverty.

Brazil (since the mid-1990s) and India (going back to the 1970s) have clearly been more aggressive than China in their efforts to attack poverty through direct interventions, such as using (conditional or unconditional) transfers. This may not be too surprising, given that Brazil clearly has greater capacity for attacking poverty through redistribution that either China or India. However, countries such as China and India can learn from Brazil's success in addressing the (continuing) problem of high inequality. Indeed, China appears to be well on the way to having a similar capacity for redistribution as Brazil. All three countries need to invest more in rigorous impact evaluations of their future social policies.

Looking forward, India's success in delivering better health and education to its poor must surely be seen as the key factor in assuring more rapid poverty reduction—by allowing the poor to participate more fully from the opportunities unleashed by India's more robust growth process. Just as Brazil has begun to seriously tackle the country's high income inequality, India needs to address more vigorously its own inequalities, particularly in human development.

One can summarize this comparative assessment by imagining a simple score card for the two key dimensions of effective country performance against poverty: pro-poor growth and pro-poor social policies. In their reform periods, China clearly scores well on the pro-poor growth side of the card, but neither Brazil nor India do; in Brazil's case for lack of growth and in India's case for lack of poverty-reducing growth. Brazil scores well on the social policies side, but China and India do not; in China's case, progress has been slow in implementing new social policies more relevant to the new market economy (despite historical advantages in this area, inherited from the past regime) and in India's case, the bigger problem has been the extent of capture of the many existing policies by non-poor groups.

Appendix: Data issues

Details on the data used in the country-specific studies can be found in the relevant papers cited. This Appendix provides only an overview of the main issues related to the comparisons of country performance over time. Unless noted otherwise the poverty and inequality measures reported here are from *PovcalNet* and other data are from the World Bank's Development Data Platform.

Household surveys: The main data needed for assessing progress against poverty come from household surveys of consumption or income, supplemented by data on prices. But there is more than one way of doing a survey, and the heterogeneity amongst existing data sources can cloud comparisons over time and across countries.

There are problems in the available household surveys for all three countries, but it is India where those problems are most worrying. The biggest concern is that there is a rising gap between aggregate household consumption as measured from India's National Sample Surveys (NSS) (the main household surveys used to measure poverty) and the PCE component of domestic absorption in the NAS (Table 1). There are reasons why these two data sources should not agree, even if both are correct, given differences in what is being measured.[44] However, the extent of this discrepancy for India is large by international standards, with aggregate consumption based on the sample surveys being not much more than half of the household consumption component of the NAS. (For developing countries as a whole, the survey-based mean consumption is about 90% of consumption as measured in the NAS.) There is no sound basis for assuming that the national accounts are right and the surveys are wrong. But this data issue does cast a cloud of doubt over India's progress against poverty.

One possible approach to this problem is to simply re-scale the survey means to be consistent with the national accounts, which are assumed to be comparable and accurate. In one version of this method, Bhalla (2002) replaces the survey mean by consumption from the NAS, but keeps the survey-based distribution; in other words, he re-scales all survey-based consumption (or income) levels by the ratio of NAS consumption to the survey mean.[45] However, there is no obvious basis for assuming that the discrepancy between the survey mean and NAS consumption per capita is solely due to underestimation in the surveys or that the survey measurement errors are distribution neutral; the surveys may well under-estimate the mean but also under-estimate inequality. Instead, Karshenas (2004) replaces the survey mean by its predicted value from a regression on consumption per capita from the NAS. So instead of using NAS consumption, Karshenas uses a stable linear function of NAS consumption, with mean equal to the overall mean of the survey means. As in Bhalla's method, this assumes that NAS consumption data are comparable and ignores the country-specific information on the levels in surveys. That is a questionable assumption. However, Karshenas assumes that the

[44] Further discussion of these differences can be found in Ravallion (2000, 2003b) and Deaton (2005).

[45] Bourguignon and Morrisson (2002) and Sala-i-Martin (2006) also re-scale the mean, although they anchor their measures to GDP per capita rather than to consumption.

surveys are correct on average and focuses instead on the problem of survey comparability, for which purpose the poverty measures are anchored to the national accounts data.

