Distribution and Development:
A Summary of the Evidence for the Developing World

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I. Introduction

1.3 billion people in the world subsist on less than one U.S. dollar per person per day, and another 1.7 billion get by on between one and two dollars (United Nations, annual; World Bank, 1999). What will such a poverty line income buy? In China, the world's most populous country, the "basic food bundle" for a poor person consists of the following:

Poverty Line Consumption in China.

Item	Consumption, in kg/person/yr.
Grain	26.72
Vegetables	112.49
Vegetable oil	2.56
Pork	9.22
Beef and mutton	0.59
Milk products	0.25
Poultry	0.06
Eggs	1.87
Fish	1.26
Sugar	1.62
Fruits	4.50

Source: Ravallion (1996)

This adds up to about half a kilo of food (about one pound) per person per day – meager rations indeed!

Most poor people live in the "underdeveloped" or "less developed" countries of the world. When a country is "underdeveloped" its people face severely-constrained choices. The process of "economic development" causes the constraints on people's material standards of living to be relaxed, enlarging people's choice sets and expanding their capabilities (United Nations, annual; Sen, 1999 and earlier).

Economic growth is the primary means by which economic development is sought. This paper summarizes what is known about the effects of economic growth on the distribution of economic well-being. It is drawn from a book-length study (Fields, forthcoming), to which the reader is referred for additional details.

Throughout this paper, I shall refer to the "distribution of economic well-being" as "income distribution." This should be understood as a shorthand for whatever it is that we wish to measure and can measure in a given country context.

Before examining the available data, we should recognize the impossibility of gauging economic well-being (or "standard of living") by a single variable. Various indicators have been used – income, consumption, access to basic human needs, life expectancy, literacy, and so on. All have their place. What we seek is as comprehensive a measure as possible, appropriately adjusted for family size and composition. There is a vast literature on these issues; see, for instance, Anand and Ravallion (1993), Ravallion (1994), Fields (1994), Atkinson et al. (1995), Gottschalk and Smeeding (1997), and Anand and Sen (1997) for more in-depth discussions.

II. Inequality

"Income inequality" entails a comparison between some persons' incomes and others'. "Relative inequality" makes these comparisons in terms of income ratios while "absolute inequality" makes them in terms of income differences. Inequality is measured

by such indices as the income share of the richest x% or poorest y%, and the Gini coefficient.

The single most important event leading to the study of inequality and economic growth was Simon Kuznets's 1954 Presidential Address to the American Economic Association on "Economic Growth and Income Inequality" and a series of follow-up papers published in Economic Development and Cultural Change. Kuznets began his presidential address by saying:

> The central theme of this paper is the character and causes of long-term changes in the personal distribution of income. Does inequality in the distribution of income increase or decrease in the course of a country's economic growth? What factors determine the secular level and trends of income inequalities? (Kuznets, 1955, p. 1)

He then formulated the famous inverted-U hypothesis, which was concisely and famously stated in a subsequent paper:

> It seems plausible to assume that in the process of growth, the earlier periods are characterized by a balance of counteracting forces that may have widened the inequality in the size distribution of total income for a while . . . It is even more plausible to argue that [there was a] recent narrowing in income inequality observed in the developed countries. (Kuznets, 1963, p. 67)

Kuznets's work had two important methodological influences. First, because he focused his analysis of income distribution on inequality as opposed to poverty, many development analysts followed his lead, and it was not until twenty years after his original work that poverty moved to center stage in the development economics field (though it had been at center stage in some countries such as India much earlier). Second, Kuznets's measurement of inequality was on the basis of particular inequality indices – in his case, the income shares of particular percentile groups in the population – as opposed to more robust Lorenz curve comparisons.

Kuznets himself began with data on only five economies (the United States, United Kingdom, India, Ceylon, and Puerto Rico) at a single point in time. At first, these cross-country studies were viewed in causal terms. One of the most famous papers on the Kuznets curve (Ahluwalia, 1976b, p. 307) led off as follows:

> The use of cross country data for the analysis of what are essentially dynamic processes raises a number of familiar problems. Ideally, such processes should be examined in an explicitly historical context for particular countries. Unfortunately, time series data on the distribution of income, over any substantial period, are simply not available for most developing countries. For the present, therefore, empirical investigation in this field must perforce draw heavily on cross country experience.

Later cross-sectional work abandoned any pretense of causality and viewed the cross-country regressions in a purely correlative sense. In this later literature, the question quite simply was whether middle-income countries have higher inequality than lower-income or higher-income countries do, with no causality implied.

The answer is that they do. Both simple tabulations (e.g., Paukert, 1973, reproduced in Figure 1) and simple regressions (e.g., Cline, 1975) showed this, and these results have generally stood the test of time in a whole host of studies with one important exception (Anand and Kanbur, 1993). The latest multi-country data set (by Deininger and Squire, 1996) reaffirms the inverted-U pattern; see Figure 2.

Another strand of the literature has challenged the traditional cross-sectional methodology, taking advantage of the fact that some of the newer data sets offer multiple years of data for individual countries. Data compiled by Fields (1989) measured inequality (using the Gini index) for 35 developing countries; for some of them, there were only single observations, but for others, there were as many as nine years of data. The Deininger-Squire data set incorporated these data and added to them, resulting in a sample of 108 countries (both developing and developed), of which 32 offer eight or

more observations. Such data enable a family of parallel curves to be fit with fixed effects estimation, thereby allowing for some countries such as Brazil to be on higher-than-average curves and others like Taiwan to be on lower-than average curves. The "central" curve – that is, the curve that would be predicted for an "average" country – also comes out of such fixed effects estimation.

Using such methods, Fields and Jakubson (1994) first found that the central Kuznets curve flips from a statistically significant inverted-U estimated by OLS to a statistically significant U with fixed effects estimation. Figure 3 shows this reversal in the Fields-Jakubson data. What this means is that if we want countries' inequality levels to change in the way that "typical" countries' inequality in fact changed over time, the U pattern fits the data better than does an inverted-U pattern or any other quadratic function.

Ravallion (1995), Deininger and Squire (1998), Schultz (1997), and Bruno, Ravallion, and Squire (1998) also included country fixed effects and found that the coefficients are not statistically different from zero at conventional levels. These results led Ravallion (1995, p. 415) to conclude: "The rejection of the inverted-U hypothesis could hardly be more convincing."

Why would fixed effects estimation produce such different results from cross-sectional estimation? It turns out that quite a large number of the highest inequality observations are from Latin American countries. Figure 4 shows this in the Fields and Jakubson data. This suggests that it is not being middle-income per se that produces high inequality but rather the fact that Latin American countries have highly unequal distributions of land, wealth, and other assets as compared with other developing countries. Consequently, when Latin American dummies have been added to the cross-country regressions, these terms have been found to have a significant positive association with inequality, driving the national income variable to be statistically

insignificant (Fishlow, 1995; Deininger and Squire, 1998) or to have the wrong signs (Fishlow, 1995). ("Wrong" in the sense that they are opposite to what the Kuznets hypothesis would predict.)

However, once we have a data set containing so many countries with multiple years of data, it is no longer necessary to maintain that any particular pattern is "typical." Instead, we can look within countries to see how the inequality in each changes with economic growth. This question has been addressed systematically by Deininger and Squire (1998) with striking results (reproduced here in Table 1):

1. In 5 of their 48 countries (Brazil, Hungary, Mexico, the Philippines, and Trinidad and Tobago), the Gini coefficient followed an inverted-U shape.
2. In 4 countries (Costa Rica, India, the United States, and the United Kingdom), the Gini coefficient followed a U shape.
3. In the remaining 80% of the countries, there was no statistically significant quadratic linking the Gini coefficient to national income.

These findings indicate that the growth process itself can produce varied inequality patterns. The key question to ask is why. Is there a pattern to the patterns?

The answer seems to be: "apparently not." Let us look at the evidence region by region.

In Asia, the experiences of the rapidly-growing countries of East Asia have been examined by Oshima (1991). He found that inequality was generally falling in the 1970s and rising in the 1980s, which is the exact opposite of Kuznets's inverted-U. The patterns differed across countries – falling inequality in Japan, U-shaped paths in Hong Kong, Singapore and Taiwan, and an inverted-U path in Korea -- reflecting "diverse factors and mechanisms" at work in the different countries. A recent World Bank study found that inequality rose with economic growth in Hong Kong, Taiwan, Thailand, and China, fell

with economic growth in Singapore and Malaysia, and was effectively unchanged in Korea and Indonesia (Ahuja et al., 1997). In India, inequality fell in the 1960s and was essentially unchanged thereafter (Bruno, Ravallion, and Squire, 1998).

In Latin America, Psacharopoulos, Morley, and Fiszbein (1993) reported income distribution becoming more equal during growth spells and becoming less equal during recessionary ones (Table 2). This finding suggests the hopeful conclusion that economic growth is good for inequality as well as for poverty. However, their finding on inequality was called into question by two studies of Latin American countries. Fields and Newton (1996) used only those countries for which the data were national in coverage and found that inequality had changed monotonically in all three (Brazil, Costa Rica, and Venezuela), which implies that there can be no correlation between the rise or fall in inequality and the rate of economic growth. Similarly, Londoño and Szekely (1998) found that in most Latin American countries, income inequality rose both in the 1980s and in the 1990s. Because economic growth was negative in most Latin American countries in the 1980s and positive in the 1990s, these data also imply the absence of an association between growth and the direction of inequality change in Latin America.

In Africa, where the data are most limited, the Deininger-Squire data set (1996a) includes six African countries with data on changes in inequality over time, often for very short periods. Three of these countries had national income growth and three did not. Inequality fell in two of those with income growth (Ghana and Mauritius) and rose in one (Morocco). As for those which either stagnated or contracted, inequality rose in two (Nigeria and Uganda) and fell in one (Côte d'Ivoire). Based on this limited body of information, we do not find any tendency for inequality to change differently in the growing economies of Africa as compared with the non-growing ones.

