Chapter 2

Poverty and Asset Distribution Inequality in Rural India

Kensuke Kubo

Abstract: This chapter focuses on the relationship between asset ownership and poverty in rural India. By reviewing the empirical literature, we find that the ownership of assets is strongly associated with the levels of income and consumption. Moreover, asset holdings are crucial for gaining access to credit, which in turn influences the education decisions of poor households. The current pattern of asset holdings in rural India is unequal, and inequality has increased during the 1990s. The bulk of rural household assets is kept as land, which suggests that the asset position of the smallest holders is declining in absolute terms. While successive land reform initiatives have been undertaken by state governments, they have not led to significant equalization of asset holdings. Moreover, market forces and policy-induced distortions have tended to work in favor of higher inequality in asset distribution. If national and state governments are serious about poverty reduction, they may first need to consider undoing some of the artificial distortions.

Keywords: India, poverty, asset distribution, land, agriculture, nonagricultural sector

Introduction

The Indian economy has been experiencing high grow in the new millennium – between fiscal years 2000/01 and 2006/07, real gross domestic product (GDP) per capita grew at an average annual rate of 5.73% (Ministry of Finance 2008). On the other hand, a national debate has been intensifying as to whether India's growth performance has been sufficiently "pro-poor" or "inclusive"; that is, whether and how far growth has helped to bring the most economically disadvantaged citizens out of

absolute poverty.

Even though the incidence of poverty in India has been continually decreasing in recent years, debate regarding the inclusiveness of growth has not been without merit. As Table 1 shows, the proportion of Indians living below the poverty line – called the "poverty headcount ratio" and calculated on the basis of consumption expenditure data from large-scale household surveys conducted by the National Sample Survey Organization (NSSO) – has fallen from 46.5% in 1983 to 37.2% in 1993/94, and further to 28.7% in 2004/05. What worries commentators, however, is that the pace of poverty reduction has not accelerated significantly, despite a noticeable rise in the economic growth rate: the average annual growth rate of real GDP per capita increased from 2.83% during 1983-1993/94 to 4.42% during 1993/94-2004/05, while the average annual reduction in the poverty headcount ratio, expressed in percentage points, has fallen from 0.89 in the former period to 0.77 in the latter period.

Table 1 Economic growth and poverty during 1983 - 2005

	1983	1993/94	2004/05
Per capita GDP (Rupees, in 1999-2000 prices)	10,253	13,608	22,120
Gini coefficient of inequality (%)	0.30	0.29	0.31
Poverty headcount ratio (%)	46.5	37.2	28.7
	1983 1993/94		1993/94 2004/05
Annual compound growth rate of per capita GDP (%)	2.83		4.42
Annual change in Gini	-0.002		0.002
Annual percentage point change in poverty headcount ratio	-0.89		-0.77

Source: Ministry of Finance (2008) and Himanshu (2007).

Let us consider the concept of "growth elasticity of poverty reduction", forwarded by Kakwani (1993) and others, defined as the percentage fall in a poverty index (such as the headcount ratio) that is associated with a percentage growth in the economy. To make a rough calculation, during the period 1983-1993/94, the ratio between the percentage reduction in the headcount ratio (-20.0) and the percentage increase in per capita GDP (32.7) was -0.61. For 1993/94-2004/05, while the percentage fall in the

headcount ratio (-22.8) was only slightly greater than in the previous period, the percentage growth in per capita GDP (62.6) was much higher, lowering the absolute value of the ratio between the two to 0.37.

According to Kakwani (1993), as long as the shape of the income distribution is unchanged and the poverty line falls on the lower end of the distribution, the growth elasticity of poverty reduction should be greater in absolute value at higher income levels. Thus, developing countries with higher income levels than India tend to exhibit higher values for this elasticity. For example, the growth elasticity of poverty reduction in China during 1980-2001 has been estimated to be around -3 (Ravallion and Chen 2007). The observation that the elasticity is falling in India in recent years suggests a worsening in the country's income distribution; according to Kakwani (1993), increased income inequality tends to be associated with a lower growth elasticity of poverty reduction. Indeed, Table 1 supports this suggestion by showing that the Gini coefficient of income inequality fell between 1983 and 1993/94, but rose back to its previous level of around 0.3 by 2004/05.

A look at state-level data adds some insight. Following Datt and Ravallion (2002), we look at the growth performance of individual Indian states, and relate it to the poverty situation in those states. In Figure 1, the horizontal axis measures the size of each state's poverty population in 1993/94, as a proportion of the national total. For example the most populous state, Uttar Pradesh, also has the highest share (17.8%) of the national below-poverty line population. The vertical axis in Figure 1 measures the period growth rate of agricultural output between 1993/94 and 1999/2000. The states that experienced the highest agricultural growth, such as West Bengal, Rajasthan, and Kerala, were those with smaller shares of national poverty. On the other hand, the high-poverty states (Uttar Pradesh, Bihar, Maharashtra, and Madhya Pradesh) experienced mediocre agricultural growth. In Figure 2 a similar pattern holds for growth of nonagricultural output: growth has been relatively slow in the states with the highest concentration of poverty.

Figure 1 States' poverty shares and growth rates in agricultural output
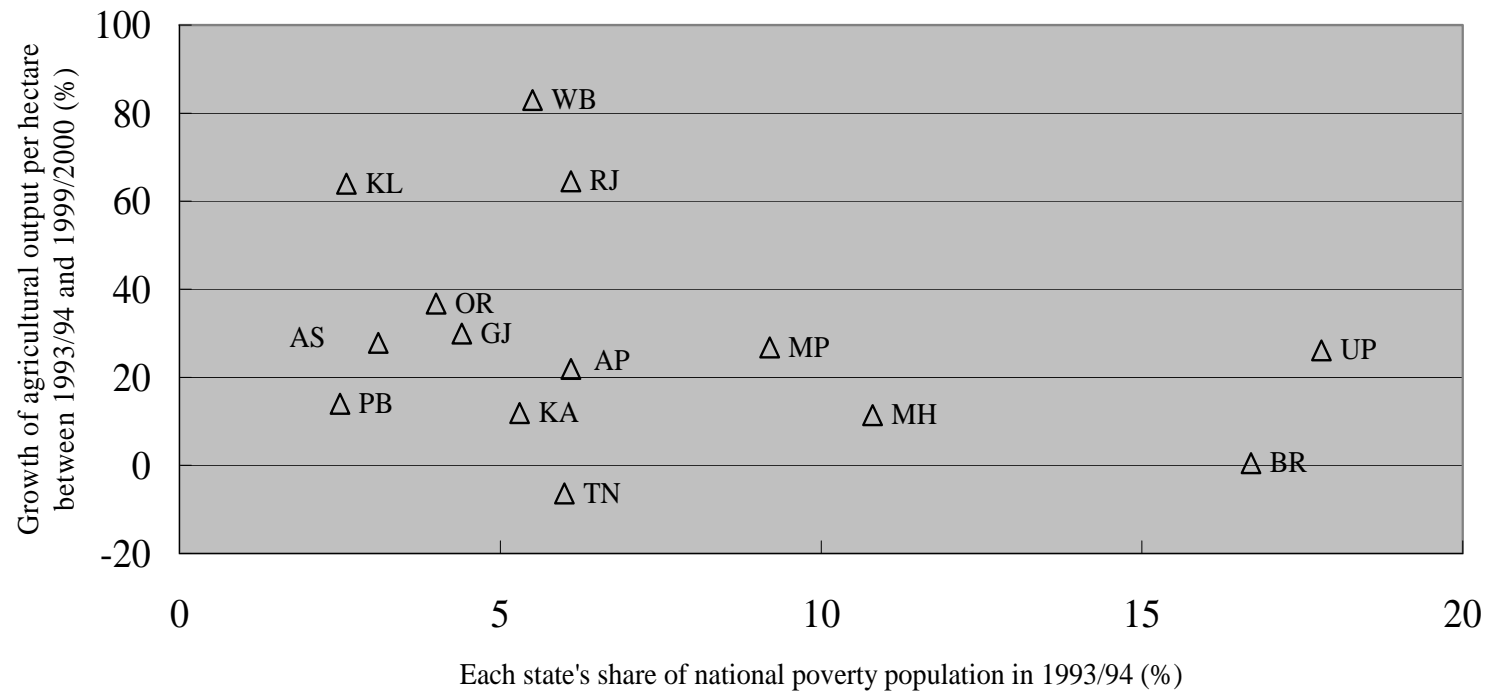
Notes: AP=Andhra Pradesh, AS=Assam, BR=Bihar (includes Jharkhand), GJ=Gujrat, HR=Haryana, KA=Karnataka, KL=Kerala, MP=Madhya Pradesh (includes Chattisgarh), MH=Maharashtra, OR=Orissa, PB=Punjab, RJ=Rajasthan, TN=Tamil Nadu, UP=Uttar Pradesh (includes Uttarakhand), WB=West Bengal.