Under certain conditions, one can derive a defensible method of mixing NAS and survey data. The idea is to treat the NAS data as the Bayesian prior, and the survey as the new information. Chen and Ravallion (2009) show that if consumption is log-normally distributed with a common variance between the prior and the new data, then the mixed (posterior) estimator is the geometric mean of the survey mean and its predicted value based on consumption per person from the NAS. These are strong assumptions; in particular, the prior based on the NAS may well have a different degree of inequality to the survey. However, this result does at least offer a clear foundation for a sensitivity test, given the likely heterogeneity in surveys. The predicted values were based on date-specific cross-country regressions (Chen and Ravallion, 2009)

Poverty lines: There are also differences in the way poverty is measured from surveys in these countries. The poverty lines used in each country do not have the same purchasing power with Brazil's national poverty line having a real value appreciably higher than India's and China's. It is compelling to apply a common standard, such that any two people with the same purchasing power over commodities are treated the same way—both are either poor or not poor, even if they live in different countries.[46] The main international line used here is $1.25 a day at purchasing power parity (PPP) in terms of household consumption in 2005; this is the average poverty line found in the poorest 15 countries in a data set on national poverty lines across 75 developing countries.[47] Key summary statistics are also given for a line of $2.00 a day at 2005 PPP, which is the median poverty line for all developing counties with the available data.

Consumption versus income: A further difference is in the way household welfare is measured for deciding who is poor. India's NSS uses consumption rather than income, as used in Brazil and China; due to consumption smoothing, income inequality tends to be higher than consumption inequality. The level of income inequality in India is likely to be higher than consumption inequality. The NSS does not include incomes, but one estimate based on incomes (though from a different survey to the NSS) found a Gini index of income inequality in India in 2004/05 of 0.53—still lower than in Brazil, but not by much, and higher than in China (Lanjouw and Murgai, 2009).

So there are two potentially offsetting data problems in comparing poverty in India with that in Brazil and China. Average consumption from India's surveys may well underestimate mean income but it may well underestimate inequality too.

National accounts: This paper reports World Bank data on the NAS aggregates (GDP and PCE), which are based on official sources. These too can be questioned. Here the country that has figured most prominently in the debates in the literature is China, for which it has been argued that official estimates over-estimate the growth rate of GDP. In particular, Maddison

[46] One argument against this view is that people care about relative deprivation relative to the norms within their own country. For a critical discussion of this view see Ravallion (2008a).

[47] See Ravallion et al. (2009). On the differences between this line and the prevailing official line in India see Ravallion (2008b). Note that India's and China's official poverty lines are closer to $1.00 per day at 2005 PPP.

(1998) has argued that the official statistics overstate China's GDP growth rate by about 2% points over the reform period.[48] While some degree of over-estimation appears likely, questions have also been raised about the Maddison's data and assumptions, notably in a detailed and comprehensive review by Holz (2006a,b).[49] Holz's critique illustrates the tension between imposing international standards for data collection and adapting to local realities; for example, influenced by practices in some OECD countries, Maddison assumes zero growth of labor productivity in "non-material services", while Holz questions the appropriateness of that assumption in the Chinese transition context.

PPPs: International comparisons of economic aggregates have long recognized that market exchange rates are deceptive, given that some commodities are not traded; this includes services but also many goods, including some food staples. Furthermore, there is likely to be a systematic effect, stemming from the fact that low real wages in developing countries entail that labor-intensive non-traded goods tend to be relatively cheap. Global economic measurement, including poverty measurement, has relied instead on PPPs, which give conversion rates for a given currency with the aim of assuring parity in terms of purchasing power over commodities, both internationally traded and non-traded.

