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Poverty Alleviation in Brazil, 1970–87

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Poverty Alleviation in Brazil, 1970-1987

M. Louise Fox

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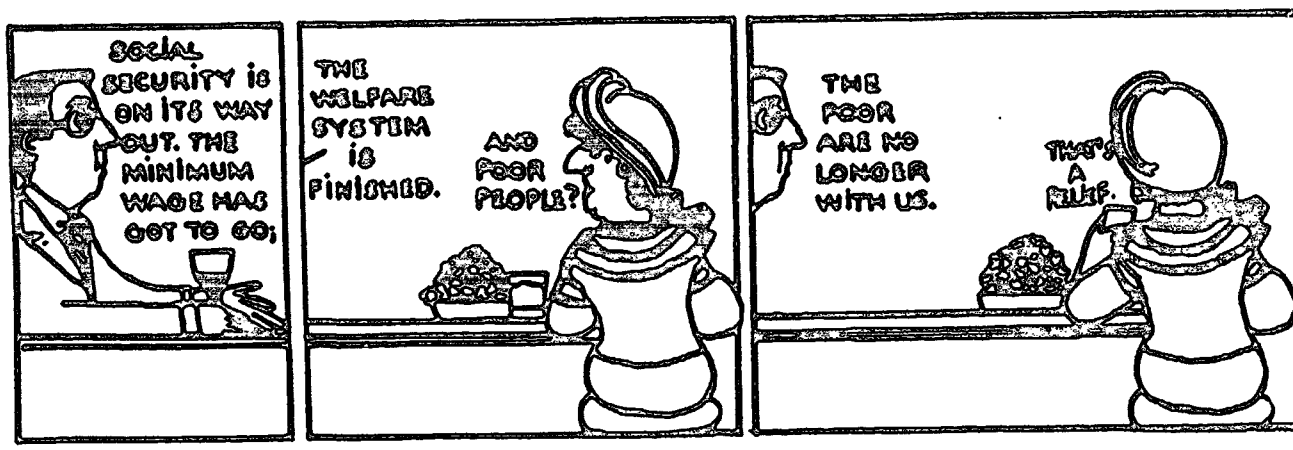

More Sylvia by Nicole Hollander

ABSTRACT

This paper reviews the evidence on poverty alleviation in Brazil over the past two decades. After reviewing a number of measurement issues, the paper answers four basic questions:

(a) What do we know about the level and intensity of absolute poverty in Brazil, and how have these variables changed over the last 20 years?

(b) What are the economic characteristics of the poor today, and how do they compare with the non-poor?

(c) How have these characteristics changed as the economy of Brazil has grown and changed over two decades?

(d) What can we learn from the poverty alleviation experience of the last two decades about Brazil's prospects for poverty alleviation in the 1990s?

The paper shows that during the "miracle period" the incidence and severity of poverty declined substantially, primarily by moving the poor out of subsistence agriculture into more renumerative occupations. During the eighties, progress toward poverty alleviation slowed with the decline in economic growth. During this period, urban poverty increased substantially, a new trend for Brazil. Prospects for poverty alleviation in Brazil in the 1990s will depend first on the restoration of stable economic growth, and second on the ability of key sectors (agriculture, services) to improve labor productivity, thus raising the incomes of the poorest. In rural areas, where 50 percent of the poor still reside, measures to raise productivity must include increased access to social services.

Introduction

Economic development should be about reducing poverty.[1] While over the past 30 years developing countries have experienced substantial income growth, throughout the last two decades significant frustration has been expressed at the pace of poverty reduction which has accompanied that growth in some developing countries. In the 1970s, concern was expressed that economic growth was not "trickling down" to the poor (World Bank, 1980). In the 1980s, many analysts claimed that the process of adjustment following the global recession was actually impeding poverty reduction, and that the poor were bearing too many of the costs of adjustment (Cornia, et al, 1987). Brazil has often been cited as an example of where the development process has not provided enough benefits to the poor. During the late 1960s and 1970s, when Brazil's domestic production grew at "miracle" rates, Brazil's progress toward poverty alleviation was viewed as inadequate given this potential (Fishlow, 1972; Chenery et al 1974; Taylor, et al, 1980; for a contrary view see Fields, 1977). Indeed some authors claimed that the process of economic development bypassed the poor during this period, leaving them "marginalized" in a separate economic system (Cardoso and Faletto, 1979; Hewlett, 1979). In the 1980s, as Brazil struggled to adjust to the changing international financial environment, analysts denounced the effects on poverty of the adjustment process (World Bank, 1986).