Source: Data from Datt and Ravallion (2002)

Figure 2 States' poverty shares and growth rates in nonagricultural output
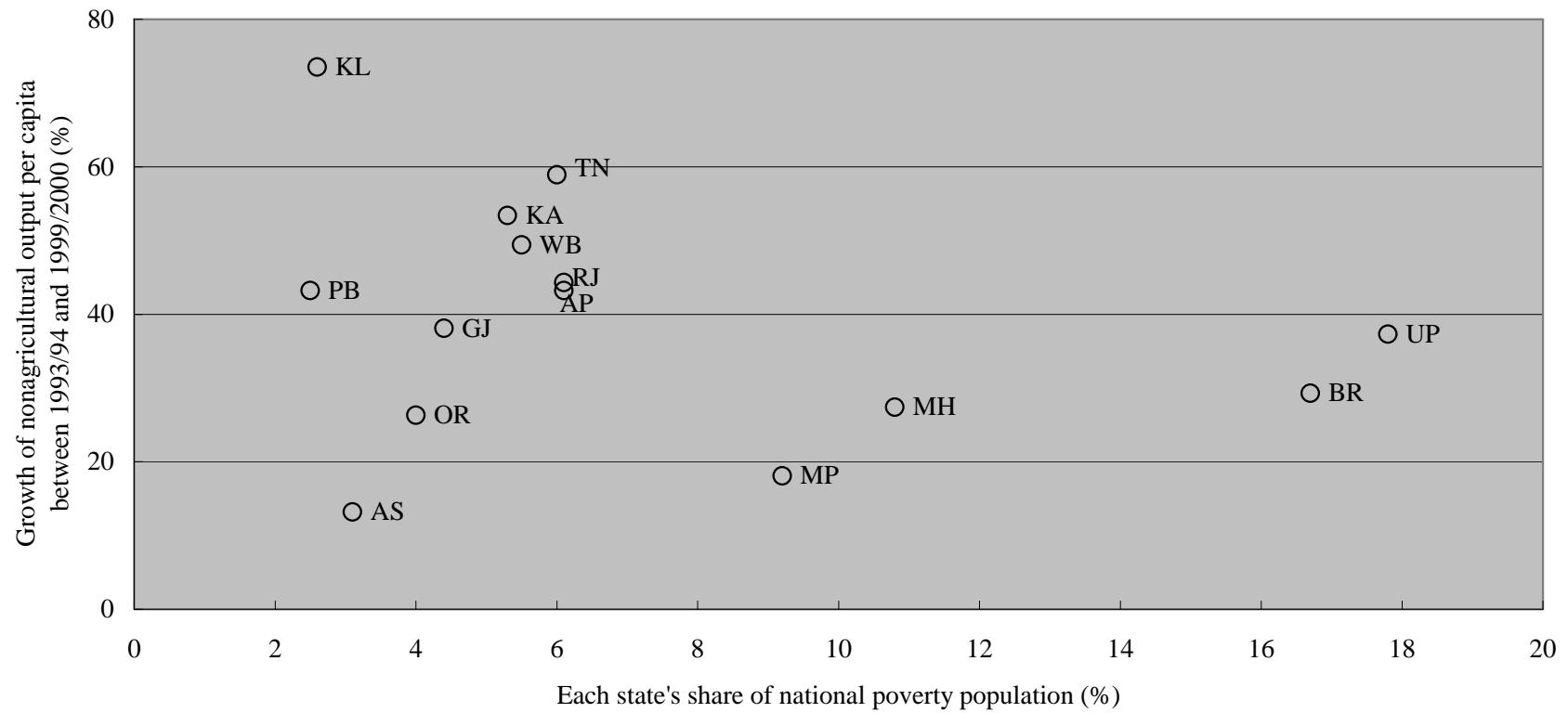
Notes: See notes to Figure 1 for state acronyms.
Source: Data from Datt and Ravallion (2002)

These figures demonstrate that the geographical imbalance of growth during the 1990s slowed down the pace of poverty reduction. According to the calculations of Datt and Ravallion (2002) if agricultural and nonagricultural growth during the 1990s were geographically balanced – that is, if all states grew at the national growth rate – the poverty headcount ratio would have declined by 1.2 percentage points per year rather than the actual annual reduction of 0.8 percentage points.

Another point made by Datt and Ravallion (2002) is the difference among states in the elasticity of poverty reduction with respect to nonagricultural growth. For example in the state of Kerala, a percentage growth in nonagricultural output is associated with a 1.33 percent reduction in the poverty index. Meanwhile, a similar rate of nonagricultural growth in Bihar leads only to a 0.26 percent reduction in poverty. By examining various characteristics of individual states, Datt and Ravallion (2002) come to the conclusion that nonagricultural output growth is less effective at reducing poverty in states characterized by (a) lower literacy rates, (b) higher infant mortality rates, and (c) higher percentage of the rural population that is landless.