In the transition economies of Eastern Europe and the countries of the former Soviet Union, the evidence has been summed up by Milanovic (1999), Flemming and Micklewright (1999), and Kanbur and Lustig (1999). In all of these countries, there has been a dramatic rise in inequality. Kanbur and Lustig (1999) report that within a decade in the transition economies: "In eleven countries. . . the Gini coefficient has increased between five and nine percentage points; in seven countries, between ten and nineteen percentage points; and in two countries, by more than twenty (!) percentage points." [Exclamation point in the original.] The collapse of the socialist system resulted in massive economic contractions in the late 1980's and early 1990's. Since then some countries, such as Poland, have seen some economic growth, while others, notably Russia, have seen their economies continue to decline. It seems clear that the increase in inequality is due to the change in the structure of these economies, rather than economic growth or contraction per se.

Summing up, income inequality is no more likely to rise or fall when economic growth is high than when economic growth is low or negative.

A final body of evidence on the inequality-growth relationship is to be found in analyses of "growth spells" – that is, periods from one household survey or census to another during which economic growth took place (Ahluwalia, 1974; Fields, 1991; Oshima, 1991; Psacharopoulos, Morley, and Fiszbein, 1993; Deininger and Squire, 1996b; Ravallion and Chen, 1996 and 1997). Based on Kuznets's work, it might have been thought that whether inequality increased or decreased during these growth spells would have been related to the country's stage of economic development and to its rate of economic growth. But in these studies, no such effect was found. In half of these growth spells, inequality increased, and in the other half, inequality decreased. Furthermore, no pattern was found – that is, whether inequality increased or decreased was unrelated

either to the rate of economic growth or to whether the country was at a relatively early stage of economic development or at a relative later stage. From this, we reach the conclusion that it is not the rate of economic growth or the stage of economic growth that determines whether income inequality increases or decreases, but rather what matters is the kind of economic growth.

What is it about the countries in which inequality has been growing that differentiates them from ones in which inequality has been declining? The way to learn the answer is by doing a number of case studies and then look for similarities and differences in the patterns. It is there that the research frontier lies.

III. Poverty

Absolute poverty is the inability of an individual or a family to command sufficient resources to satisfy basic needs. Absolute poverty is measured by the poverty headcount, the poverty headcount ratio, the Sen index, and the P_α class.

Absolute poverty is to be distinguished from relative poverty. Actually, "relative poverty" embodies two separate ideas, and the relative poverty measures therefore fall into two categories.

In the first type of relative measure, a group that is relatively the poorest (e.g., the poorest 40%) is defined, and the poverty measure used is then taken to be the average real income of this poorest group. The problem with using such a measure is that economic growth that benefits some of the poor may appear not to have reduced poverty. Consider for example a country in which the income distribution changes from

$$(\underbrace{1, 1, 1, 1, 1, 1, 1, 1, 1}_{9}, \underbrace{2}_{1})$$

to

$$(\underbrace{1, 1, 1, 1, 1, 1, 1}_{7}, \underbrace{2, 2, 2}_{3})\ .$$

The average absolute income of the poorest 40% of the population shows no change in this process. If you see no change in poverty when this happens, this type of relative poverty measure might be a reasonable one for you. But if you judge that poverty has decreased in this process, then you are assuredly not a relative poverty adherent, at least in this first sense.

In the second type of relative measure, a higher poverty line is used the richer is the country in which poverty is being measured. Ravallion, Datt, and van de Walle (1991) have found empirically that the poverty lines used in countries tend to increase with their per capita consumption levels, and Ali (1997) regards the desirability of raising the poverty line as the mean increases as "obvious to us, Africans living amidst poverty." Examples of such relative poverty lines are half the median income, which was proposed by Fuchs, 1969); two-thirds of the median income, as is done by the Luxembourg Income Study (Atkinson et al., 1995); half the mean income, as is done by the European Union (O'Higgins and Jenkins, 1990; Atkinson, 1998); or two-thirds of the median income, as used on occasions by the World Bank.

The problem with this approach is that it may give the “wrong” answer – "wrong" in the sense that when incomes at each position of the income distribution increase by the same percentage, poverty would be unchanged. A very real example of this is Taiwan, where real national income has doubled every ten years and the Lorenz curve has remained effectively unchanged. Poverty would be unchanged if a relative measure is used – which certainly seems like the wrong conclusion.

My recommendation is to use an absolute poverty line, relatively defined. This is what the United States does. In 1962, the poverty line income was set. Each year since, the poverty line in the United States has been adjusted for inflation and only for inflation. The U.S. poverty line was and is higher than the poverty line in India, which is also a fixed real figure (in rupees). The best problem any country could have would be to grow so fast that its previous poverty line is rendered obsolete!

Turning now to empirical patterns, most economists would expect to find that economic growth reduces absolute poverty. Some of the phrases in our profession reflect this: "trickle-down," "a rising tide lifts all boats," "the flying geese," and so on. I shall refer to this view as the "shared growth" position, in that when economic growth takes place, the poor and others share the fruits of it, to a greater or lesser degree.

On the other side is the distinctly less popular view that economic growth might make the poor poorer. To take just one example, Nobel Prize-winning economist Arthur Lewis (1976) gave six reasons why development of enclaves may lower incomes in the traditional sector: the development enclave may be predatory on the traditional sectors, products of the enclaves may compete with and destroy traditional trades, the wage level of the enclave may be so high that it destroys employment in other sectors, the development of the enclave may result in geographical polarization, development of the enclave may lead to generalized improvements in public health and therefore lower death rates, and development of the enclave may stimulate excessive migration from the countryside.

Turning now to empirical work, early studies claimed that economic growth either did not help the poor or actually made them poorer. Particularly influential was the work of Adelman and Morris (1973), who wrote (pp. 189 and 192):

> Development is accompanied by an absolute as well as a relative decline in the average income of the very poor. Indeed, an initial spurt of dualistic growth may cause such a decline for as much as 60 percent of the population. . . The frightening implication of the present work is that hundreds of millions of desperately poor people throughout the world have been hurt rather than helped by economic development.

This conclusion, if true, would be a damning indictment of economic growth. Fortunately, the evidence offers no support for it.

Adelman and Morris's own analysis looked at a cross section of 43 developing countries. In their regression results (as distinct from their hierarchical analysis of variance estimates) the incomes of the poorest 40% were shown to increase with economic growth.

All subsequent studies which used this cross section regression methodology indeed found that the richer the country, the higher the average absolute income of the poor. The study by Ahluwalia (1976) was an early demonstration of this fact; see Figure 5. This result has been confirmed in many other studies.

The most direct test of the poverty-national income relationship in the cross-section is to be found in the work of Ravallion (1995): a pronounced negative relationship between a country's income level and the extent of its poverty (Figure 6). This result has been confirmed by regression analysis (Lipton, 1998).

In summary, the cross section evidence is unambiguous: the richer the country, the higher the absolute incomes of the poor and the lower the rate of poverty. The cross-sectional version of the absolute impoverishment hypothesis has been thoroughly discredited. But note well: here too, there is no reason to test a dynamic pattern with cross-sectional data. We can instead look directly at changes in poverty over time within countries in the course of economic growth or economic decline. Early studies by Ahluwalia, Carter, and Chenery (1979) and Fields (1980) and later studies by Fields (1991), Chen, Datt, and Ravallion (1994), and Bruno, Ravallion, and Squire (1998)

performed spell analysis – that is, an examination of the relationship between poverty change and national income change in a "spell" between one survey or census and another. In most but not all cases, growth reduced poverty and recession increased it. One notable exception was the Philippines under Marcos. "Crony capitalism" was almost surely the answer there.

The large effect of economic growth on poverty is confirmed by Bruno, Ravallion, and Squire (1998). For a sample of 20 countries between 1984 and 1993, they regressed the rate of change in the proportion of the population below $1 per day against the rate of change in the real value of the mean, and obtained a regression coefficient of -2.12, with a t ratio of -4.67. Thus, a 10% increase in the mean would produce roughly a 20% reduction in the proportion of people living on less than $1 a day. As large as this effect is, changing income inequality has an even larger effect: in a multiple regression, these authors found that the elasticity of the poverty headcount ratio with respect to the mean was -2.28, while the elasticity with respect to the Gini coefficient was 3.86.

Two general conclusions emerge:

1. Nearly always, economic growth has reduced absolute poverty.
2. When poverty has not fallen, it is usually because economic growth has not taken place.

However, two cautionary points should also be raised. First, "nearly always" isn't "always." Why has growth sometimes failed to reduce poverty? A careful examination of the "perverse" cases is needed. And secondly, economic growth doesn't help everybody. There are losers. We cannot be so sanguine as to believe that everyone benefits or so hard-hearted as to ignore those who do not.

IV. Economic Mobility

Studies of income mobility, or of economic mobility more generally, are very recent in the developing world. Income mobility studies are concerned with quantifying the movement of given recipient units through the distribution of economic well-being over time, establishing how dependent one's current economic position is on one's past position, and/or relating people's mobility experiences to various influences. In order to do such analyses, longitudinal or panel data are required.

The term "income mobility" connotes different things to different people. Five different concepts may be distinguished. **Time-dependence** measures the extent to which economic well-being in the past determines individuals' economic well-being at present. **Positional-movement** takes place when there is a change in individuals' economic positions (ranks, centiles, deciles, or quintiles). **Share-movement** occurs when individuals' shares of total income change. **Symmetric income-movement** arises when individuals' incomes change and the analyst is concerned about the magnitude of these fluctuations but not their direction. Finally, we have **directional income-movement**, in which income gains and income losses are treated fundamentally differently.

Nearly all studies of income mobility done in the developing world have been of positional movement. There is not yet a corpus of literature on income mobility, but there are enough examples to indicate the rich potential of this kind of research. In **Peru** a panel of households in Lima for 1990, 1994, and 1996 was matched with an earlier panel for 1985/86-1990. A quintile mobility matrix constructed by Herrera (1999), reproduced here in Table 3, showed that between 1985-90 and 1990-96 the immobility rate rose in the highest income quintile (quintile V) and fell in the lowest income quintile (quintile I). This means that positional movement did not unambiguously rise or fall, which is borne

out by the specific mobility figures in Table 4: positional movement in Peru increased by most of these measures but not all of them.