The purpose of this paper is to review the evidence on poverty alleviation in Brazil over the last two decades. It addresses the following questions:

- What do we know about the level and intensity of absolute poverty in Brazil, and how have these variables changed over the last 20 years?

- What are the economic characteristics of the poor today, and how do they compare with the non-poor?

- How have these characteristics changed as the economy of Brazil has grown and changed over two decades?

- What can we learn from the poverty alleviation experience of the last two decades about Brazil's prospects for poverty alleviation in the 1990s?

This paper is not an evaluation of how individual policies affected the poor over the period. That topic is much too broad for this exercise.[2] Rather the paper sets the stage for such an analysis by (a) resolving crucial methodological problems associated with measuring the level of poverty at various points in time and performing this

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[1]In a recent speech, World Bank Vice President Karaosmanoglu stated that poverty reduction ". .(could) be considered synonymous with development." (Cited in the Salmen, 1990, p.1).

[2]Recent papers addressing the question of how specific policies affected the poor in Brazil include World Bank, 1988, which looks at social sector spending policies, and Fox and Morley, 1990, which looks at the impact of macroeconomic policies on the poor.

measurement; and (b) isolating factors associated with poverty at various points in time, thus providing guidepoints for the design of targeted poverty programs and indicating what are the promising points of entry for future analyses of the effects of policies on the poor.

Analyzing these questions for Brazil is not a simple exercise owing to a paucity of accessible data to measure the basic poverty concepts.[3] As inflation accelerated into triple digits over the period, this exercise becomes even more complicated. In this paper, we have devoted considerable effort to presenting data which measures a consistent concept of poverty over time. The first section of the paper discusses the conceptual framework and methodology we used in assembling the data presented below. In the second section, we present the quantitative evidence on just how much poverty reduction occurred in Brazil over the last two decades, using the methodology elaborated in the first section. We compare Brazil's poverty performance with its income growth performance, attempting to isolate the role of overall income growth in poverty alleviation. In the third section, we begin to isolate other factors associated with poverty reduction in the 1970s, analyzing the characteristics of those who escaped poverty over the decade as well as those who remained in poverty at the end of the decade. Next we turn to the 1980s, looking at how the poor fared during the adjustment process. We are able to do this in more depth than for the previous decade, as we have observations for a number of years, and are not forced to rely on observations of only the beginning and the end of the decade. In the final section, we turn to an analysis of what the experience of the past twenty years implies for Brazil's poverty reduction prospects in the 1990s.

Poverty and Poverty Lines in Brazil

Poverty is commonly defined as the inability to obtain an adequate standard of living. While the concept appears fairly straightforward, its measurement is inherently controversial, as perceptions of poverty have been found to vary with culture and income level (Ravallion, et al, 1990). In addition, even were a consensus to be reached on the precise definition of an adequate standard of living, rarely do the data exist to adequately compare levels of living between individuals, given the importance of factors such as non-market transactions (including the distribution of government services), variations in household size and composition and the distribution of consumption within the household, and short-run fluctuations in income in determining individual living standards. The usual practice is to rely on current household income or expenditures, adjusted for family size and (where possible) composition, as a measure of individual well being. Accordingly, the poor are therefore defined as those people who live in

[3]Owing to the limited time and resources available for this study, only secondary sources (existing analysis and tabulations) were used. Brazilian household survey data is actually very rich and underused, but a major data analysis effort (e.g. several years work) would be required before a more comprehensive analysis could be undertaken.

households that do not, at a given point in time, have at their disposal the minimal level of inflows (monetary or non-monetary) required to obtain an adequate living standard.[4]

The level of inflow--measured either directly by actual inflow (income), or indirectly but more reliably by actual outflows (expenditures)--which separates the poor from the non-poor is called the poverty line. Ideally, it is the cost, at local prices, of a basket of goods comprising the absolute minimum requirements: nutrition (calories and specific nutrients), clothing, shelter, education, health care, transportation. Conventionally, it is the cost of a basket of low price foods providing an FAO/WHO minimum caloric level plus an allowance for non-food expenditures, measured at local cost. This implies that the measurement of poverty should also take into account regional difference in consumption habits and prices. In order to get a more accurate measure of non-monetary inflows in the form of government-provided social services, measures of poverty based on income or expenditures per capita are conventionally combined with outcome measures of physical well-being (mortality, morbidity, and nutritional status) and education level.