This paper uses the PPPs for "individual consumption by households" from World Bank (2008a,b), based on the 2005 *International Comparison Program* (ICP). This entailed a number of improvements over past ICP rounds, including in developing detailed product listings and descriptions, which add significantly to the cost of the data collection. Country coverage improved considerably. Most importantly in the present context, this was the first time China participated officially in the ICP; nor had India participated in the 1993 ICP (the prior round used for estimating global poverty measures). The Bank uses a multilateral extension of the bilateral Fisher price index known as the EKS method. On the advantages of this method over the alternative (Geary-Khamis) method see Ackland et al. (2006).

The new PPPs still have some limitations, despite the improvements introduced by the ICP's 2005 round. Making the commodity bundles more comparable across countries (within a given region) invariably entails that some of the reference commodities are not typically consumed in certain countries, generating either missing values or prices drawn from unusual outlets. However, the only way to avoid this problem is to choose instead more representative country-specific bundles, which introduces a quality bias, whereby lower quality goods are priced in poor countries. Also, the weights attached to different commodities in the conventional PPP rate may not be appropriate for the poor; Chen and Ravallion (2009) examine the sensitivity of our results to the use of alternative "PPPs for the poor" available for a subset of countries from Deaton and Dupriez (2009).

While in most countries the ICP price surveys had national coverage, for China, the ICP survey was confined to 11 cities. We treat the ICP PPP as an urban PPP for China and use the

[48] More precisely, Maddison (1998) proposes a downward revision of 2.4% points for the GDP growth rate over 1978-1995; Maddison and Wu (2008) propose a downward revision of 1.7% points over 1978-2003.

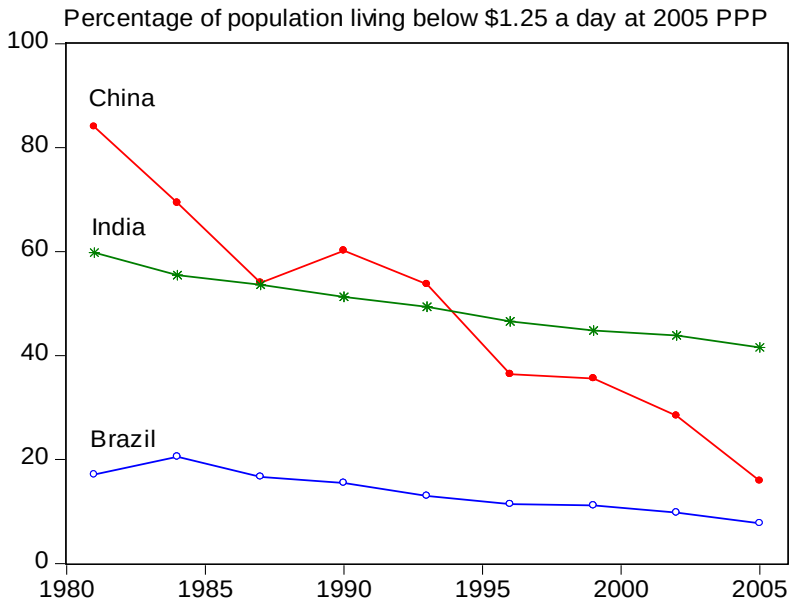
[49] Also see Maddison's (2006) reply to Holz, and the latter's counter-reply (Holz, 2006b).

ratio of urban to rural national poverty lines to derive the corresponding rural poverty line in local currency units (Chen and Ravallion 2008). For India the ICP included rural areas, but they were underrepresented. We derived urban and rural poverty lines consistent with both the urban-rural differential in the national poverty lines and the relevant features of the design of the ICP samples for India; further details can be found in Ravallion (2008b). No adjustments were made for Brazil.