Herrera's study also estimated microeconometric models of poverty persistence. The variables found to be significant determinants of chronic poverty were the household's demographic composition, the education of the head of the household, and initial wealth. Those that were insignificant were ethnic origin, sex of the head of the household, and place of residence.

In an earlier study of Peru, Glewwe and Hall (1998) estimated the determinants of the change in (the logarithm of) per capita household consumption. The more negative/less positive are these changes, the more "vulnerable" the household is said to be. Their main results are:

- Households headed by relatively well-educated persons are less vulnerable.
- Female-headed households are less vulnerable.
- Households with more children are more vulnerable.
- Domestic transfer networks do not protect the poor.
- Peru's Social Security system is not targeted either to the vulnerable or to the poor.

In **Malaysia** Randolph and Trzcinski (1989) and Trzcinski and Randolph (1991) studied the earnings mobility of prime-aged men (15-55 years of age) for the period 1967-1976. Their first finding concerns positional movement. The majority of those who started in the poorest groups remained there, and likewise for the richest. On the other hand, fewer than 20% of Malaysian men who started in the four middle deciles remained in the same decile. A second finding from their research concerned patterns across income deciles. Those Malaysian men who began in the poorest four earnings deciles on average improved their relative earnings position while those who began in the richer six

earnings deciles on average dropped in the distribution. This kind of regression to the mean – those in relatively low positions moving up on average at the same time that those in relatively advantaged positions moved down relatively – is a common feature of income mobility data. The third aspect of mobility studied for Malaysia was an analysis of determinants of directional positional change. Trzcinski and Randolph (1991) used a multinomial logit model to estimate whether a man moved up in decile terms, down in decile terms, or did not change decile. The authors concluded that "by actively searching out new jobs in response to changing economic circumstances, an individual could increase the prospects for upward mobility."

In rural **Chile** Scott and Litchfield (1994) had data on households' per capita incomes in 1968 and in 1986. From these, they calculated the movement among income classes as summarized in Table 5. They found that 32% of those in the lowest income category moved up to the next income category, 20% to the category above that, and so on. In growing economies, such "absolute income transition matrices" show sizable movements up and out of the low-income categories and low rates of continuance in the lowest categories – a feature not shared by quantile mobility matrices such as Table 3. The next part of their mobility analysis was to calculate both directional and non-directional measures of movement among income classes. They found that actual mobility was about one-fourth of maximum possible mobility, that mobility was greater for poorer households, and that there was more upward than downward mobility. In their words, these data show that in the course of Chilean economic growth, "the absolute immiserisation hypothesis . . . is refuted for this sample."

China has undergone an enormous amount of economic and institutional change. At the same time, the economy has grown rapidly, especially in the coastal provinces. As a market society has emerged, income mobility has been taking place and the mechanism

of socioeconomic stratification has been changing. These processes have been analyzed in a series of papers by Nee (Nee, 1994, 1996; Nee and Liedka, 1997). Quintile transition matrices show "considerable" income mobility in the early reform period, faster economic mobility when the pace of economic reform increased, and a "great transformation" in China's rural stratification. Nee (1994, pp. 23-24) sums up thus: "The transition to a mixed redistributive and market economy was accompanied by a quickening pace of change in relative economic standing among rural households. The findings in Table [6] are consistent with the view that institutional change resulted in a dramatic shake-up of the rural stratification order."

To probe into the institutional and economic factors in the movement of households through the income distribution, two statistical analyses were performed. Nee and Liedka (1997) estimated a cumulative logit model. They found that the variables that increase the probability that a household will fall into a higher income quintile are village economic growth, industrial per capita output, diffusion of private property forms and market institutions, human capital, and the presence of a communist party cadre in the household. Finally, other things equal, the higher the household's base-year (1978) income, the greater the likelihood of being in a high income quintile in 1989.

The other statistical analysis (Nee, 1996) was an examination of changing household earnings (in yuan) in different groups of provinces (inland, coastal redistributive, coastal corporatist, and laissez-faire). Variables that were found to be statistically significant determinants of changing household earnings in at least one of the provincial groups were logged 1983 household income (positive effect), age and its square (inverted-U effect), participation in the labor market (positive effect), entrepreneurial activity (positive effect), being a political cadre (positive effect), and community income (positive effect). Nee concludes (1996, p. 942):

> The analysis here confirms that the stratification order of rural China began a transformative change during the 1980s. Especially in the marketized coastal region, households moved up and down in relative economic standing, driven by new rules and mechanisms for getting ahead. The old rules of the game no longer worked as they did in the Maoist era, and households that followed those rules discovered that they fell in relative economic standing. However, households that were quick to adjust to an emergent market economy discovered new rules for getting ahead . . . Even in the absence of regime change, a rapid shift to markets incrementally causes a relative decline in the significance of positional power based on redistribution and relative gain in the power of producers and entrepreneurs.

More generally, the results are seen as confirming the new institutional theory in sociology, which maintains that "institutions shape the structure of incentives and thereby establish the constraints within which rational actors identify and pursue their interests." (Nee, 1996, p. 909).

The results amassed by Nee and associates offer a careful and thought-provoking examination of the factors underlying relative economic mobility in China. Yet, nothing presented thus far answers what is perhaps the most important mobility question of all: were people in China getting richer or poorer absolutely?

This question has been analyzed by Chen and Ravallion (1996) and Jalan and Ravallion (1998, 1999). Chen and Ravallion find for the four provinces for which they have data, that comparing 1985 with 1990, there was "little or no net gain to the poor." They then performed a statistical decomposition of the change in poverty. This showed that "in the two provinces where poverty fell over the period – namely Guangdong and Guizhou – this was mainly due to growth, while in the two provinces where poverty rose – Guangxi and Yunnan – the bulk of this was due to redistribution; a relative lack of growth in the latter two provinces was accompanied by poverty-increasing redistributions." Underlying these trends were "rising rural inequality and regional divergence with little gain to the poor in the lagging inland regions."

In follow-up work on the same data set, Jalan and Ravallion (1998, 1999) performed a micro-level analysis. The poverty line is defined on the basis of consumption per capita, taking P_2 as the poverty measure. Poverty is decomposed into chronic poverty (viz., the poverty the household would have experienced if it received its mean income each year) and transient poverty (defined as the difference between the household's actual poverty and its chronic poverty). Transient poverty is found to be very important in rural China, much more so than in rural India. Comparing Chinese provinces, higher total poverty is found to be associated with higher chronic poverty. Examining households within provinces, chronic poverty is found to be a function of household structure, the age and education of the head, labor market participation variables, county-level variables (agriculture, wealth, and geography), and regional dummies, but few of these are found to be significant determinants of transient poverty. On this basis the authors conclude: "Our results suggest that different models are determining chronic versus transient poverty in this setting."

Côte d'Ivoire, like many African economies, suffered a severe economic decline in the 1980s. In the second half of the decade, per capita GDP fell by 28%, and the incidence of poverty rose from 30% in 1985 to 46% in 1988. Grootaert and Kanbur (1996) found that overall, about 30% of households increased their economic position during this period sharp economic decline. In the authors' words, "the general message is loud and clear; the lucky 'few' are not so few!" [Exclamation point in the original.] To determine who these lucky few were, those households who changed category were classified according to geographic region and occupation. The lucky few were found to be widely dispersed geographically and to come disproportionately from the poorer occupational groups.

In a subsequent study, Grootaert, Kanbur, and Oh (1997) used the same data to examine the determinants of change in economic status in Côte d'Ivoire. For urban areas, human capital was the most important factor explaining welfare change (as gauged by change in per capita household expenditure), while in rural areas, physical capital mattered most. Household size and composition were also significant variables. Lastly, in both urban and rural areas, higher base-year economic status was related negatively to subsequent welfare change.

Finally, in **India**, there have been two studies of income mobility. Coondoo and Dutta (1990) found that income mobility in India acted to equalize the overall distribution of income, that poorer households' incomes increased at above-average rates, and that overall mobility was one-fourth of its maximum possible value. A second India study was carried out by Drèze, Lanjouw, and Stern (1992) in the village of Palanpur. The advantages of such a village study are that income data were collected over a very long period of time (four times between 1957/58 and 1983/84) and the researchers could literally track every household by name and by personal acquaintance to assure that accurate matches over time were made. From quintile mobility matrices for 1957/58-1962/63, 1962/63-1974/75, and 1974/75-1983/84, the authors concluded that per capita incomes in different years are only "weakly correlated" with each other, because in an agricultural economy, current income in a particular year is a poor indicator of the household's "normal" earnings level.

More and more economic mobility studies will be possible as new panel data sets become available for developing countries. The studies reviewed here give a flavor of the kinds of findings that can be gotten from mobility research.

V. Economic Well-Being

In studies of economic well-being, the question being asked is: When is one income distribution better than another? Here, "better" means that you would rather be born into one society than another or, if you were a social planner, you would choose one over another.

It is customary in economics to adopt outcome-based evaluation criteria – that is, to look at the resultant distributions of income or certain statistics calculated from them. The alternative is to assign primacy to the process generating the results. That course shall not be followed here.

One starting point might be the two fundamental theorems of welfare economics. Although logical, these are unhelpful in practice for three reasons. First, they are expressed in terms of utilities, but we don't have empirical information on utilities. Second, they require that we look at specific people in different situations, and we usually can't compare the same people before and after – i.e., our data are anonymous. And third, they offer no guidance on how to choose among Pareto-optima or quasi-Pareto-optima. (A "quasi-Pareto-optimum is a situation in which some people's incomes can be improved only by lowering the incomes of others.)

This leaves two basic approaches for well-being comparisons. One is what are called "abbreviated social welfare functions" (Lambert, 1989), in which social welfare is expressed as a function of per capita GNP, inequality, and poverty with a positive weight on the first and a negative weight on the second and third:

$$W = w(GNP, INEQ, POV)\ ,\ w_1 > 0,\ w_2 < 0, \text{ and } w_3 < 0.$$

Empirically, this approach gives rankings about half the time. Why only half? Because in the other half of the cases, when GNP grows, so too does inequality, and the class of abbreviated social welfare functions just described would evaluate such changes ambiguously.