Once the poor have been distinguished from the non-poor, it is also important to analyze the severity of poverty, measuring the shortfall between each individual's consumption and the minimum standard. In evaluating poverty alleviation over time, it is important to know not just how the number of poor has changed, but by how much. If the number of poor has remained constant but the average level of deprivation has increased, the result could not be considered a welfare improvement. The simple measure of the proportionate shortfall of the average poor person and the poverty line (or, the difference between the poverty line and the mean income of the poor), is known as the **income gap ratio.** A measure which incorporates both the depth of poverty and the number of poor is the **average poverty gap**, which is simply the product of the headcount of poverty and the income gap ratio. The poverty gap is one of the most widely used measures of the change in poverty over time.[5]

Even meeting the agreed "common practice" conventions for measuring poverty described above is difficult in Brazil. Only one national expenditure survey has been undertaken in the last two decades, in 1974/75. Household income data are collected in yearly sample surveys, which appear to do a reasonable job of measuring

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[4]For lack of better data, studies of poverty in Brazil have used individual earnings as a proxy for individual levels of living (Lewhig, (1988); Jatoba, (1989); Romao, (1988); Denslow and Tyler, (1983)). This can be very misleading, as individuals vary in the number of people with whom they share their income. A low income earner is often a secondary earner in a high income household, allowing the achievement of a much higher standard of living than the individual income could support on its own. Likewise, a middle income earner may be supporting a very large household as sole earner, implying a much lower standard of income than if the individual were living on his/her own. In 1985, roughly 35 percent of those earning at the minimum wage in the formal sector were secondary earners in households with per capita incomes in the top 50 percent of the distribution, (Alemeida dos Reis, 1989). For this reason, it is extremely important to analyze poverty at the level of the consumption unit, and to control for the size (and if possible, the composition) of this unit.

[5]See Foster et al, 1984, for a discussion of this issue and examples of other measures.

monetary labor income. Income coverage is supposed to be better in the data from the decadal censuses, but comparison with national accounts data suggests otherwise (CEPAL, 1986). As working with raw data is a very costly process, most researchers rely on published tabulations of survey data. Until 1980, official published tabulations did not allow the identification of the poor by household income controlling for household size (e.g. per capita), and no official published tabulations have controlled for household composition (e.g. by adult equivalent). Even since 1980, such tabulations only exist for selected years, and none exist controlling for household composition. Few characteristics of households with low per capita incomes are published. As the published tabulations also do not include the means but only the frequency within the intervals, estimating the intensity of poverty is difficult as well. Brazil is an extremely complex country, and regional price and consumption differences are known to be significant (Rocha and Tolosa, 1989; Thomas, 1982). This implies that separate minimum standards of income should be defined for each area (at each time period), but to do so would require data on consumption and the evolution of prices for each area. For most of the country, this detailed data is completely unavailable. Finally, Brazil's high and variable inflation wreaks havoc with any efforts to measure changes in real variables. This is especially true after 1985, when the combination of rapidly accelerating inflation and periodic price freezes brought wide swings in relative prices from month to month.

Given these data limitations, we proceeded as follows. Throughout the paper, the poor are defined as those persons living in a household whose income per capita is below a minimum acceptable standard.[6] Income is measured by household surveys, which only record about 50 percent of the national accounts estimates of income. When compared with the 1974/75 expenditure data, which was able to pick up about 80 per cent of national accounts data for the same period, these survey data have been shown to underestimate income-in-kind, which primarily affects the measurement of household income in the rural areas, although many urban family businesses also take some income in kind.[7] Thus, the population in poverty in rural areas is likely to be overestimated relative to the urban population for any given poverty line when the household survey data is used.

The absence of regional price series outside of the metropolitan areas leaves no other option than to define a national poverty line, despite the distortions this approach entails. We originally sought to define a poverty line based on the price of a minimum basket of commodities. The cost of such a basket has been estimated nationwide and for 21 regions using the 1974/75 expenditure data. The cost of the basket ranged from 4 to 10 percent of the minimum wage per capita (using an average family size of 5.5) (Thomas, 1982). Using the same data, just under 30 percent of the

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[6]This is equivalent to assuming that all household members have equal needs, and that there are no economies of scale in household production.

[7]Is it usually assumed that both expenditure data and income data do a poor job of recording income from capital, but the poor have very little of this type of income, so this data omission is not of as much concern as the others noted above.

population were found to be living under the poverty threshold. However, when we inflated the August 1974 cost of the average minimum basket to 1980 prices (using the IGP deflator), the resulting poverty line ranged from 67 to 91 percent of the minimum wage per capita, and placed roughly 60-70 percent of the population in poverty in 1980.[8] The apparent increase in the poverty population between 1974 and 1980 is accounted for in part by the greater income coverage of the expenditure survey, and highlights the problems in using the household income data. Nevertheless, most observers of Brazil in 1980 would find the notion that 70 percent of population were unable to purchase a minimum standard of living an exaggeration of the extent of poverty. From a policy perspective, such a poverty line is also too high, as it does not allow sufficient focus on the neediest of the population.