While each of the three findings is equally important, this chapter focuses on the third result: that the inequality in the distribution of assets (especially land) has a bearing on the success or failure of poverty reduction in rural India. The first objective of the chapter is to explore the link between asset ownership and poverty. How closely, and why, is asset ownership associated with the incidence of poverty? Does asset ownership also matter for households' ability to move out of poverty? These are the main questions that will be addressed in Section 1. While studies such as Datt and Ravallion (2002) have shown a relationship between the two at the macro-level, other studies have looked at the microeconomic link between asset holdings and poverty. I discuss some of these empirical studies, as well as the logical reasoning behind the asset-poverty linkage.

The second objective of the chapter is to present a snapshot of the distribution and composition of asset ownership in rural India. Microeconomic evidence regarding the asset-poverty relationship will be of less relevance if asset ownership were unambiguously becoming more equal in India. Unfortunately, this is not the case as we will see in Section 2. The section also discusses the composition of asset holdings in the rural sector, and highlights how land has remained the main component within the portfolios of large asset-owners.

Section 3 discusses some of the reasons behind the persistently unequal pattern of land holdings. Post-Independence India has carried out several land reform measures, some of which have had a positive impact on poverty reduction in certain states.

However, the general consensus is that redistributive land reform attempts have not been sufficient to bring about a significant equalization of land ownership. Moreover, the effect of market forces have been such that the poorest rural households are facing increasingly less access to land ownership in many regions. In the section, I first discuss some empirical studies on the impact of land reform. Then, I describe the major dilemmas that have been created by the nexus between land-related policy and market forces. The concluding section contains a summary of the discussion as well as some suggestions on remedial policies.

1. Why Do Assets Matter for Poverty?

1.1 Asset ownership and poverty incidence

Before contemplating the relationship between asset ownership and poverty, let us first consider the concepts of poverty that exist beyond the standard measure of "income or consumption expenditure per capita in one period of time". Important extensions are made by looking at income or consumption over multiple time periods for the same household. By considering multiple consecutive periods, it is possible to identify households that are *chronically poor*, as opposed to those that are suffering temporary and infrequent decreases in income. Another aspect of poverty uncovered through multiple-period observations is *vulnerability*, defined as "the likelihood that a shock will result in a decline in well-being" (World Bank 2001, p.139). A household's vulnerability can be thought of as the product of two components: the probability that the household experiences a significant negative shock (which may vary according to household characteristics), and its ability to shield itself from the impact of a given shock.

In the Indian setting, a few studies have made use of long-term panel datasets to consider these issues, and found that asset ownership is one of the most important predictors of both chronic poverty and vulnerability. Walker and Ryan (1990) examined the income poverty status of 104 rural households in the states of Andhra Pradesh and Maharashtra over a 9-year period between 1975/76 and 1983/84. They found that 88% of the households experienced an income level below the poverty line in at least one of the nine years, and that 22% of the households were below the poverty line in every one of those years[1]. In searching for the correlates of the chronically poor households, Walker and Ryan found that they were disproportionately landless, and relied on agricultural wage earnings. In contrast, the minority of households who did

not experience any income poverty during the 9-period owned an average 10.2 hectares of land and had higher levels of education.

Kurosaki's (2006) study of rural households in neighboring Pakistan offers some insight into the relationship between asset ownership and vulnerability in South Asia. He utilized the results of two surveys, conducted in 1996 and 1999 for the same set of households. The surveys measured household consumption, asset ownership, human capital variables, and exogenous shocks to income. By looking at changes in consumption levels in response to shocks, it is possible to see which types of households are capable of dampening the negative impact of unexpected drops in income. According to Kurosaki's findings, the households that are least capable of coping with income shocks are those with no land ownership and those lacking sources of remittance income.

There are signs that the relationship between asset ownership and poverty is weakening in some parts of India. The study by Kajisa and Palanichamy (2006) explored the determinants of per capita income among rural households in the southern state of Tamil Nadu. They found that during the 1970s, 1980s, and most of the 1990s, the owned acreage of irrigated land had a significantly positive impact on agricultural income as well as total household income. In contrast, during 1999-2003 – the final period of their analysis – land ownership no longer had a significant impact, and was replaced by education levels as the main determinant of income. This is an important finding which supports the view that India's nonagricultural growth, fostered by economic liberalization, is finally beginning to reach the rural poor.

As noted by the authors however, there are several caveats that prevent the generalization of their findings to other regions. Firstly, the dataset used by Kajisa and Palanichamy was meant for estimating the cost of crop cultivation, and thus does not contain observations on landless households. Secondly, the study region has been experiencing extreme shortage of groundwater in recent years, rendering many "irrigated" plots dry, and lowering the absolute profitability of agriculture. Thirdly, the growing role of education in alleviating poverty is of limited respite if the poorest rural households continue to face severe difficulties in providing education to their children.

1.2 Credit and education as key components

Why do holdings of assets, especially land, matter so much for the elimination of poverty? A survey of the literature by Deininger and Feder (2001) suggests that an important component may be access to credit. For a poor rural household to move out of poverty, either in the current generation or in a subsequent one, it is necessary to

make investments in physical and/or human capital.   As with firms in the manufacturing or service sectors, a rural household usually cannot raise its net income without increasing the volume or quality of its factors of production.   Unless the household has cash at hand (in which case it is endowed with assets), it must borrow funds from formal or informal sources in order to invest.   In India, formal credit generally requires the presentation of collateral, which often takes the form of land (Mearns 1999).   Land is an "ideal collateral" because it is immobile and conferred with relatively clear, transferrable ownership rights (Deininger and Feder 2001).

Field evidence suggests that land ownership may indeed affect credit availability in rural India.   The study by Sawada et al (2006) in Andhra Pradesh used an interview-based measure of credit access as the dependent variable, and estimated its determinants.   They found that the value of owned land has a positive impact on access to credit[2].   On the other hand, the results of Pender and Kerr (1999) are inconclusive. They use the transferability status of households' land holdings, rather than ownership *per se*, as the explanatory variable.   While they find that owners of nontransferable land tend to receive less credit, it is not clear whether it is because they have less access, or because they demand less credit.

Accessibility to credit affects not only physical investments undertaken by households, but also educational investments for their children.   For instance, Sawada et al (2006) find that the children (especially girls) of credit-constrained households are less likely to attend school, and tend to spend more time in remunerative work or household chores.   One reason for this is that the mothers of the children are more likely to work outside the household, having less time for household chores.

Taken together, the results suggest that an improvement in the equality of asset ownership in the rural sector would, through better access to credit, improve the educational attainment of children in poor households.   With higher education, the next generation would have a better chance at landing well-paying nonagricultural jobs, as suggested by Kajisa and Palanichamy (2006), Kijima and Lanjouw (2005), and Lanjouw and Shariff (2004).

The link, however convoluted, between asset ownership and human capital formation has significant implications for the question of how India can reduce poverty. As discussed in the Introduction, the literacy rate in a state (which is closely related to the level of educational attainment) was found to have a positive impact on the effectiveness of nonagricultural growth in reducing poverty.   Thus, higher asset distribution equality may have a direct, as well as an indirect (through better credit access and higher education) impact on the poverty reduction potential of

nonagricultural growth.