The other feasible approach is to use the methods of welfare dominance. These theorems, which are due to Atkinson (1970), Dasgupta, Sen, and Starrett (1973), Kolm (1976), Saposnik (1981), and Shorrocks (1983), involve a comparison of curves. Suppose that at each percentile position, the corresponding real income amount is higher in one country or year than in another. This would produce two curves such as those shown in Figure 7. Theorems from dominance analysis state that the distribution with the higher curve (1992 in this case) is better in a welfare sense for all anonymous and increasing social welfare functions – that is, "better" for anyone who regards an increase in any income as welfare-improving. This judgment is called "first order dominance" or, equivalently, "rank dominance."

If two such curves cross, we may then calculate so-called Generalized Lorenz Curves, which are ordinary Lorenz curves multiplied by the mean real income. If one Generalized Lorenz Curve lies everywhere above another, the one that lies above is said to "generalized-Lorenz-dominate" or, equivalently, "second-order-dominate" the other. Another theorem in this literature states that when this holds, the one that dominates is judged to be better by all social welfare functions that are anonymous, increasing in all incomes, and S-concave. ("S-concavity" means that the function approves of a transfer of income from someone who is relatively rich to someone who is relatively poor.)

It might be thought that these dominance conditions are very demanding. However, when they have been applied to developing countries, they prove to be quite powerful. In fact, they produce rankings in all five developing countries in which they have been applied.

By the first order dominance criterion, economic growth improved economic well-being in Taiwan from 1980 to 1992 (Figure 7), in Thailand from 1975 to 1981 and again from 1986 to 1992 (Figure 8), in Indonesia from 1984 to 1990 (Figure 9), in Brazil

from 1960 to 1980 (Figure 10), and in Chile from 1987 to 1994 (Figure 11). In addition, economic decline produced a worsening of the income distribution in Brazil from 1980 to 1990 (Figure 10).

By contrast, the abbreviated social welfare function approach renders ambiguous verdicts in the cases of Taiwan, Thailand, Indonesia, and Brazil – in each case, because inequality increased while growth was taking place. Therefore, the choice of method makes an important <u>empirical</u> difference in evaluating the welfare effects of economic growth.

What distinguishes the conclusions reached by the two approaches is how they treat income gains of different income groups. In the abbreviated social welfare function approach, any increase in inequality will cause the welfare effects of economic growth to be evaluated ambiguously. By contrast, in the welfare dominance approach, as long as real incomes have increased for each quantile group, such as a decile or a quintile, it doesn't matter what has happened to their income shares. This is why you should consider carefully how important inequality is to you as compared with other aspects of income distribution.

VI. Conclusion

Income distribution is truly multifaceted. Each of these four facets – inequality, poverty, mobility, and well-being – has its own meaning and its own measures. How distribution changes with economic growth depends critically on which aspect of income distribution one wants to measure. To sum up the patterns:

- On inequality: The Kuznets curve is neither a law nor even a central tendency. The pattern is that there is no pattern.

- On poverty: Nearly always when economic growth takes place, poverty has fallen. When poverty has not fallen, it is generally because economic growth has not taken place.
- On mobility: Mobility within the income distribution is substantial. More studies need to be done before any other generalizations can be made.
- On economic well-being: Dominance methods prove to be quite powerful, and they show in the countries studied that economic growth has raised incomes at all positions in the income distribution, thereby raising economic well-being. The abbreviated social welfare function disagrees, giving ambiguous verdicts about half the time. The difference between the two approaches reflects differences in the way they treat inequality.

Figure 1

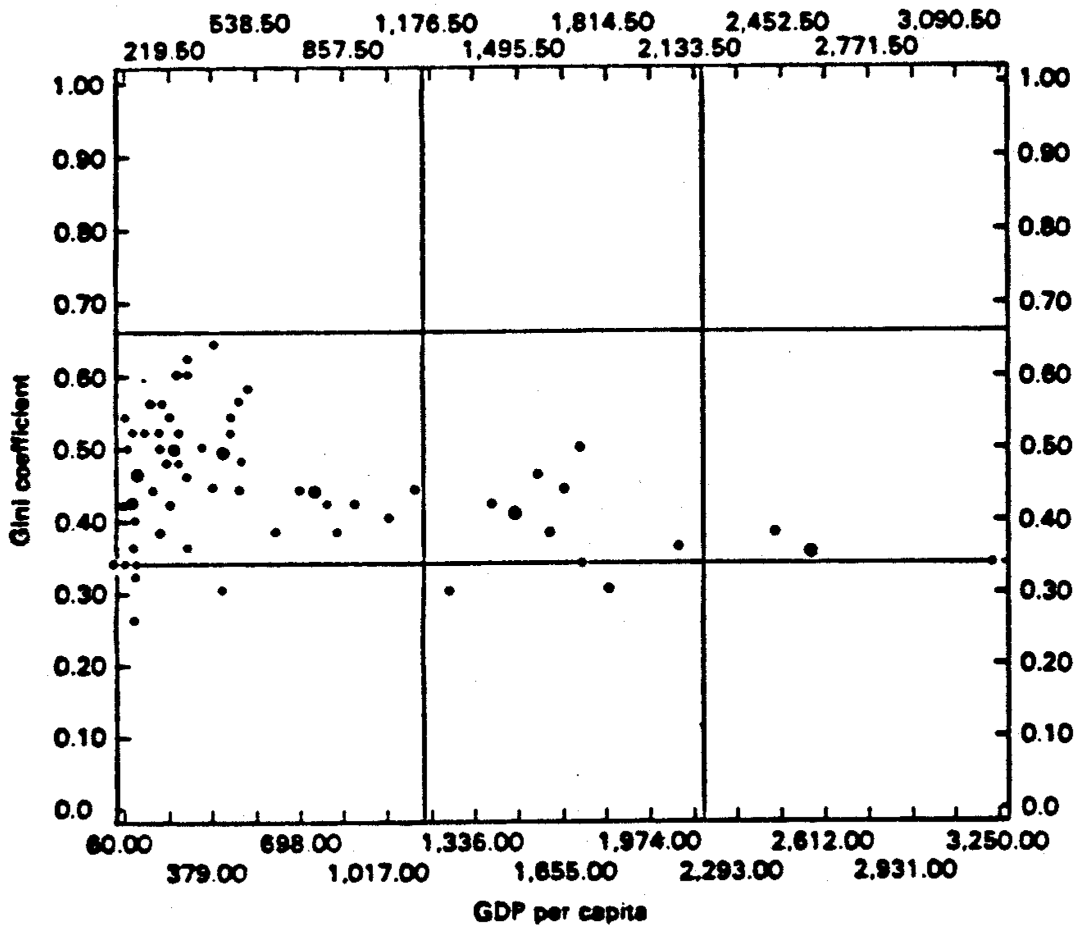
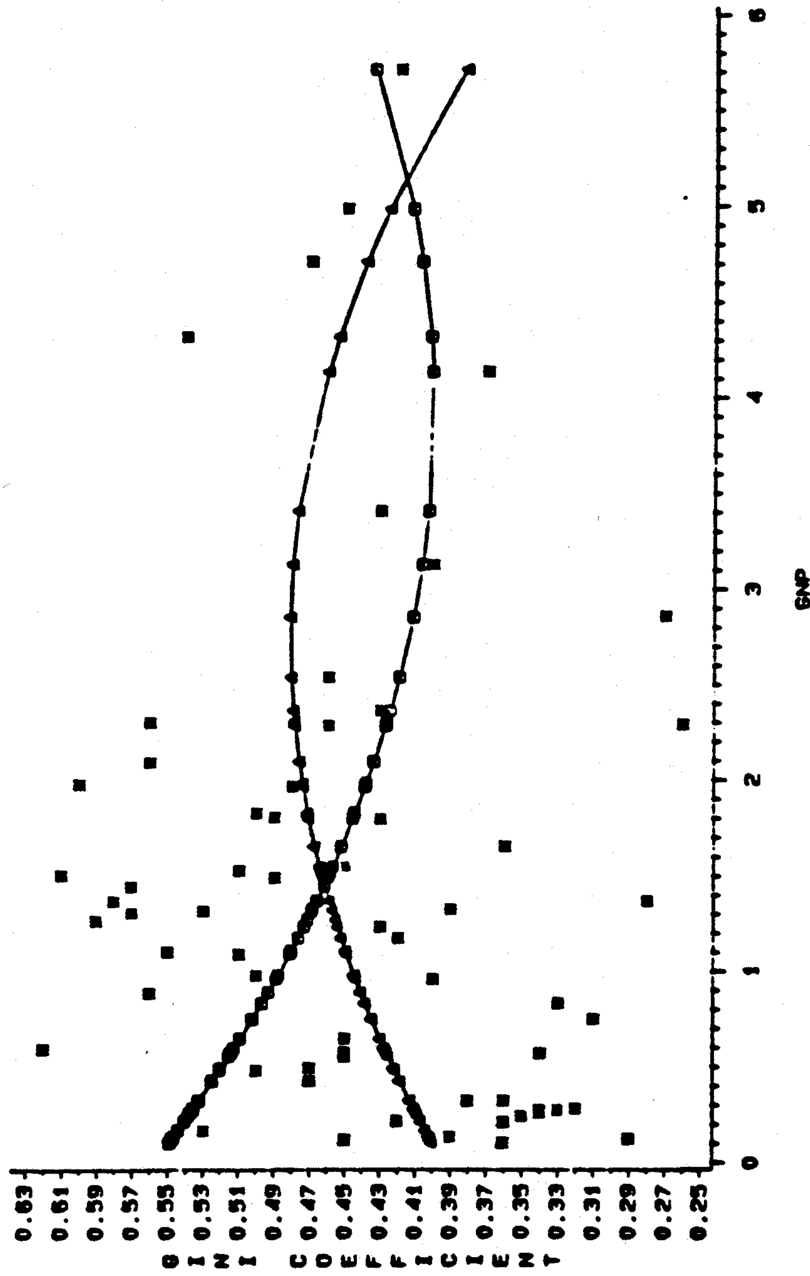


Figure 1 **Gini coefficient and gross domestic product per capita, 56 countries. Computed from data in Paukert (1973: 114-15).**

Source: Fields, 1980, Figure 4.2.