Casting about for a different poverty line for Brazil we found that most authors have used a multiple of the minimum wage. Fishlow (1972), in his pioneering study of poverty in Brazil, used 1 minimum wage for an average poor rural family (6 persons in 1960) as his poverty line, and adjusted this line upwards by 15 per cent for urban areas. Most authors who participated in the great Brazil poverty and income distribution debate of the 1970s followed this approach, including Fields (1977) and Beckermann and Coes (1980). Pastore, (1983) in his comparison of 1970 and 1980, used 1/4 of a 1980 minimum wage per capita as his poverty line, as did Hoffman and Kayagama, (1986). While minimum wage policy has served a number of purposes in Brazil, the original legislation required the wage level to be at least equal to the cost of a basic needs consumption basket (a cesta basica), and thus there is some justification for using a multiple of the minimum wage as a "normative" poverty line, reflecting Brazilian standards. In this paper, we continue the tradition and use a multiple of the minimum wage as our poverty line, recognizing that any poverty line has an element of arbitrariness.

As our basic poverty line, we will use the Pastore et al estimate of the minimum necessary income for Brazil: 1/4 of the 1980 minimum salary per capita (in real terms for successive years). **Unless stated otherwise in tables or in the text, this will be the poverty line used.** In some cases, we could not transform existing data into this format. In these cases, we describe the relationship between the income concepts used and our own poverty line. In 1985, our basic poverty line translates into an income of roughly $200 per year, or about 13 percent of GDP per capita. This poverty line is about

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[8]These results are slightly higher than the Hicks and Vetter (1983) results for 1980 and the Rocha and Tolosa (1989) results for 1981. Hicks and Vetter used an FGV food basket and priced it for 1974 and for 1980 for 25 metropolitan areas. They estimated per capita poverty lines for 1980 ranging from over 80 percent of the minimum wage in the high priced cities of the Northwest to 56 percent of the minimum wage in Rio de Janeiro, with price changes ranging from 790 to 1080 percent, compared with the 1080 percent recorded in the broader cost of living index we used. Rocha and Tolosa took a consumption basket estimated by Fava, (calculated using the same data as Thomas but with a different methodology resulting in a slightly higher priced basket) and repriced it separately for 10 urban areas. They found the cost of the items ranged from 75 to 43 percent of a minimum salary per capita. Both results indicate that the cost of items in the consumption basket of the poor in most metropolitan areas did not rise as fast between 1974-81 as the cost of items in the broader price index we used. In the 1980s, a narrower cost of living index, using a basket of items consumed by lower income households (the INPC), is available and was used in this study.

20 percent lower than the poverty line established for Venezuela, roughly equal to the one established for Turkey, and 70 percent higher than the one established for China for the same year (all in purchasing power parity terms; see Ravallion et al, 1990). The U.S. poverty line for the same year was just under $3,000, or 18 percent of the U.S GDP per capita.

The final methodological issue to be faced is the choice of price deflators.[9] For the 1970s, the only cost of living indices with continuous coverage are the Rio de Janeiro and Sao Paulo cost of living indices, and the IGP, which uses the Rio index as an input. All of these indices are deficient, as the basket of goods which they use to compute price changes is not representative of the consumption basket of the poor. In addition, it is widely alleged that irregularities in data collection result in all of these price indices understating inflation over the period (Denslow and Tyler, 1983), with the IGP being the most reliable of the three. As we start with a 1980 poverty line and work back, use of a price index which underestimates inflation **will overestimate the level of poverty in 1970 as well as the reduction in poverty over the period.** Bearing in mind this bias, we will use the IGP for intertemporal comparisons in this period but, where possible, we will complement estimates using the IGP with the implicit GDP deflator, which was not subject to the alleged irregularities. For the decade of the 1980s, the INPC index is the best choice, as not only is it based on a low income consumption basket, but it is not known to have been subject to any irregularities.