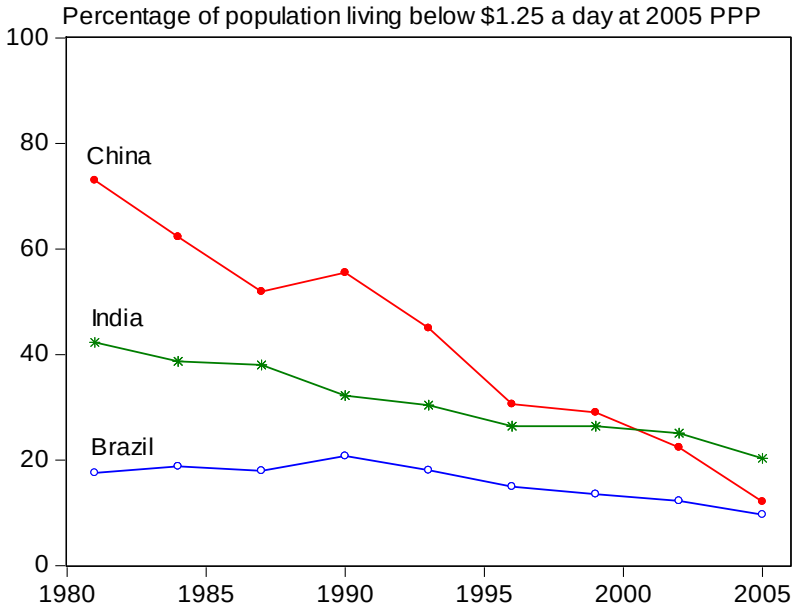
Given the changes in data and methodology between ICP rounds, PPPs for different benchmark years cannot be easily compared, and cannot be expected to be consistent with national data sources (Dalgaard and Sørensen, 2002; World Bank, 2008b). We follow common practice in letting the national data override the ICP data for inter-temporal comparisons; this is the most reasonable position to take given the changes in methodology between different ICP rounds (World Bank, 2008b). Thus the PPP conversion is only done once for each country, and all estimates are revised back in time consistently with the data for that country.

Figure 1: Headcount indices of poverty for a common international poverty line

1(a) Survey-based



1(b) Mixed method



Source: Chen and Ravallion (2009).

Table 1: Summary statistics

	Brazil			China			India		
	1981	1993	2005	1981	1993	2005	1981	1993	2005
Average income or consumption									
GDP per capita ($PPP per year)	7072.8	7241.0	8471.0	543.5	1505.5	4076.3	901.4	1274.1	2233.9
PCE per capita ($PPP per year)	3727.3	3711.1	4408.6	248.9	635.4	1336.6	642.5	790.3	1208.8
Survey mean ($PPP per year)	2367.5	3091.4	3344.2	300.2	571.8	1294.8	494.5	560.3	642.2
Mixed mean ($PPP per year)	2323.7	2473.0	3030.0	382.3	597.5	1219.6	613.9	699.3	841.0
Inequality and human development									
Gini index (%)	57.5	59.7	57.6	29.1	35.5	41.5	35.1	30.8	33.4
Infant mortality rate (deaths per 1000 births)	72.2	49.2	21.8	45.8	36.3	21.4	113	80	57.7
Life expectancy at birth (years)	62.8	66.6	71.81	65.5	68.3	72.6	55.7	59.7	64.0
Primary enrollment rate (Female/male, %)*	136.7	141.0	136.9	111.7 (86.9)	127.5 (93.3)	111.2 (99.5)	81.6 (67.6)	93.6 (76.7)	114.6 (97.6)
Secondary enrollment rate (Female/male, %)*	47.2	54.2	105.5	43.2 (73.2)	37.7 (75.1)	75.5 (100.8)	33.1 (49.3)	41.3 (59.7)	54.0 (82.3)
Literacy (% of people age 15+) (Female/male, %)*	74.6	86.4	89.6	65.5 (64.6)	77.8 (78.2)	93.3 (93.3)	40.8 (48.7)	48.2 (54.7)	66.0 (70.9)
Poverty									
Headcount index ($1.25; %)	17.1	13.0	7.8	84.0	53.7	16.3	59.8	49.4	41.6
Headcount index using mixed method ($1.25; %)	17.6	18.1	9.7	73.0	45.0	12.1	42.3	30.4	20.3
Headcount index ($2.00; %)	31.1	24.7	18.3	97.8	78.6	36.9	86.6	81.7	75.6
Headcount index using mixed method ($2.00; %)	31.7	31.5	21.1	95.4	78.4	33.9	77.0	68.4	57.0

Notes: GDP, per capita consumption expenditure (PCE) and the survey mean are all at PPP for 2005 and 2005 constant prices and annual. Survey means relate to household income per person for Brazil and China and household consumption expenditure per person for India. Adult literacy rate for Brazil is 2006 and 2007 for China and India. Enrollment rates are 1980 and 2006 for China. *: Enrollment and literacy rates have been approximately equal for Brazil since the 1970s, and so are omitted.