Figure 3

COMPARISON OF POOLED AND FIXED-EFFECT MODELS

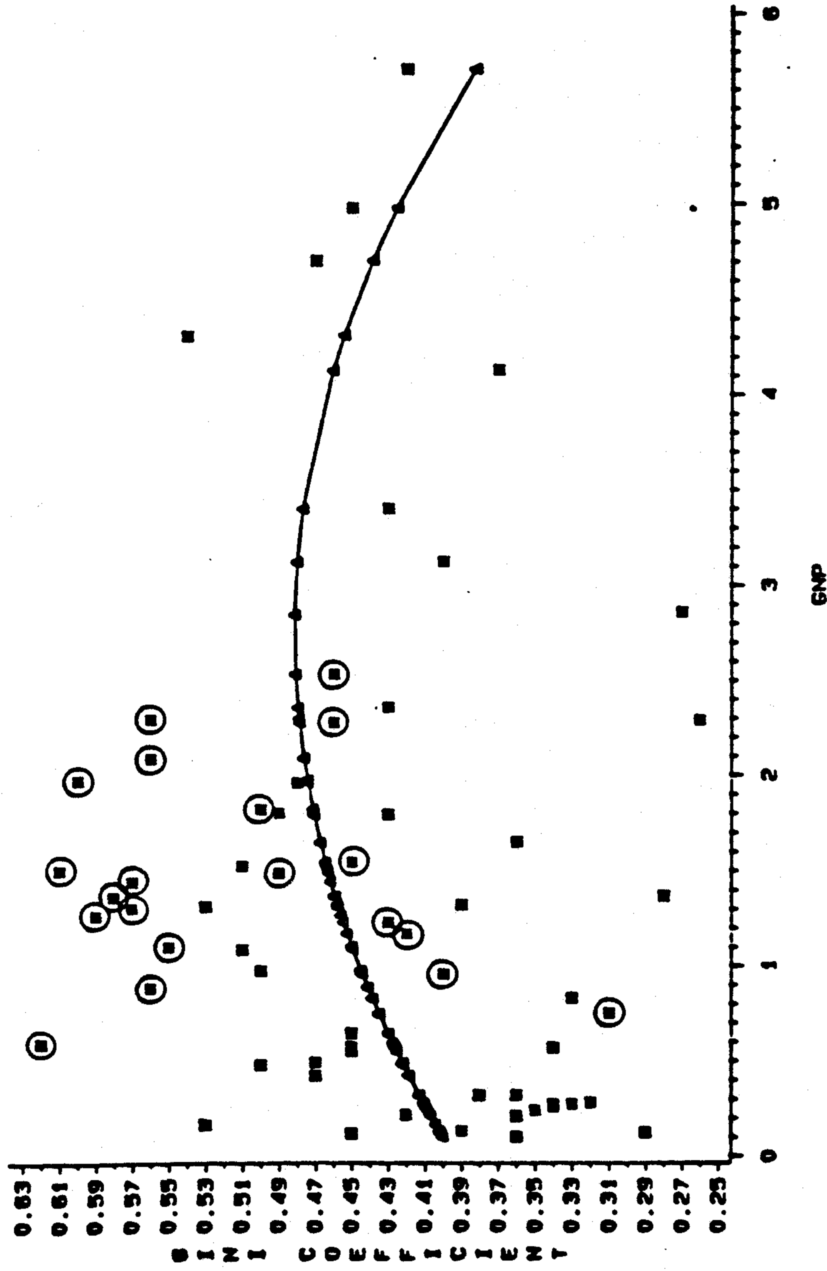


STAR - RAW DATA
TRIANGLE - POOLED REGRESSION PREDICTION
SQUARE - FIXED EFFECTS PREDICTION, OPTIMAL COMMON INTERCEPT

Source: Fields and Jakubson (1994)

Figure 4

LATIN AMERICAN COUNTRIES IDENTIFIED



STAR - ACTUAL DATA
TRIANGLE - PREDICTED RELATIONSHIP
CIRCLED - LATIN AMERICAN

Source: Fields and Jakubson (1994)

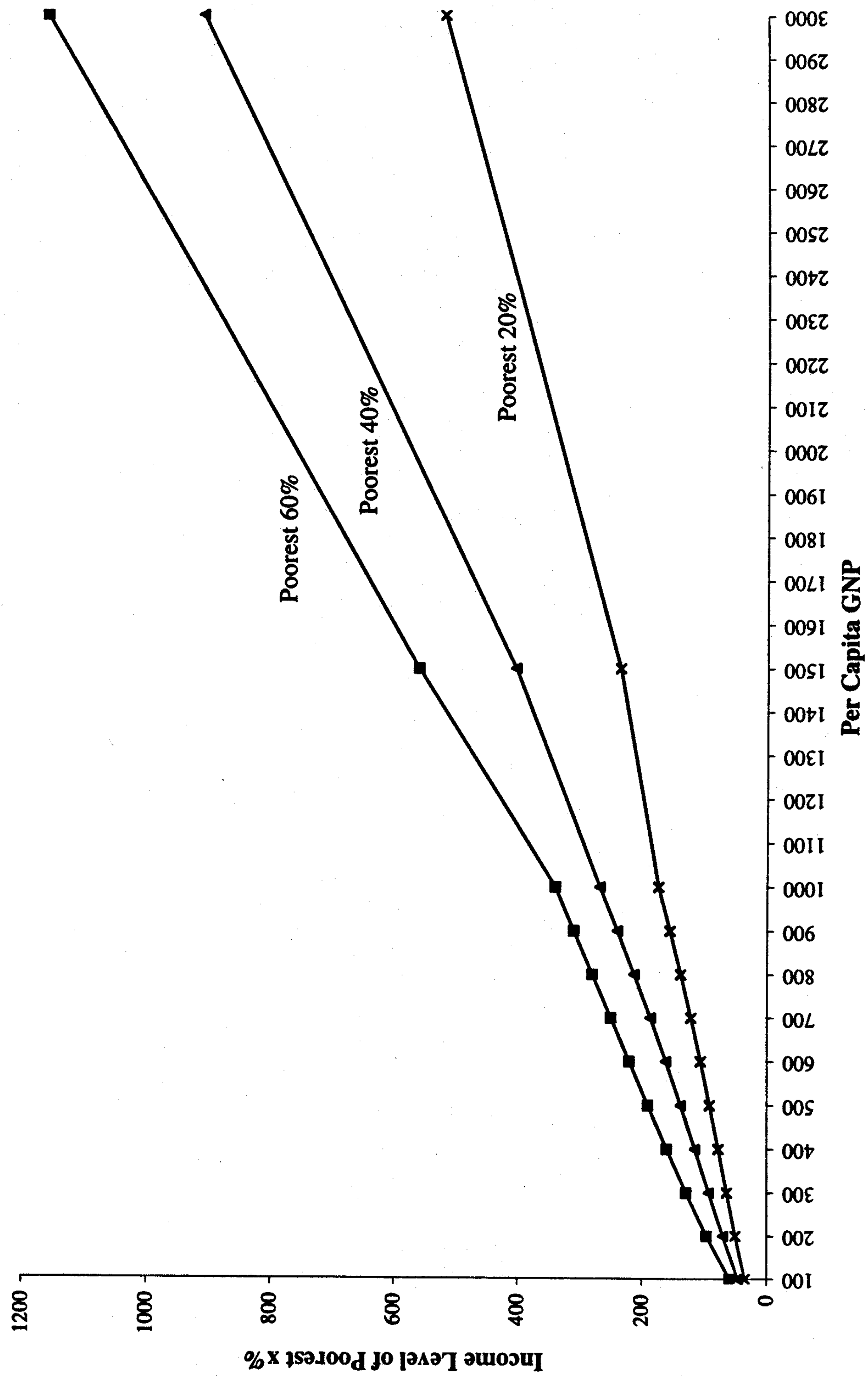
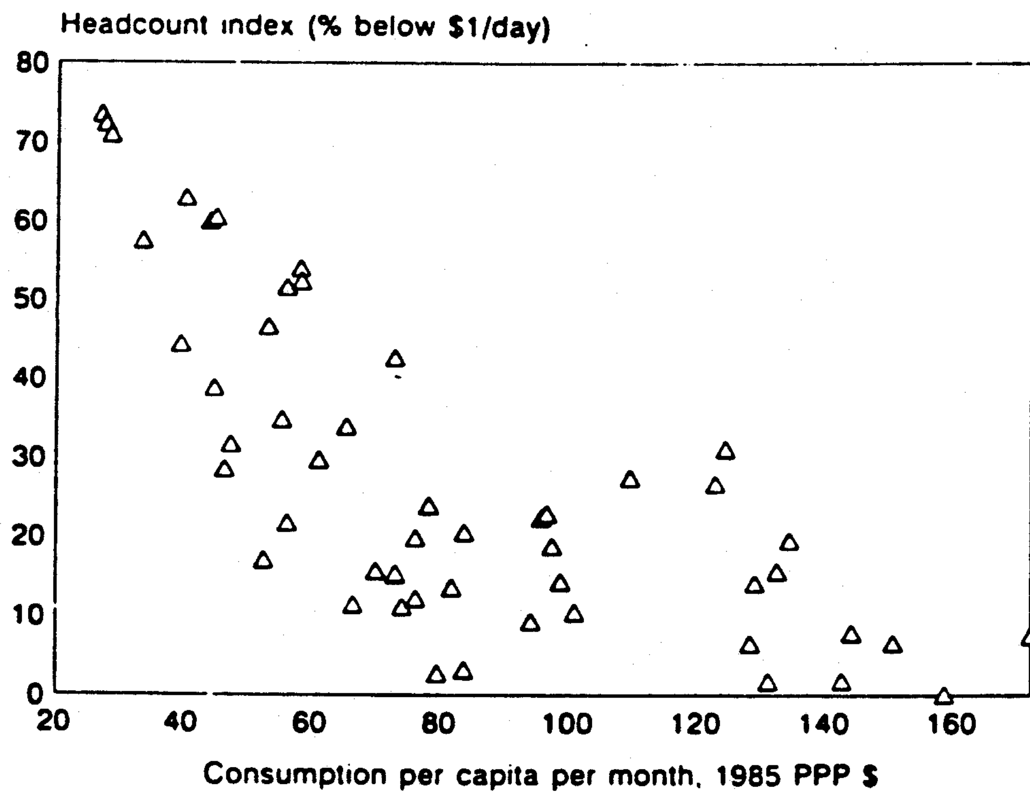