## 2. Asset distribution patterns in contemporary India

2.1 Inequality of asset and land holdings

Given that asset ownership, and by extension asset distribution, matters for poverty reduction, what is its current status, and in which direction is it changing?   This section presents a snapshot of the distribution of asset ownership holdings in rural India, and discusses some of the trends that can be observed from recent data.

Figure 3 compares the distribution of the stock of owned assets with that of the annual flow of consumption expenditure.   The graphs were constructed from data collected by the National Sample Survey Organization (NSSO) through large-scale household surveys.   By viewing the respective Lorenz curves, it is obvious that the distribution of assets is drastically more unequal than that of consumption.   Moreover, land is more unequally distributed than assets as a whole; while the Gini coefficient (defined as the area between the Lorenz curve and the 45 degree line as a proportion of the total area under the 45 degree line) for consumption expenditure in 2004/05 was 0.31, the corresponding values for total assets (in 2002) and land (in 2003) were 0.62 and 0.76, respectively (Subramanian and Jayaraj 2006; Rawal 2008).

In order to understand why assets are more unequally distributed than consumption, it is necessary to recognize that many of the poorer households depend only on labor income for their consumption needs.   Since human capital is not included among the asset holdings, the graphs in Figure 1 may overstate the inequality in earning potential among rural households.   On the other hand, it is important to recognize that the Lorenz curve for consumption expenditure fails to incorporate the inter-temporal aspects of poverty, such as vulnerability.   If poorer households face higher vulnerability, then it is possible that the Lorenz curve built on the basis of single-period consumption expenditure understates the true level of inequality.   As we learned in Section 1, the level of asset ownership is closely related to how well households can cope with the inter-temporal aspects of poverty.   Thus, the Lorenz curve for asset holdings may contain information on inequality that is missing from its consumption-based counterpart.

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Figure 3 Lorenz curves for consumption expenditure and asset holdings

Source: Computations based on NSSO (2005), NSSO (2006a), and NSSO (2006b).
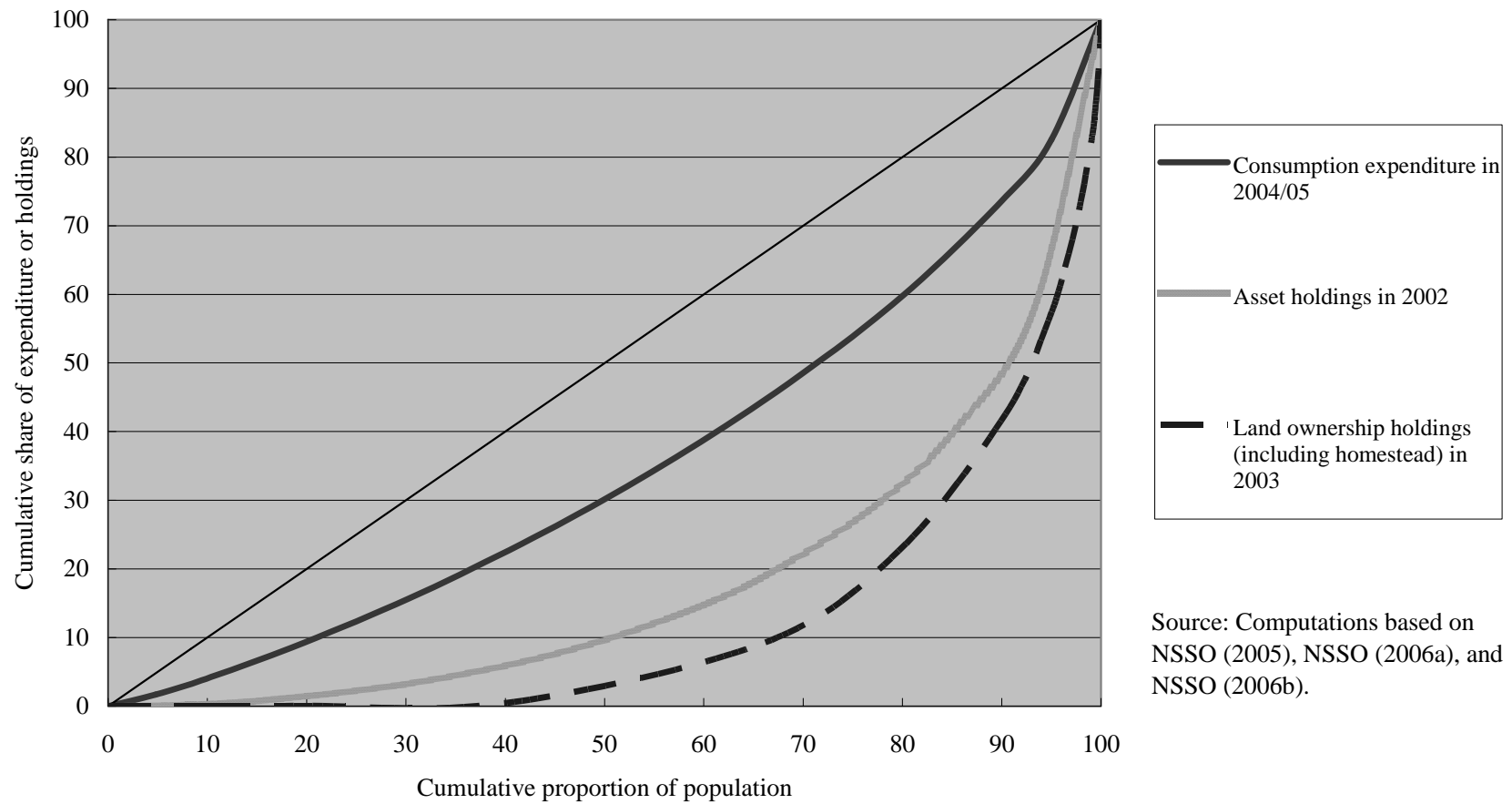
It is important to keep in mind that the asset and land distribution data suffer from two major problems. The first is the problem of potential underreporting. As a result of land reform policies such as the ceiling on land ownership holdings, many large landowners are known to have superficially transferred parts of their ownership through *benami* transactions, whereby holdings are re-registered under the names of nonexistent individuals (Mearns 1999). Since such schemes are used only by those with holdings above the specified ceiling, underreporting is likely to exert a downward bias on indices of inequality. The second problem is that the assets are only measured in gross terms, without netting out liabilities. This is because the liabilities reported by households for the NSSO's *All-India Debt and Investment Survey* (which is also the source of asset distribution data) appear to be grossly underreported. Subramanian and Jayaraj (2006) compare the estimates for total household debt from the NSSO survey with estimates based on the amount of outstanding loans reported by financial institutions. It turns out that the former estimates are only around a quarter of the latter. Since the relationship between underreporting and asset holding size is unknown, it is not possible to know in which direction estimates of net assets would be biased. Thus, researchers such as Subramanian and Jayaraj work mostly with data on gross assets.