Sources: Poverty and inequality measures are from *PovcalNet*. All other data are from the World Bank's Development Data Platform.

Table 2: Growth rates

	Brazil			China			India		
% per year	1981 -1993	1993 -2005	1981 -2005	1981 -1993	1993 -2005	1981 -2005	1981 -1993	1993 -2005	1981 -2005
GDP per capita	0.2	1.3	0.8	8.9	8.7	8.8	2.9	4.8	3.9
PCE per capita	0.0	1.4	0.7	8.1	6.4	7.3	1.7	3.6	2.7
Survey mean	2.2	0.7	1.4	5.5	7.0	6.3	1.0	1.1	1.1
Mixed mean	0.5	1.7	1.1	3.8	6.1	5.0	1.1	1.5	1.3
Headcount index ($1.25)	-2.3	-4.2	-3.2	-3.7	-9.5	-6.6	-1.6	-1.4	-1.5
Headcount index; mixed method ($1.25)	0.2	-5.1	-2.5	-4.0	-10.4	-7.2	-2.7	-3.3	-3.0
Headcount index ($2.00)	-1.9	-2.5	-2.2	-1.8	-6.1	-4.0	-0.5	-0.6	-0.6
Headcount index; mixed method ($2.00)	-0.1	-3.3	-1.7	-1.6	-6.7	-4.2	-1.0	-1.5	-1.2
Population	1.9	1.5	1.7	1.4	0.9	1.1	2.1	1.7	1.9

Notes: The compound annual growth rate between year 0 and year T is $g = (y_T / y_0)^{1/T} - 1$. (This gives very similar results to the annualized log difference, $\ln(y_T / y_0) / T$.)

Source: Table 1.

Table 3: Rates of poverty reduction under all combinations of growth rates and elasticities

Rate of poverty reduction (% per year; $1.25 a day)		Growth rate (GDP per capita; % per year)		
		Brazil (1.3)	China (8.8)	India (4.8)
Elasticity of poverty reduction to GDP growth	Brazil (-3.2)	-4.2	-28.2	-15.4
	China (-0.8)	-1.0	-6.6	-3.8
	India: survey mean (-0.3)	-0.4	-2.6	-1.5
	India: mixed mean (-0.7)	-0.9	-6.2	-3.4

Note: The time periods are 1993-2005 for Brazil and India, and 1981-2005 for China (corresponding to their reform periods.) The numbers in parentheses are the elasticities (left) and growth rates (top).

Source: Table 2.

References

Ackland, Robert, Steve Dowrick and Benoit Freyens, 2006, "Measuring Global Poverty: Why PPP Methods Matter," mimeo, Australian National University.

Ahluwalia, Montek S., 2002, "Economic Reforms in India: A Decade of Gradualism," *Journal of Economic Perspectives* 16(3).

Ajwad, M. I., 2006, "Coverage, Incidence and Adequacy of Safety Net Programs in India." Background paper for Social Protection for a Changing India, World Bank.

Bandyopadhyay, Sanghamitra, 2004, "Twin Peaks: Distribution Dynamics of Economic Growth across India States," in Anthony Shorrocks and Rolph Van Der Hoeven (eds), *Growth, Inequality and Poverty*, Oxford: Oxford University Press.

Barros, Ricardo Paes, Mirela de Carvalho, Samuel Franco and Rosane Mendonça, 2006, "Determinantes Imediatos da Queda da Desigualdade de Renda Brasileira", Chapter 12 in Barros, Foguel and Ulyssea (eds.) *Desigualdade de Renda no Brasil: uma analise da queda recente*. Rio de Janeiro: IPEA.