Figure 5
Average Income Levels of Low-Income Groups, International Cross Section

Figure 6

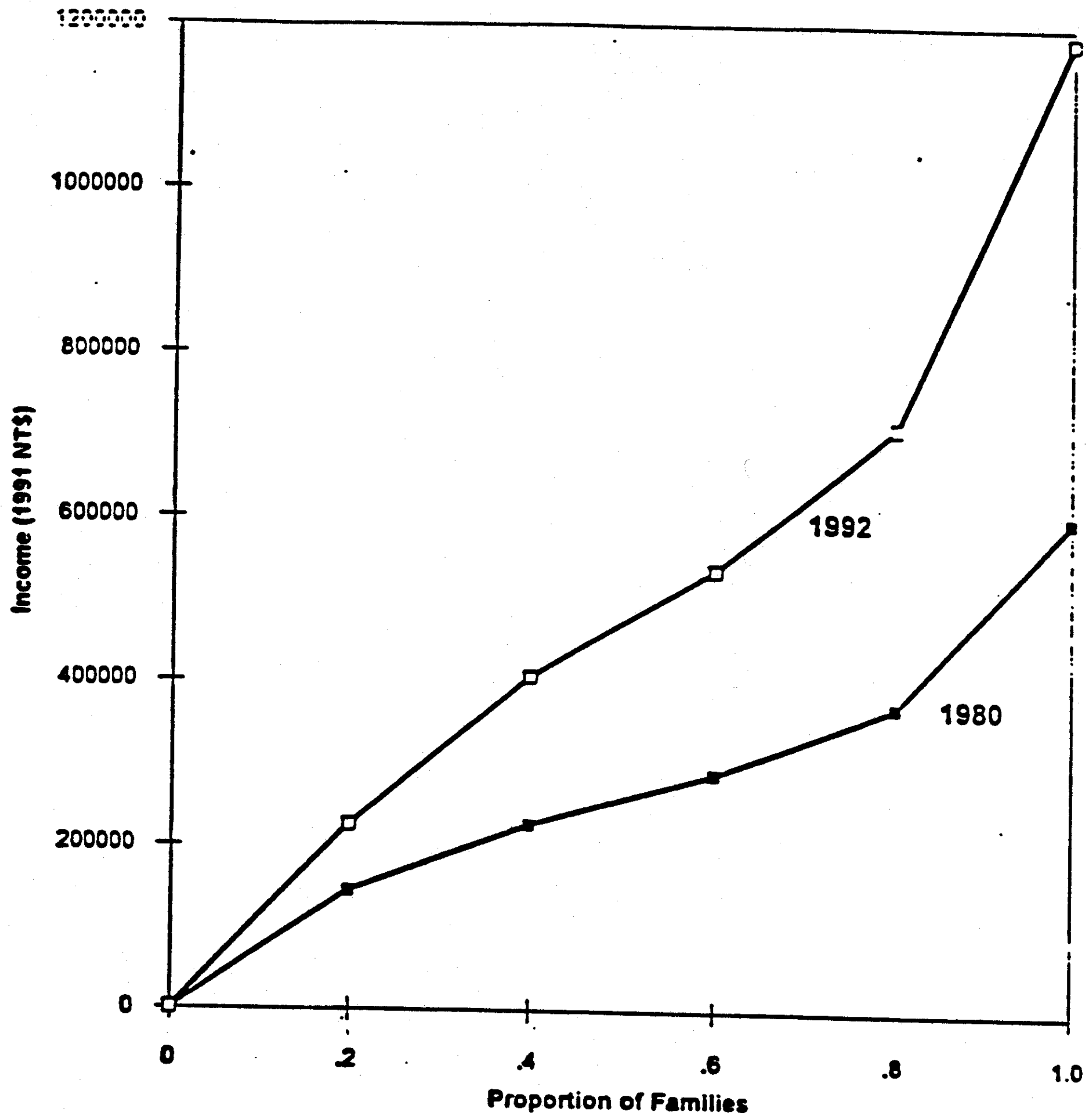
Headcount Index Against Mean Consumption



Source: Ravallion (1995, P.413)

Figure 7

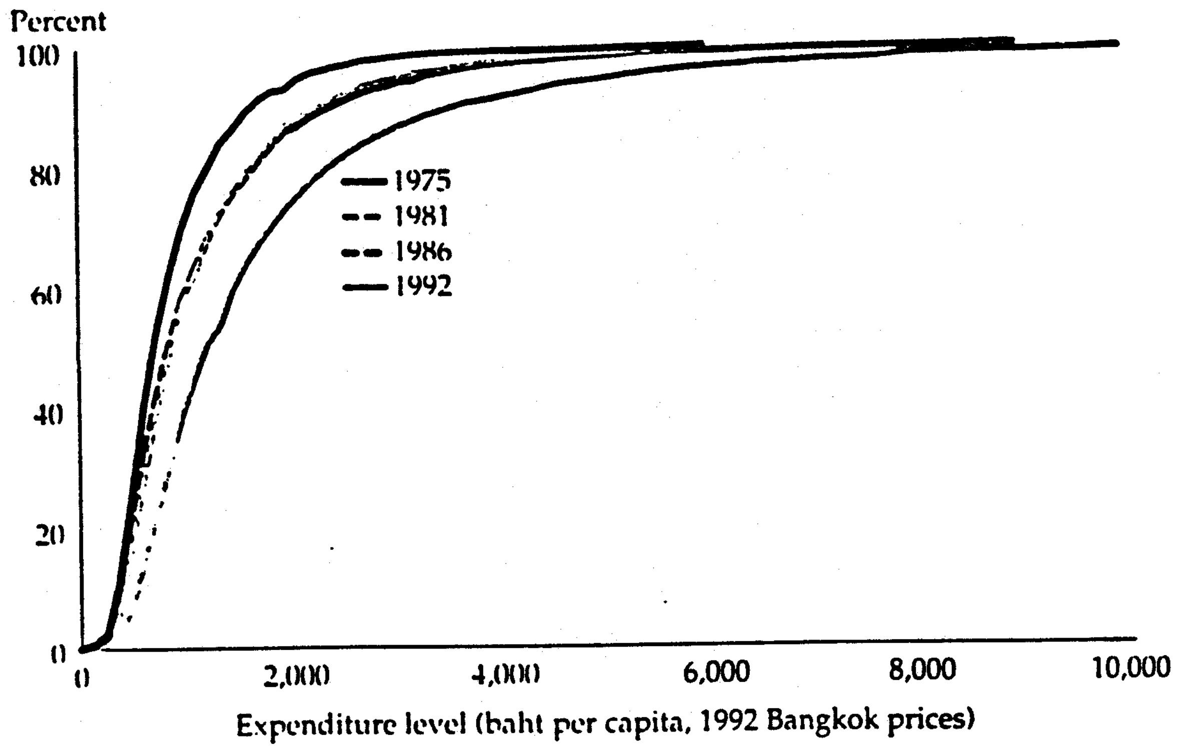
First-order Dominance and Taiwan's Income Distribution, 1980 and 1992



Source: Chiou (1996).

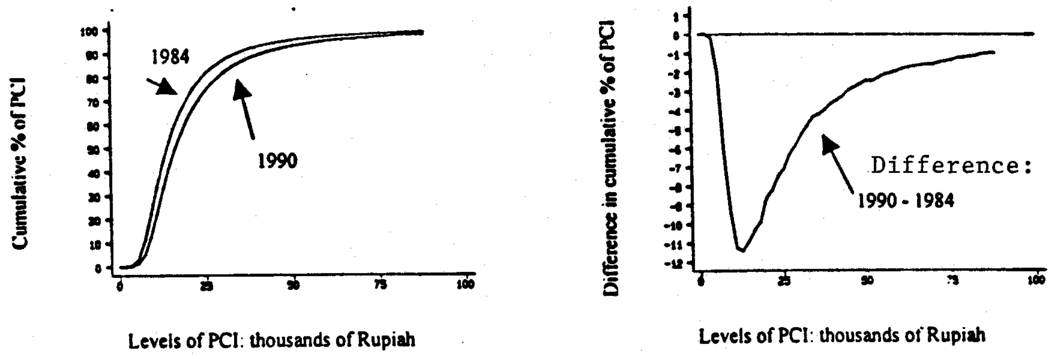
Figure 8

Thailand: Cumulative Distribution Functions, 1975-92

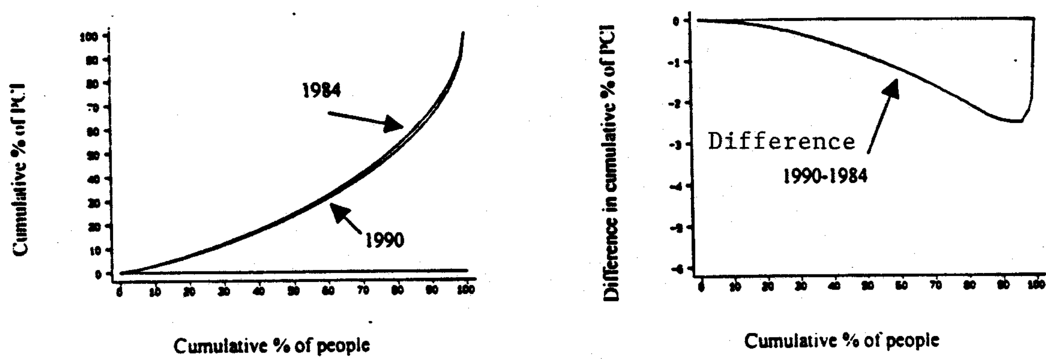


Source: Ahuja et al. (1997, Figure 4.6), based on Thai Socioeconomic Survey data.