With these caveats in mind, and assuming that the underreporting bias does not change significantly over time, we next examine how the inequality of asset holdings have changed over time. Figures 4 and 5 show the transition of asset inequality during the 1980s and 1990s, with states as the unit of observation. Figure 4 maps the Gini coefficient of asset distribution for 1981/82 to the corresponding figure in 1991/92. With the exception of Madhya Pradesh and Rajasthan, all states lie below the 45 degree line, implying that asset inequality fell during the 1980s throughout most of India. It is interesting to note that the same pattern holds for both high-poverty and low-poverty states. Figure 5 presents a contrasting picture; in more than half of the states, the degree of asset inequality increased between 1991/92 and 2002/03. While the states that experienced the largest increase in inequality (those furthest away from the 45 degree line) belong to the low-poverty category, there were only 2 high-poverty states (Bihar and Madhya Pradesh) where inequality decreased.

Figure 4 Transition of asset inequality between 1981/82 and 1991/92
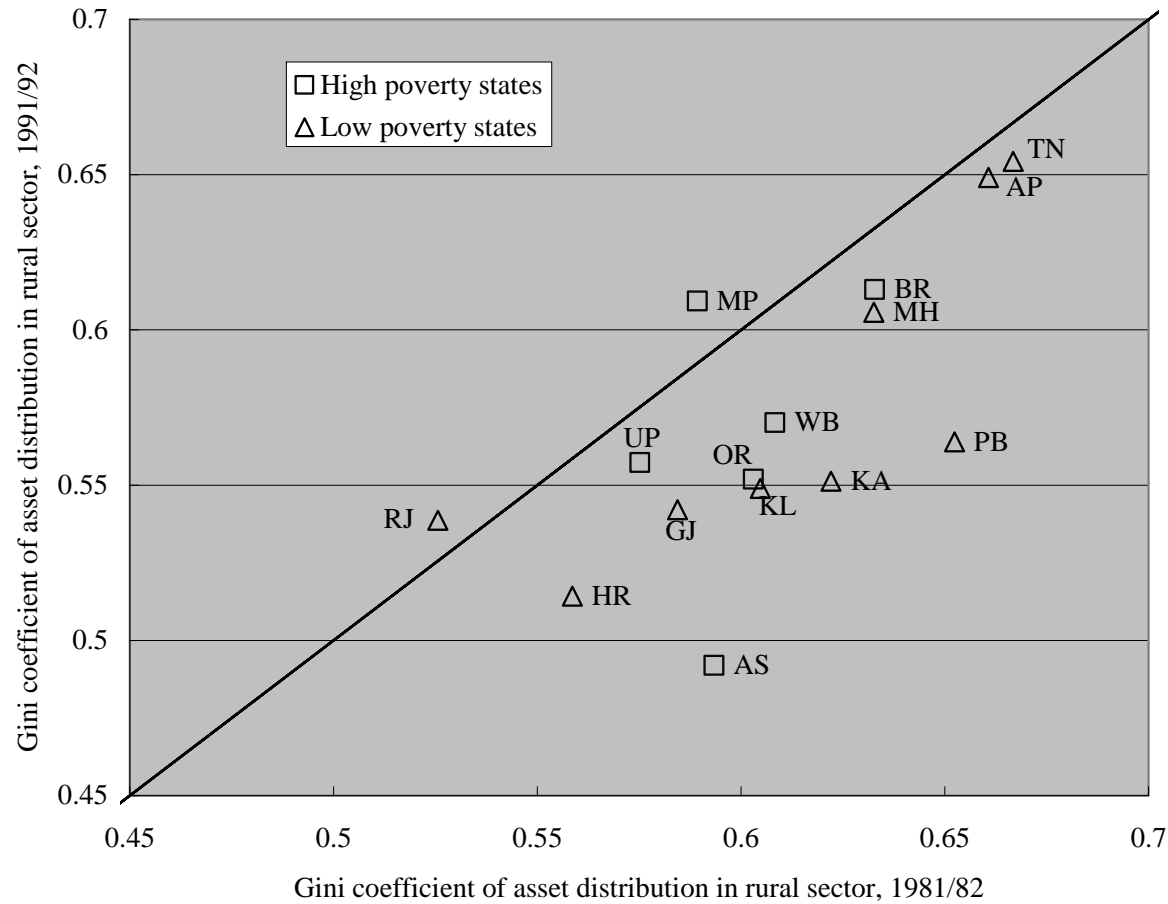
Notes: (1) "High poverty states" are those with a poverty headcount ratio of 40% or higher in 1993/94. The remainig states are defined as "low poverty states".

(2) See notes to Figure 1 for state acronyms.

Source: Constructed from data in Subramanian and Jayaraj (2006), Sen and Himanshu (2003), and Himanshu (2007).

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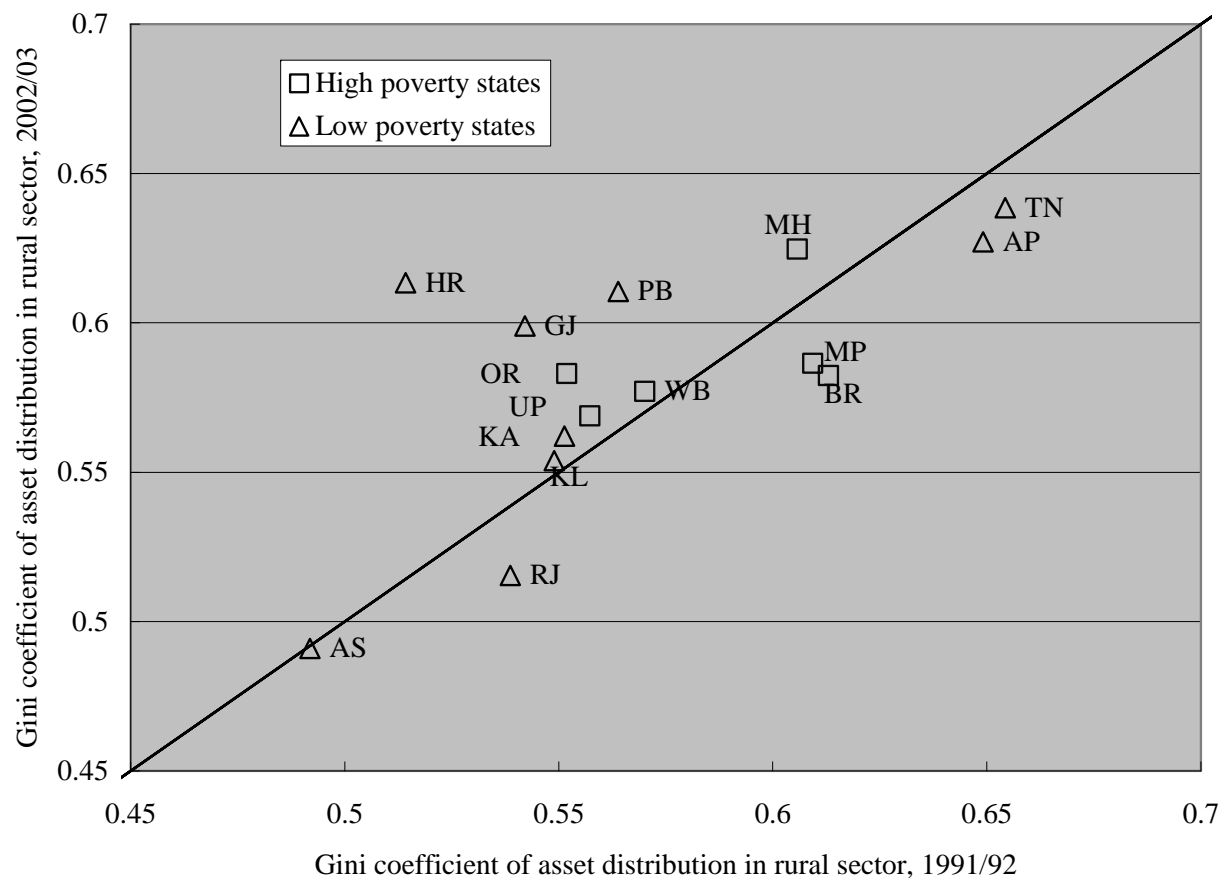Figure 5 Transition of asset inequality between 1991/92 and 2002/03