Benabou, Roland, 1996, "Inequality and Growth," in Ben Bernanke and Julio Rotemberg (eds), *National Bureau of Economic Research Macroeconomics Annual*, Cambridge: MIT Press, pp.11-74.

Bhalla, Surjit, 2002, *Imagine There's No Country: Poverty, Inequality and Growth in the Era of Globalization*, Institute for International Economics, Washington DC.

Bourguignon, François and Christian Morrisson, 2002, "Inequality Among World Citizens: 1820-1992," *American Economic Review*, 92(4): 727-744.

Bourguignon, François, Francisco Ferreira and Michael Walton, 2007, "Equity, Efficiency and Inequality Traps: A Research Agenda", *Journal of Economic Inequality*, 5:.235-256.

Brandt, Loren and Thomoas Rawski, 2008, "China's Great Economic Transformation," in Brandt, Loren and Thomoas Rawski (eds) *China's Great Economic Transformation*, Cambridge: Cambridge University Press.

Chaudhuri, Shubham and Martin Ravallion, 2006, "Partially Awakened Giants: Uneven Growth in China and India" in *Dancing with Giants: China, India, and the Global Economy*, edited by L. Alan Winters and Shahid Yusuf, World Bank.

Chen Shaohua and Martin Ravallion, 2008, "China is Poorer than we Thought, but no Less Successful in the Fight Against Poverty," in Sudhir Anand, Paul Segal, and Joseph Stiglitz (ed), *Debates on the Measurement of Poverty*, Oxford University Press.

_____ and _____, 2009, "The Developing World is Poorer than we Thought, but no Less Successful in the Fight Against Poverty", Policy Research Working Paper 4703, World Bank, Washington DC. (http://econ.worldbank.org/docsearch).

Datt, Gaurav and Martin Ravallion, 1992, "Growth and Redistribution Components of Changes in Poverty Measures: A Decomposition with Applications to Brazil and India in the 1980s," *Journal of Development Economics*, 38: 275-295.

_____ and _____, 1998a, "Farm Productivity and Rural Poverty in India,"

Journal of Development Studies, 34(4): 62-85.

_____ and _____, 1998b, "Why Have Some Indian States Done Better Than Others at Reducing Rural Poverty?" *Economica*, 65: 17-38.

_____ and _____, 2002, "Has India's Reform Economic Growth Left the Poor Behind," *Journal of Economic Perspectives*, 16(3), 89-108.

_____ and _____, 2009, "Has India's Economic Growth Become Less Pro-Poor in the Wake of Economic Reforms?" *Policy Research Working Paper*, World Bank, Washington DC.

Deaton, Angus, 2005, "Measuring Poverty in a Growing World (or Measuring Growth in a Poor World)," *Review of Economics and Statistics* 87: 353-378.

Deaton, Angus and Jean Drèze, 2002, "Poverty and Inequality in India: A Re-Examination," *Economic and Political Weekly*, September 7: 3729-3748.

Deaton, Angus and Olivier Dupriez, 2009, "Global Poverty and Global Price Indices," mimeo, Development Data Group, World Bank.

Dalgaard, Esben and Henrik Sørensen, 2002, "Consistency Between PPP Benchmarks and National Price and Volume Indices," Paper presented at the 27th General Conference of the International Association for Research on Income and Wealth, Sweden.

Drèze, Jean, 1990,"Famine Prevention in India," in Jean Drèze and Amartya Sen, *The Political Economy of Hunger*, Oxford: Oxford University Press.

Drèze, Jean and Amartya Sen, 1995, *India: Economic Development and Social Opportunity*. Delhi: Oxford University Press.

Eswaran, Mukesh and Ashok Kotwal, 1994, *Why Poverty Persists in India*, Delhi: Oxford University Press.

Fan, Shenggen, 1991, "Effects of Technological Change and Institutional Reform on Growth in Chinese Agriculture," *American Journal of Agricultural Economics*, 7: 266-75.