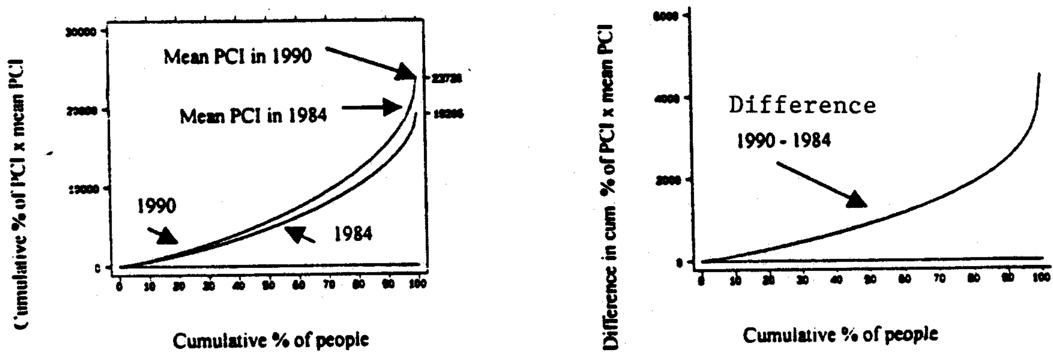
Figure 9
Indonesia: Dominance Comparisons, 1984 and 1990



a) Cumulative Distribution Functions



b) Lorenz Curves

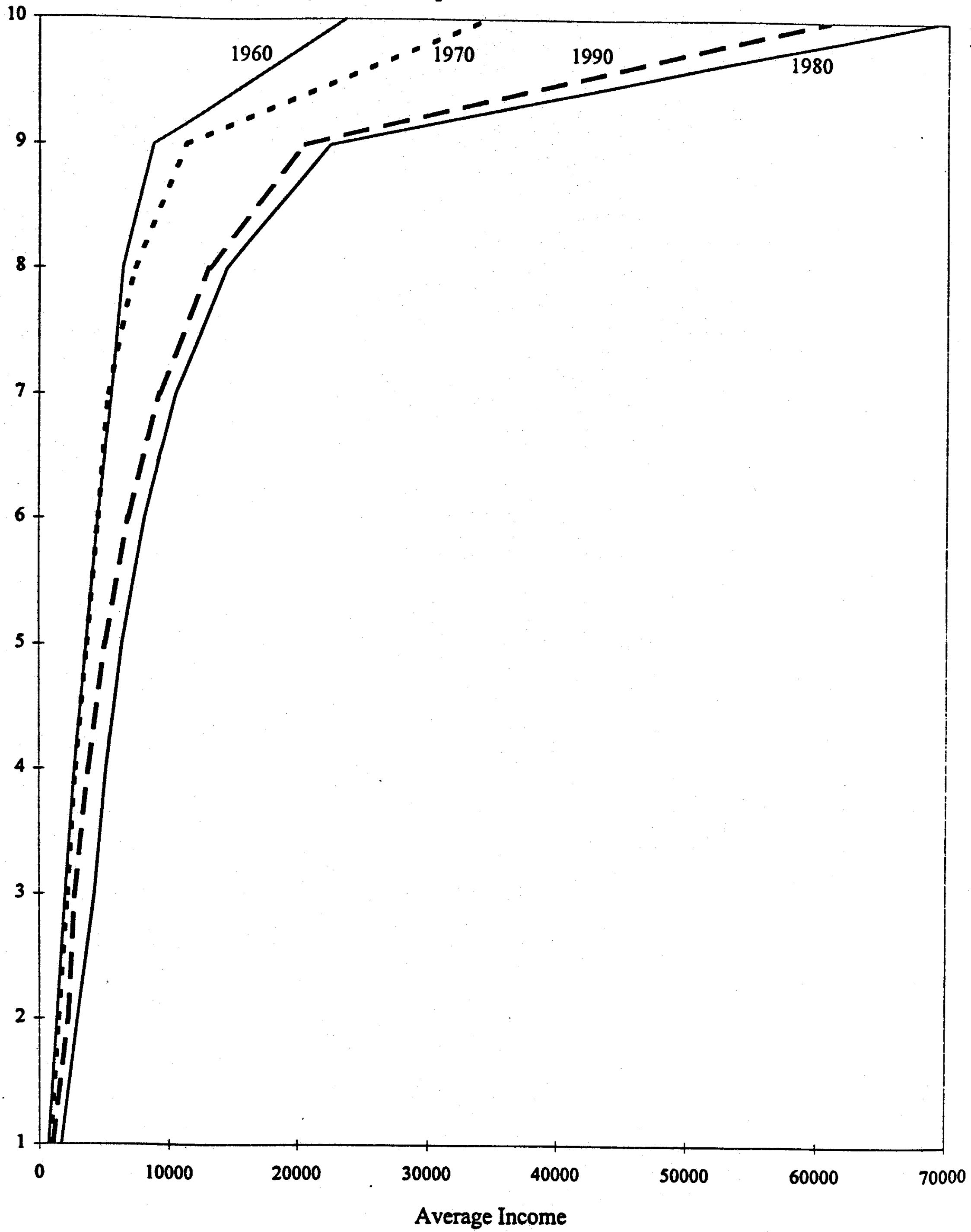


c) Generalized Lorenz Curves

Source: Cameron, 1998

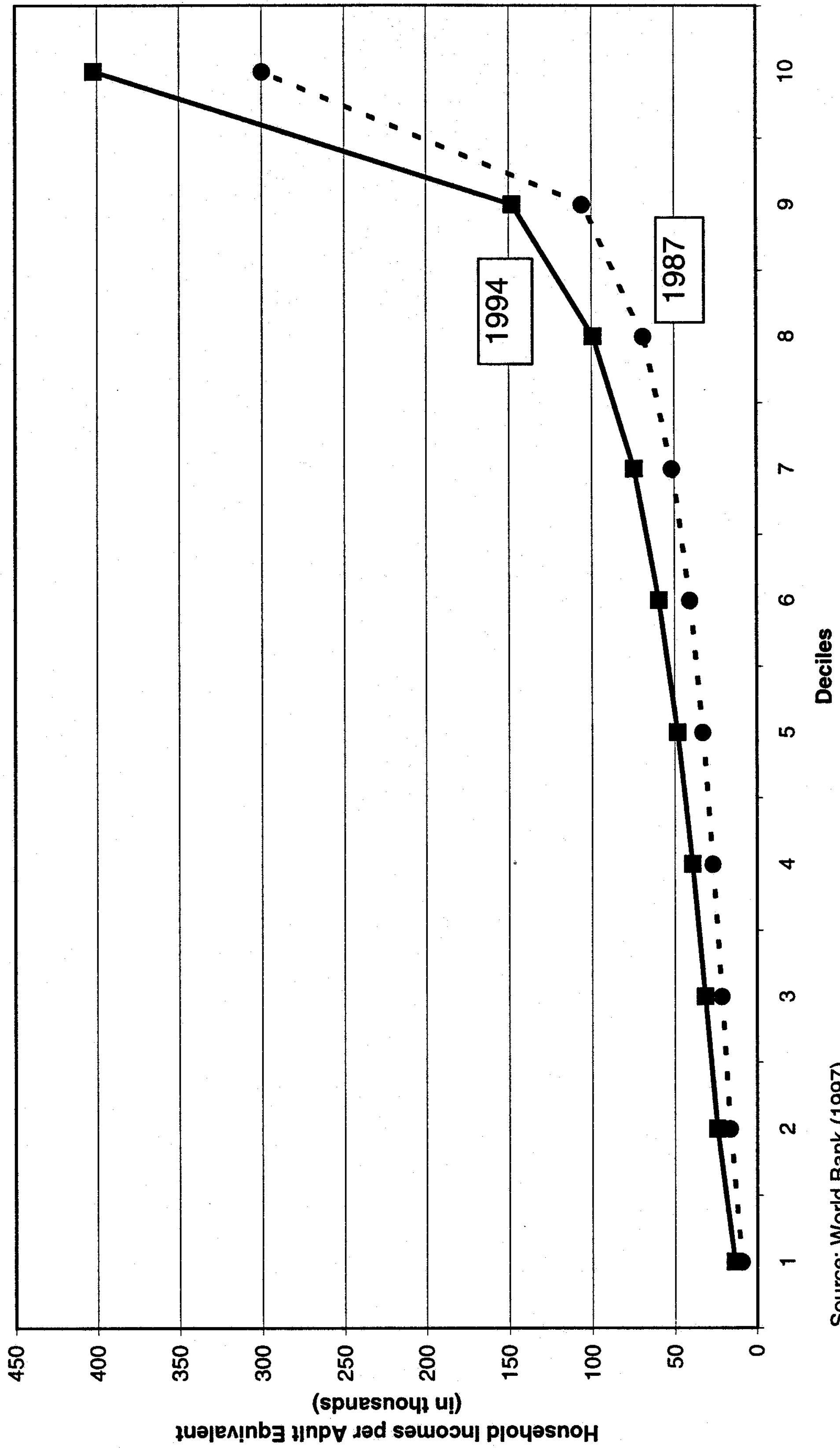
Figure 10

Brazil: Average Income of Each Tenth of the Distribution of Economically Active Population with Positive Income



Source: Barros and Mendonça (1995, Table A.8c), based on Brazilian census data.