Notes: (1) "High poverty states" are those with a poverty headcount ratio of 40% or higher in 1993/94. The remainig states are defined as "low poverty states".

(2) See notes to Figure 1 for state acronyms.

Source: Constructed from data in Subramanian and Jayaraj (2006) and Himanshu (2007).

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The resurgence in asset inequality in recent years is alarming in view of the importance of asset holdings for poverty reduction. The shape of the distribution and the value of the inequality index should not be so worrying in themselves if the total quantity of asset holdings were growing with sufficient speed. The problem is that a significant proportion of rural assets is held in the form of land, an asset class whose total quantity is virtually fixed.

2.2 Composition of asset holdings

In Figure 6, I graph the composition of assets in rural India, based on the NSSO *Debt and Investment Survey* for 1991/92, presented by Subramanian and Jayaraj (2006). The asset component shares are presented separately for different asset holding size classes. The most striking aspect is that the share of land is quite high, particularly for the larger asset holders. In the upper-most grouping (assets of 250,000 Rupees and higher), land makes up roughly 73% of total assets in value terms. By contrast, the smallest asset holders keep only around 18% of their assets in land, a majority being held in the form of buildings (most likely homes) and other durable household assets. This is the reason why in Figure 3, the Lorenz curve for land lies far below that for total assets. Another interesting pattern in Figure 6 is that the share of livestock in assets is higher for the smaller asset size classes (around 6 to 7%). However, livestock and poultry is by no means a large category for any size class.

Figure 7 presents a similar graph for the 2002/03 round of the survey. The shares of land, buildings, and durable household assets have remained remarkably stable since 1991/92, for most of the asset size classes. However, there have been noticeable changes in the livestock and financial asset categories. Firstly, the share of livestock and poultry has fallen uniformly across all size classes. It is not clear from the data whether this is due to a decrease in quantity of livestock holdings, or a fall in the relative price of livestock. Secondly, the share of financial assets have increased only for the largest size classes. Thus, the largest asset holders appear to be shifting away from livestock, and into financial assets.

The persistently large share of land in the portfolios of the wealthiest rural households is an interesting, if worrying, phenomenon. As we recall from previous sections, landlessness is possibly the most important predictor of poverty and vulnerability. If the largest landholders in rural India continue to keep their wealth in the form of land, there is little scope for the landless poor to rely on land ownership as a way out of poverty.

Figure 6 Composition of assets in rural India by size class, 1991/92

Legend:
- Financial assets
- Durable household assets
- Transport equipment
- Nonfarm business equipment
- Agricultural machinery
- Livestock and poultry
- Building
- Land

Notes: Figures in the bar graphs are percentage shares.

Source: Data from Subramanian and Jayaraj (2006) Table 5a.

Asset holding size class (in 1,000 Rupees, 1991/92 prices)
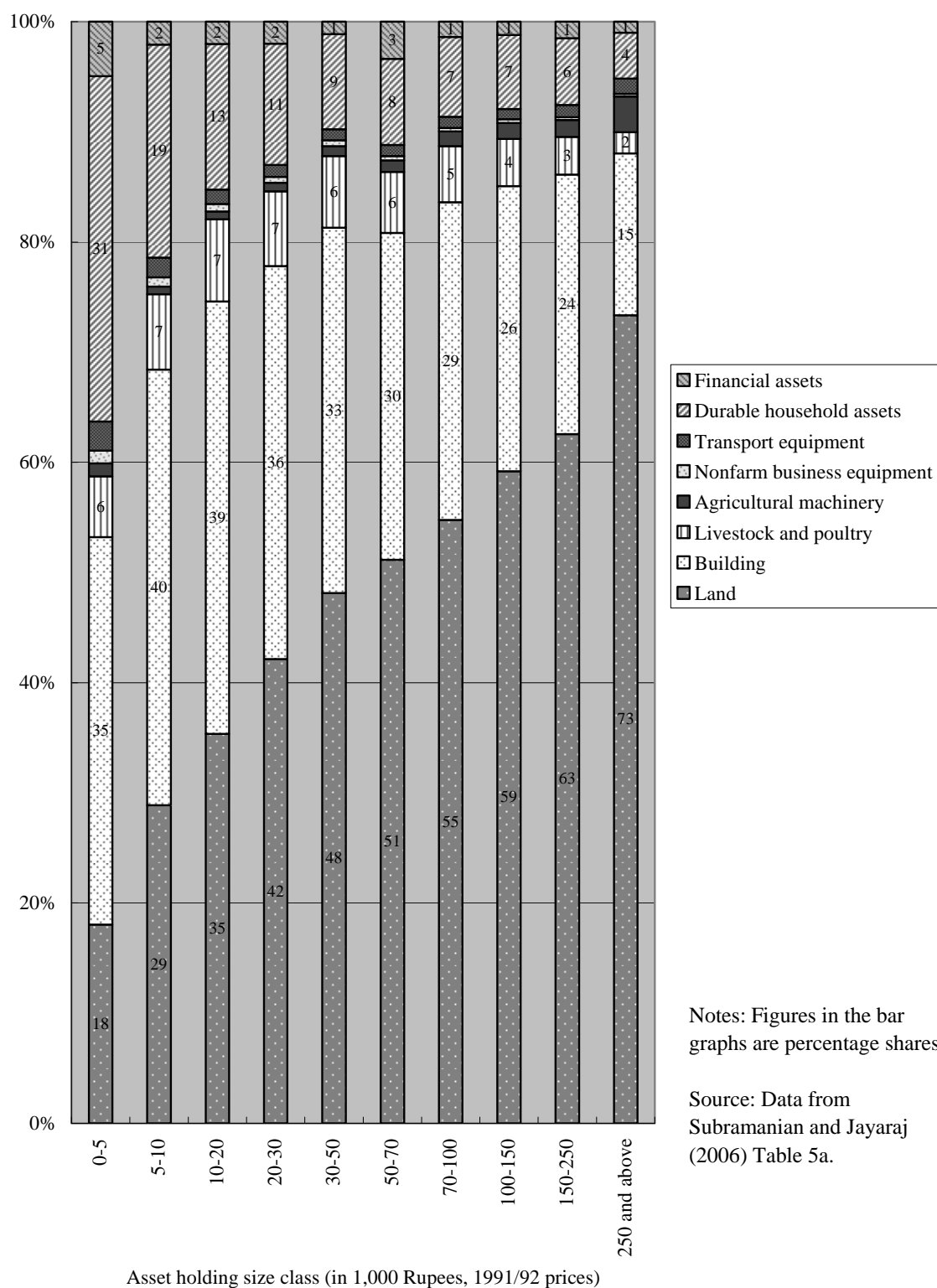
Figure 7 Composition of assets in rural India by size class,
2002/03

Notes: Figures in the bar
graphs are percentage shares.