Ferreira Francisco, Phillippe Leite and Martin Ravallion, 2009, "Poverty Reduction without Economic Growth? Explaining Brazil's Poverty Dynamics 1985-2004," *Journal of Development Economics*, in press.

Ferreira, Francisco, Phillippe Leite and Julie Litchfield, 2008, "The Rise and Fall of Brazilian Inequality: 1981-2004", *Macroeconomic Dynamics* 12: 199-230.

Ferreira, Francisco, Phillippe Leite and Wai-Poi, forthcoming, "Trade Liberalization, Employment Flows and Wage Inequality in Brazil," in M. Nissanke and E. Thorbecke (eds.) *The Poor under Globalization in Africa, Asia and Latin America.* (Oxford, OUP).

Fiszbein, Ariel and Schady Norbert, et al., 2009, *Conditional Cash Transfers for Attacking Present and Future Poverty*, World Bank, Washington DC.

Gelbach, Jonah and Lant Pritchett, 2000, "Indicator Targeting in a Political Economy: Leakier can be Better. *Journal of Policy Reform* 4: 113–45.

Heltberg, Rasmus, 2004, "The Grwoth Elasticity of Poverty," in Anthony Shorrocks and Rolph Van Der Hoeven (eds), *Growth,Inequality and Poverty*, Oxford: Oxford University Press.

Holz, Carsten, 2006a, "China's Reform Period Economic Growth: How Reliable are Angus Maddison's Estimates?" *Review of Income and Wealth* 52(1): 85-119.

_____, 2006b, “China’s Reform Period Economic Growth: How Reliable are Angus Maddison’s Estimates? Response to Angus Maddison’s Reply,” *Review of Income and Wealth* 52(3): 471-475.

Kakwani, Nanak, 1993, “Poverty and Economic Growth with Application to Côte D'Ivoire,” *Review of Income and Wealth*, 39, 121-139.

Karshenas, Massoud, 2004, “Global Poverty Estimates and the Millennium Goals: Towards a Unified Framework,” Employment Strategy Paper 2004/5, International Labour Organization, Geneva.

Kuijs, Louis and Tao Wang, 2006, “China´s Pattern of Growth: Moving to Sustainability and Reducing Inequality,” *China and the World Economy* 14(1): 1-14.

Lanjouw, Peter and Rinku Murgai, 2009, “Rising Inequality: A Cause for Concern?” Chapter of the India Poverty Assessment, World Bank, Washington DC.

Lanjouw, Peter and Martin Ravallion, 1999, “Benefit Incidence and the Timing of Program Capture”, *World Bank Economic Review*, 13(2): 257-274.

Lin, Justin, 1992, “Rural Reforms and Agricultural Growth in China,” *American Economic Review*, 82: 34-51.

Maddison, Angus, 1998, *Chinese Economic Performance in the Long Run*, Development Centre of the Organisation for Economic Co-operation and Development, Paris.

_____, 2006, “Do Official Statistics Exaggerate China’s GDP Growth? A Reply to Carsten Holz,” *Review of Income and Wealth* 52(1): 121-126.

Maddison, Angus and Harry Wu, 2008, “Measuring China’s Economic Performance,” *World Economics* 9(2): 13-44.

Montalvo, Jose and Martin Ravallion, 2009, “The Pattern of Growth and Poverty Reduction in China,” Policy Research Working Paper 5069, World Bank, Washington DC.

Murgai, Rinku and Martin Ravallion, 2005, “Employment Guarantee in Rural India: What Would it Cost and How Much Would it Reduce Poverty?”, *Economic and Political Weekly*, July 30: 3450-3455.

Ravallion, Martin, 1997, “Can High Inequality Developing Countries Escape Absolute Poverty?” *Economics Letters*, 56: 51-57.

_____, 2000, “Should Poverty Measures be Anchored to the National Accounts?” *Economic and Political Weekly*, 34: 3245-3252.