Figure 11
Chile: First-Order Dominance, 1987-1994



Source: World Bank (1997)

Table 1. Results from estimation of the Kuznets curve with country specific dummies

	Hypothesis III							
	Coefficient on income	*t*-value	Coefficient on 1/income	*t*-value	Predicted turning point	No. obs.	GDP difference	Years difference
Countries with a significant 'Kuznets curve' (inverted U-shaped relationship)								
Brazil	−5.76E−03	(1.96)	−5.59E+04	(2.29)	3117	15	2533	29
Hungary	−1.97E−02	(2.01)	−4.23E+05	(2.06)	4628	8	1925	29
Mexico	−5.19E−03	(2.13)	−6.39E+04	(2.01)	3511	8	3368	39
Philippines	−6.60E−02	(2.30)	−1.10E+05	(2.18)	1292	6	629	31
Trinidad	−4.14E−03	(2.83)	−1.97E+05	(2.37)	6905	4	6798	23
Countries with a significant U-shaped relationship contrary to Kuznets' prediction								
Costa Rica	2.59E−02	(2.45)	2.07E+05	(2.60)	2822	7	1534	28
India	1.75E−02	(1.94)	1.83E+04	(2.49)	1022	31	674	41
United States	1.79E−03	(3.10)	2.39E+05	(2.63)	11558	45	9323	44
United Kingdom	5.01E−03	(5.03)	3.79E+05	(4.08)	8696	31	6270	30
Countries with no statistically significant association between inequality and income								
Australia	−4.93E−03	(1.39)	−9.86E+05	(1.83)	14143	9	4767	22
Belgium	−4.34E−03	(0.31)	−7.20E+05	(0.35)	12882	4	2805	13
Bangladesh	1.99E−02	(0.58)	1.54E+04	(0.49)	879	8	460	22
Bulgaria	−1.12E−03	(0.27)	8.97E+02	(0.01)		27	2942	31
Canada	−5.69E−04	(1.23)	−5.06E+04	(0.89)	9432	23	11013	40
Chile	1.00E−03	(0.11)	3.69E+04	(0.26)	6070	5	1690	24
China	7.14E−02	(2.43)	7.40E+04	(1.83)	1018	12	530	12
Cote d'Ivoire	−7.14E−01	(0.72)	−1.62E+06	(0.74)	1506	4	139	3
Colombia	8.15E−03	(0.52)	6.00E+04	(0.53)	2713	7	1157	21
Czechoslovakia	−6.56E−04	(0.17)	2.35E+03	(0.08)		10	2310	30
Germany	−3.17E−03	(0.38)	−4.21E+05	(0.45)	11532	6	3328	15
Denmark	−5.28E−03	(0.26)	−1.01E+06	(0.33)	13813	4	3170	16
Egypt	−1.40E−02	(1.19)	−2.45E+03	(0.19)	418	4	1133	32

Table 1 Continuation

Spain	−3.29E−03	(1.35)	−1.42E+05	(1.42)	6582	8	4658	24
Finland	−1.62E−03	(0.28)	−2.19E+05	(0.32)	11640	10	3343	14
France	−3.25E−03	(2.53)	−9.82E+04	(1.20)	5499	7	6951	28
Hong Kong	8.35E−04	(1.31)	3.19E+04	(0.68)	6176	7	10757	20
Indonesia	−5.66E−03	(0.50)	−2.13E+03	(0.10)	614	7	996	14
Iran	−1.96E−02	(0.65)	−4.21E+05	(0.68)	4635	5	1153	15
Italy	3.98E−03	(1.24)	5.71E+05	(1.71)	11975	15	4320	17
Jamaica	2.12E−02	(1.59)	1.17E+05	(1.88)	2347	8	1230	35
Japan	5.62E−04	(1.53)	3.38E+04	(1.85)	7756	23	10777	28
Korea	−1.45E−03	(1.43)	−1.22E+04	(2.15)	2898	11	4549	23
Sri Lanka	9.29E−03	(0.85)	2.34E+04	(0.91)	1588	9	991	37
Malaysia	−6.99E−03	(1.68)	−6.00E+04	(1.38)	2930	6	2520	19
Netherlands	1.57E−02	(1.74)	1.88E+06	(1.53)	10949	12	2941	16
Norway	−7.53E−04	(0.87)	−6.84E+03	(0.08)	3014	9	8969	29
New Zealand	3.50E−02	(1.45)	3.82E+06	(1.32)	10437	12	1717	17
Taiwan	8.15E−04	(1.67)	1.41E+04	(2.21)	4165	26	6521	29
Pakistan	−2.73E−02	(0.56)	−3.88E+04	(0.60)	1192	9	448	22
Panama	3.31E−03	(0.08)	1.47E+05	(0.41)	6667	4	808	19
Poland	2.57E−02	(1.02)	5.09E+05	(1.11)	4453	9	1076	16
Puerto Rico	1.01E−02	(1.07)	3.84E+05	(1.18)	6177	4	3019	17
Singapore	1.53E−04	(0.11)	5.94E+03	(0.08)	6233	6	6302	16
Soviet Union	9.07E−03	(0.34)	3.52E+05	(0.28)	6225	5	1622	13
Sweden	2.47E−03	(0.21)	4.38E+05	(0.21)	13324	13	2741	16
Thailand	4.40E−03	(2.38)	4.17E+03	(0.55)	974	8	2947	30
Tunisia	−6.92E−03	(1.00)	−2.34E+04	(0.97)	1841	5	1674	25
Venezuela	−1.68E−02	(1.74)	−7.60E+05	(1.61)	6732	9	2350	19
Yugoslavia	−3.49E−02	(1.90)	−4.11E+05	(1.97)	3429	4	3069	26

DW = 1.875

Adj. R2 = 0.9481

No information on income for the Bahamas was available.
Differences refer to the difference between the first and last observation.

Source: Deininger and Squire (1998)

Table 2

Income Inequality and the Economic Cycle

Change in Income Distribution	Recession		Recovery	
More Equal	Argentina	(1980-82)	Brazil	(1983-86)
	Argentina	(1982-85)	Chile	(1983-87)
			Chile	(1987-90)
			Colombia	(1980-89)
			Costa Rica	(1983-86)
			Costa Rica	(1981-89)
			Venezuela	(1989-91)
			Uruguay	(1981-89)
Less Equal	Argentina	(1985-88)	Guatemala	(1986-89)
	Argentina	(1980-89)		
	Bolivia	(1986-89)		
	Brazil	(1979-83)		
	Brazil	(1986-89)		
	Brazil	(1979-89)		
	Chile	(1980-83)		
	Costa Rica	(1980-82)		
	Guatemala	(1981-86)		
	Mexico	(1977-84)		
	Mexico	(1984-89)		
	Peru	(1981-84)		
	Peru	(1984-89)		
	Panama	(1979-89)		
	Venezuela	(1981-89)		

Source: Psacharopoulos et al. (1993).

Table 3

Lima, Peru: Quintile Mobility Matrix for Households Based on Total Expenditures Per Capita.

A. Transition Matrix Between 1985/86 and 1990

	Quintile in 1990				
Quintile in 1985/86	I	II	III	IV	V
I	48.3%	24.1%	16.6%	6.2%	4.8%
II	29.9%	23.6%	25.0%	11.8%	9.7%
III	11.8%	25.7%	29.2%	25.0%	8.3%
IV	7.6%	15.3%	17.4%	32.6%	27.1%
V	2.8%	11.1%	11.8%	24.3%	50.0%

B. Transition Matrix Between 1990 and 1996

	Quintile in 1996				
Quintile in 1990	I	II	III	IV	V
I	43.5%	30.6%	15.3%	8.2%	2.4%
II	22.6%	15.5%	29.8%	23.8%	8.3%
III	22.6%	25.0%	22.6%	19.1%	10.7%
IV	7.4%	23.8%	20.2%	25.0%	23.8%
V	4.8%	4.8%	11.9%	23.8%	54.8%

Source: Herrera (1999)

Table 4

Lima, Peru: Measures of Positional Movement

Index	1985-90	1990-96	Change in Positional Movement
Immobility Ratio – Diagonal	36.7%	32.3%	Mobility increased
Immobility Ratio – Diagonal + Two Adjuacent Cells	76.4%	71.3%	Mobility increased
Moved One Quintile	39.7%	39.0%	Mobility decreased
Moved Two or More Quintiles	23.6%	28.7%	Mobility increased
Mean Absolute Jump (as a percentage of perfect mobility)	0.968 (60.5%)	1.052 (65.8%)	Mobility increased

Source: Herrera (1999)

Table 5
Chile: Movement among Absolute Income Classes Using Per Capita Household Income, 1968 and 1986

		Income Class in 1986				
		1	**2**	**3**	**4**	**5**
Income	**1**	0.08	0.32	0.20	0.28	0.12
Class	**2**	0.12	0.09	0.24	0.33	0.21
in 1968	**3**	0.11	0.25	0.11	0.21	0.32
	4	0.04	0.11	0.26	0.26	0.33
	5	0.03	0.03	0.12	0.24	0.58

Footnote to Table 7.3:

The income classes (measured according to per capita household income, y) are:

1: y <= 10,000
2: 10,000 < y <= 20,000
3: 20,000 < y <= 30,000
4: 30,000 < y <= 50,000
5: y > 50,000

These income figures are in 1985 Chilean pesos.

Source: Scott and Litchfield (1994, Table 12)

Table 6

China: Income Mobility of Rural Households, 1978 to 1989

Panel A: 1978 to 1983

Income Quintile in 1978	Income Quintile in 1983: Top	2	3	4	Bottom	Total
Top	61.3	29.8	7.3	1.0	0.6	100
2	20.9	38.8	30.3	8.6	1.4	100
3	10.6	18.1	33.1	32.6	5.7	100
4	5.7	9.4	19.2	34.8	30.9	100
Bottom	4.9	6.8	11.3	22.9	54.1	100

Panel B: 1983 to 1989

Income Quintile in 1983	Income Quintile in 1989: Top	2	3	4	Bottom	Total
Top	48.5	25.2	12.7	6.6	7.1	100
2	23.1	28.9	23.4	13.9	10.8	100
3	16.5	20.1	23.2	24.2	16.0	100
4	9.8	15.7	24.0	28.6	21.9	100
Bottom	4.7	10.9	16.9	26.7	40.9	100

Panel C: 1978 to 1989

Income Quintile in 1978	Income Quintile in 1989: Top	2	3	4	Bottom	Total
Top	40.3	24.4	16.2	10.4	8.7	100
2	23.6	26.3	21.0	16.7	12.4	100
3	19.6	21.8	21.0	20.8	16.8	100
4	12.7	17.2	21.5	26.2	22.4	100
Bottom	7.7	12.8	20.0	24.3	35.1	100

Source: Nee (1994, Table 3).

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