Source: Data from
Subramanian and Jayaraj
(2006) Table 5a.

Asset holding size class (in 1,000 Rupees, 2002/03 prices)

Legend:
- Financial assets
- Durable household assets
- Transport equipment
- Nonfarm business equipment
- Agricultural machinery
- Livestock and poultry
- Building
- Land

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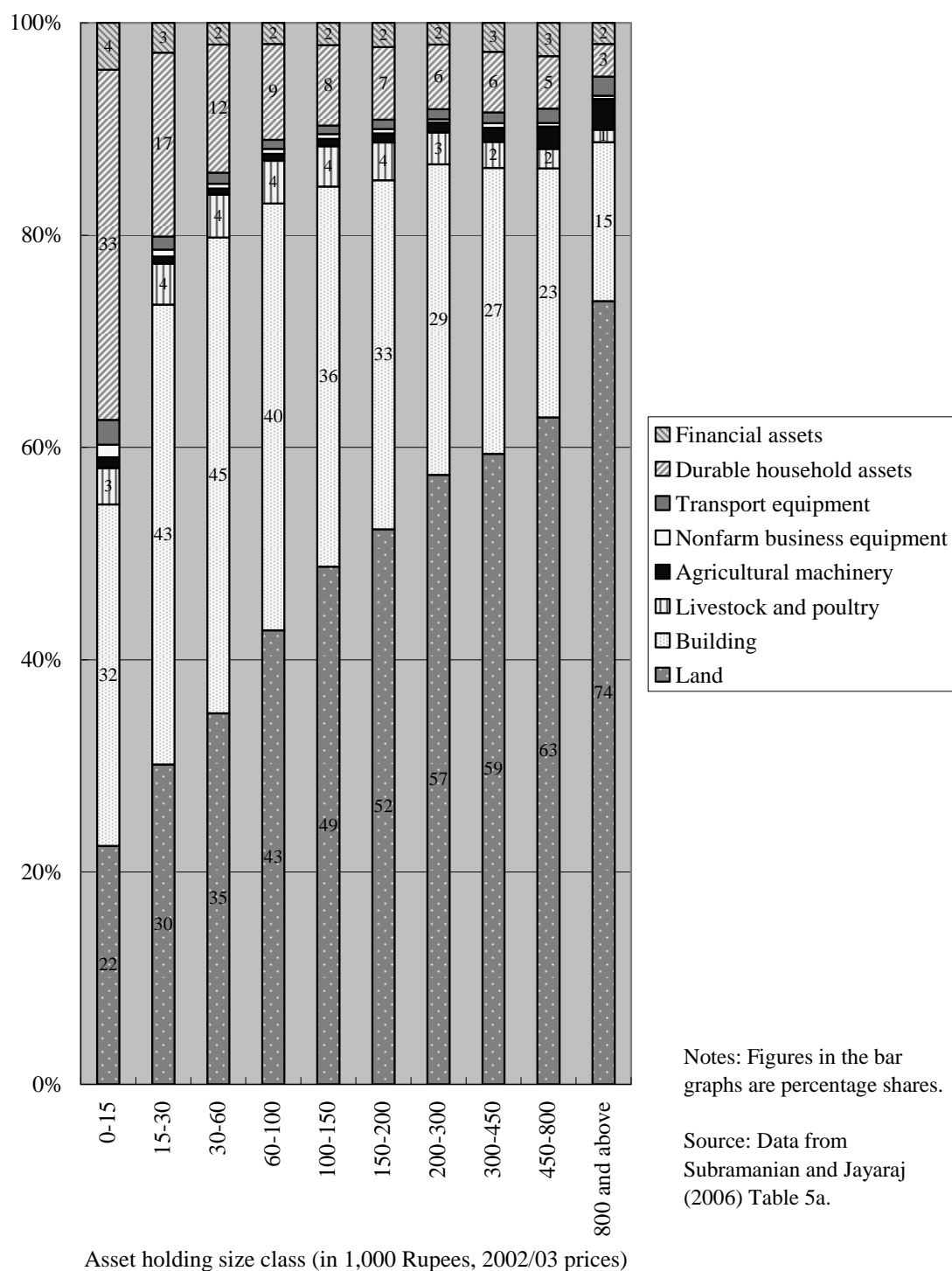
3. The Persistent Inequality of Land Distribution

3.1 The mixed impact of land reforms

Much has been written about land reforms in India: how the reforms were implemented vigorously in some states but not in others; how some aspects of land reform have contributed to the reduction of poverty in certain states at certain times, while in others the effects were negligible or even negative. I will not attempt here to provide a description of land reform policies; the interested reader is referred to detailed studies such as Appu (1996), Mearns (1999), and Deshpande (2003)[3]. Instead, I rather bluntly summarize the discussion by listing the major policy initiatives, and discussing how successful they were, based on existing studies. The main land reform policies are the following:

(i) Abolition of *zamindars* (feudal landlords) and other intermediaries that existed since the Mughal and British periods

(ii) Impositions of area ceilings on land ownership, and redistribution of ceiling-surplus land

(iii) Consolidation of fragmented land holdings

(iv) Reform of tenancy through registration of tenants and regulation of contract terms

Most studies agree that the abolition of feudal lords and intermediaries was implemented successfully, although some states were slower than others to enact legislation (Besley and Burgess 2000). On the other hand, the implementation of land ceiling legislation was largely unsuccessful in most states, owing to the prevalence of *benami* ownership as mentioned in the previous section, and the division of large holdings among multiple family members. As an exception, the large-scale land reform program in West Bengal, which started in the late 1970s under a left-wing administration, involved somewhat successful redistribution of ceiling enforcement and redistribution of ceiling-surplus land (Rawal 2001; Banerjee et al 2002). Land consolidation was implemented successfully in only a handful of states, mostly notably Punjab and Haryana (Mearns 1999)

The most successful, but perhaps the most contentious, component of the reforms was tenancy registration and regulation. In some states, existing tenants were evicted as landowners sought to secure their ownership in the face of strengthened tenants' rights. Appu (1996) estimated that tenants were evicted from around 30% of the

cultivated land in India. In addition, strengthened tenancy rights, in particular the provision in some states that tenants be provided permanent and heritable rights, made landowners reluctant to lease out land under formal contracts. In such cases, land lease contracts became predominantly informal, and hence less secure than would have been in a world without tenancy regulation.