_____, 2003a, “Inequality Convergence,” *Economics Letters*, 80(3): 351-356.

_____, 2003b, “Measuring Aggregate Economic Welfare in Developing Countries: How Well do National Accounts and Surveys Agree?,” *Review of Economics and Statistics*, 85: 645–652.

_____, 2005, “Externalities in Rural Development: Evidence for China.” In Kanbur, Ravi and Venables, Tony (Eds.) *Spatial Inequality and Development*, Oxford University Press, Oxford.

_____, 2007, “Inequality is Bad for the Poor,” in *Inequality and Poverty Re-Examined*, edited by John Micklewright and Steven Jenkins, Oxford: Oxford University.

_____, 2008a, “On the Welfarist Rationale for Relative Poverty Lines,” in Kaushik Basu and Ravi Kanbur (eds) *Social Welfare, Moral Philosophy and Development: Essays in Honour of Amartya Sen's Seventy Fifth Birthday*, Oxford: Oxford University Press.

_____, 2008b, “A Global Perspective on Poverty in India,” *Economic and Political Weekly* 43 (43): 31-37.

_____, 2009a, “Are there Lessons for Africa from China’s Success Against Poverty?” *World Development*, 37(2): 303-313.

_____, 2009b, “How Relevant is Targeting to the Success of the Antipoverty Program?” *World Bank Research Observer*, forthcoming.

_____, 2009c, “Decentralizing Eligibility for a Federal Antipoverty Program: A Case Study for China,” *World Bank Economic Review*, 23: 1-30.

_____, 2009d, “Do Poorer Countries have less Capacity for Redistribution?”, Policy Research Working Paper 5046, World Bank, Washington DC.

Ravallion, Martin and Shaohua Chen, 2007, “China’s (Uneven) progress Against Poverty,” *Journal of Development Economics*, 82(1): 1-42.

Ravallion, Martin, Shaohua Chen and Prem Sangraula, 2009, “Dollar a Day Revisited,” *World Bank Economic Review*, 23(2): 163-184.

Ravallion, Martin and Gaurav Datt, 1995, “Is Targeting Through a Work Requirement Efficient? Some Evidence for Rural India,” in Dominique van de Walle and Kimberly Nead (eds) *Public Spending and the Poor: Theory and Evidence*, Baltimore: Johns Hopkins University Press.

_____ and _____, 1996, “How Important to India's Poor is the Sectoral Composition of Economic Growth?”, *World Bank Economic Review*, 10: 1-26.

_____and _____, 2002, “Why Has Economic Growth Been More Pro-Poor in Some States of India than Others?”, *Journal of Development Economics*, 68, 381-400.

Ravallion, Martin, Gaurav Datt and Shubham Chaudhuri, 1993, “Does Maharashtra's 'Employment Guarantee Scheme' Guarantee Employment? Effects of the 1988 Wage Increase,” *Economic Development and Cultural Change*, 1993, 41, pp. 251-275.

Ravallion, Martin and Dominique van de Walle (2008), *Land in Transition.* London: Palgrave-Macmillan.

Sala-i-Martin, Xavier, 2006, “The World Distribution of Income: Falling Poverty and… Convergence. Period,” *Quarterly Journal of Economics*, CXXI (2): 351-397.

Sen, Abhijit and Hiamnshu, 2004, “Poverty and Inequality in India 2: Widening Disparities During the 1990s,” *Economic and Political Weekly*, 39 (September 25), 4361–4375.

Soares, Fabio V., Sergei Soares, Marcelo Medeiros and Rafael G. Osório, 2006, “Cash Transfer Programmes in Brazil: Impacts on Inequality and Poverty,” International Poverty Centre Working Paper # 21.

World Bank, 2008a, *Global Purchasing Power Parities and Real Expenditures. 2005 International Comparison Program*, Washington DC: World Bank.

(www.worldbank.org/data/icp).

_____, 2008b, *Comparisons of New 2005 PPPs with Previous Estimates.* (Revised Appendix G to World Bank, 2008a). Washington DC: World Bank. (www.worldbank.org/data/icp).