Conversely, the state-level analysis of Besley and Burgess (2000) found strong evidence that the enactment of tenancy reform led to reduction in poverty. Banerjee et al's (2002) study of West Bengal using district-level data found that localities with higher registration of tenants (implying better implementation of tenancy reform) had higher farm productivity in rice production. The reason appears to be that stronger tenancy rights led to higher incentives for the tenant to exert short-term effort as well as to undertake long-term investments.

3.2 The effect of market forces

Given that land reform policies have been limited in their ability to bring about equality in distribution, what has been the effect of market forces? In order to answer this question, it is first necessary to consider the relationship between farm size and agricultural productivity. There has been a long debate in the Indian agricultural economics profession regarding the existence of an "inverse relationship" between farm size and productivity, and it has colored the discussion on land distribution. Suppose that smaller farms are more productive, presumably due to higher effort levels realized through the use of family labor instead of hired labor. Then, by allowing smaller farmers to accumulate capital from their surplus which can be used to purchase land, it is likely that market forces will work in favor of a more equal distribution of land holdings.

As we saw in Section 2, equalization of land holdings has not happened. Is this because the inverse relationship fails to hold? Indeed, as early as the 1970s, researchers found that the inverse size-productivity relationship, which may have existed in earlier decades, had begun to break down. Chadha's (1978) study of Punjab agriculture found that small farmers "cannot compete with large farmers as regards investment in size-biased implements/machinery". Rudra and Sen (1980) sum up the available findings by stating that while the inverse relationship may hold in certain regions, during certain time periods, and along certain parts of the production function, it does not appear to be a universal phenomenon in India.

However, the more pertinent reason for the nonoccurrence of landholding equalization appears to be the existence of certain market imperfections, rather than the

disappearance of the inverse size-productivity relationship. As Chadha (1978) notes, small farmers in Punjab are capable of competing with the mechanized large farmers by participating in the leasing market for tractors and other machinery. There are also suggestions that Indian farmers have overinvested in tractors, partly because they are valued as a status symbol (Singh 2006). Small farmers' ability to access farm machinery and other capital inputs then depend on the existence and functioning of the markets for those inputs.

Anomalies in the land market are a source of particular concern. Researchers have stressed that agricultural land prices in India (and other developing countries) are at such high levels that the present value of the future flow of farm returns is not enough to justify purchasing land with borrowed money (Hirashima 2008; Deininger and Feder 2001). This phenomenon has also been observed in developed economies with large agricultural regions like the United States. The favored set of explanations in India's case is that the price of agricultural land reflects not only agricultural profits, but also (a) the value of its nonproductive uses (such as the provision of social status); (b) its value as collateral; (c) its ability to hedge against inflation; (d) its role as a tax shelter, and (e) lack of alternative investment opportunities (Deininger and Feder 2001; Sarap 1996). An alternative explanation has been provided by Melichar (1979). He showed that if farm profits are expected to grow over time (due to productivity growth, for instance), then future profits will be capitalized in the land price, raising it above levels that would be "justified" by current returns.

Whatever the reason for the high ratio between land price and agricultural profits, the distributive effect has been to make land purchases prohibitively expensive for landless and marginal farmers whose access to formal sources of credit is limited. Thus, most studies on market transactions in land sales in rural India have found that (a) the volume of transactions is quite low, and (b) they predominantly involve larger landholders or nonresidents as the buyers, and small or marginal holders as the sellers (Shankar 1990; Sarap 1996). An exception is recorded by Rawal (2001), whose study of two villages in West Bengal showed that a disproportionate number of land buyers were in the marginal land ownership size class. This may be due to the relative success of land reform in the region.

Conclusion

This chapter has focused on the relationship between asset ownership and poverty

in rural India. By reviewing the empirical literature, it was made clear that the ownership of assets is strongly associated with the levels of income and consumption. This relationship is reinforced when one observes income and consumption over consecutive time periods.   It is undeniable that the growth of the nonagricultural sector has increased the relative importance of human capital as a means for overcoming poverty.   However, this does not diminish the absolute importance of physical capital, as holdings of assets – in particular, land – are crucial for gaining access to credit, which in turn influences the education decisions of poor households.

The current pattern of asset holdings in rural India has several defining features. Firstly, it is unequally distributed, with a Gini coefficient above 0.6.   Secondly, asset distribution has become more unequal during the 1990s, which may have contributed to the slight increase in income inequality over the same period.   Thirdly, the bulk of rural household assets are kept as land, particularly by the largest asset-holders.

While various land reform initiatives have been undertaken by state governments, they have had significant poverty reduction effects in only a handful of cases. Moreover, market forces tend to work in favor of higher inequality in asset distribution. Thus, if national and state governments are serious about poverty reduction, they may need to consider some further policy interventions.

One promising route would be to tackle the issue of high land prices and the associated inability of the landless poor to purchase land.   The reason for persistently high agricultural land prices can be inferred from the asset composition of the wealthiest rural households.   By continuing to hold more than two-thirds of their wealth as land, the largest asset-owners have demonstrated that land provides a better investment opportunity than financial assets.   This is likely due to various tax and credit incentives, as well as agricultural subsidies that benefit only the largest farmers (such as the lump-sum subsidy on the purchase of new tractors).

The growth of the nonagricultural sector has also added complications to the land price problem   While many states have adopted legislation that regulate the conversion of prime agricultural land to nonagricultural uses, such rules are often honored more in the breach (particularly when agricultural lands near large cities are transformed into residences for the urban rich).   In addition, state governments are currently rushing to facilitate the conversion of agricultural land, in an effort to promote growth in the manufacturing and service sectors.   Many of these policies – including the deregulation of land conversion and the lowering of capital gains taxes accruing to farmer who sell their land – may contribute to higher agricultural land prices.

A good starting point for pro-poor government intervention may be to undo some

of the policy distortions that have led to high agricultural land prices, and to cancel the implementation of new polices that may further raise land prices. In particular, institutional credit should be targeted towards the landless and marginal landholding households, rather than the large landholders. The tax shelter status of agricultural land should be revoked, as it only benefits those with high taxable income. Finally, deregulation of the conversion of land to nonagricultural uses should be implemented with extreme caution. While growth of the nonagricultural sector is one necessary condition for poverty reduction in India, it is by no means sufficient. Other necessary conditions, in particular the education and empowerment of the rural poor, must also be pursued.

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[1] In addition, Walker and Ryan (1990) found that the average proportion of households that were below the poverty line in a given year (which roughly corresponds to the commonly used measures of national poverty) was around 60%, much lower than the percentage of households that experienced some episode of poverty during the 9 years.

[2] When owned land value and its squared term are both included as explanatory variables in the credit access regression, the positive coefficient on the former variable is statistically insignificant.   However, when the squared term is dropped, the coefficient on land value becomes significantly positive (Sawada et al 2006).

[3] Besley and Burgess (2000, pp.392-403) present a pleasantly succinct overview of the Indian land reform experience.