Once we have measured the extent (headcount or incidence) and severity of poverty at as many points in time as is possible over the two decades, we can try to isolate the factors influencing this outcome by looking at (a) the overall growth in income of the poor compared with the overall growth in income of the population as a whole as an indicator of the efficiency of economic growth in reducing poverty; and (b) the economic characteristics of the poor which distinguish them from the non-poor. Household income per capita is a function of (a) the number of earners in the household; (b) the hours those earners work and their productivity (human capital characteristics of the individuals); (c) the other income earning assets of the household; (d) the transfers the household receives from the outside (in kind or in cash); and (e) the number of non-earning members. Ideally, we would want to track the evolution of all of these variables in poor and non-poor households over time. While the household survey data we are using is a very rich data source, the tables necessary to perform this analysis have not yet been extracted. For the most part, our analysis of the characteristics of earners will be limited to the head of the household, and we will not be able to segregate household income by source (income from assets, labor income, transfers).

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[9]Measuring changes in real variables is extremely difficult in Brazil's high inflation environment. Depending on the deflator chosen, real average wages in the Sao Paulo manufacturing sector between 1980 and 1988 (1) increased by 50 percent-using the FIPE Sao Paulo cost of living index (the IGP); (2) decreased by 15 percent-using the FGV broad cost of living index; or (3) increased by 9 percent-using the IBGE narrow cost of living index (INPC). Similar shifts could be calculated for the population in poverty.

The Quantitative Record: Poverty Reduction 1960-1987

Although the period of "miracle" growth has been roundly criticized for the increase in inequality which accompanied it, during the same period the incidence and severity of poverty in Brazil fell dramatically. In the following decade, this progress slowed significantly, and real incomes at the bottom of the distribution deteriorated. For the period 1960-1980, we have evidence only from the decadal censuses. For the decade of the 1980s, we have evidence from the annual household surveys, allowing a more detailed analysis of the evolution of poverty over the economic cycle.

The decade of the 1970s was one of considerable poverty reduction, as both the incidence of poverty (the headcount) and the severity of poverty (the poverty gap) were reduced. Table 1 presents the evidence for the 20 year period; note that these numbers are for household income, unadjusted by household size, and thus they are poor measures of poverty trends. These data do indicate that most of the poverty decline occurred during the second decade, when economic growth was most rapid. Table 2 presents more detailed evidence for the 1970s, using the poverty line defined above. For 1970, we show two estimates of the population in poverty, with 1970a representing an upper bound estimate and 1970b representing a lower bound estimate. Using either deflator, not only did the headcount of the poor decline, but the poor who remained in 1980 were less poor than in 1970. Our index of the extent of poverty (the average income gap)[10] fell by 65 percent (45 percent using the lower bound estimate), and the combined index fell by 64 percent (57 percent using the lower bound estimate). Only in the Asian economies of Indonesia, Thailand, Malaysia and Pakistan has greater progress in poverty reduction been recorded for a similar length period, (World Bank 1990a).

[10]The average income gap is the average shortfall of poor households from the poverty line. Thus, in 1980, the average income of the poor was almost 40 percent below the poverty line.

Table 1: Brazil - Growth and Evolution and Poverty, 1960-1980
(Measured by Household Income)

	1960	1980
Incidence of Poverty	49.8	20.9
	1960-1970	1970-1980
Average Annual GDP Growth Per Capita	3	6
Percentage Point Reduction in Poverty	7	22

Source: See Appendix Poverty Line: One 1980 minimum salary
Deflator: iGP

Table 2: Brazil - Evolution of Poverty, 1970-1980,
(Measured by Household Income per Capita)

	1970a	1970b	1980
Incidence of Poverty	54.7	47.9	26.2
Income Gap Ratio	52.6	50.1	39.5
Poverty Gap Index	28.8	24.0	10.3
Index of Mean Household Income per capita	0.53	0.44	1.00

Source: See Appendix Poverty Line: 1/4 1980 minimum salary per capita
Deflator: 1970a - IGP; 1970b - Implicit GDP deflator

In contrast to the previous decades, the 1980s did not bring substantial poverty alleviation to Brazil. The combination of a three year drought in the Northeast (1979-82), the external shocks brought by the debt crisis, and Brazil's inability to implement an economic program which would bring it back to a sustainable growth path resulted in an annual average per capita GDP growth record of 1.3 percent (1981-1987) and only a slight decrease in poverty. While the headcount of the poor as share of the population fell slightly over the period, the average income of the poor worsened, so that the income gap ratio widened slightly (Table 3). Until 1985, the indices moved together, worsening during the recession of 1981-83 and improving during the recovery of 1984-85. The trend changed between 1986-87, during the boom and bust of the Cruzado Plan. The number of poor declined, but those who remained poor on average became poorer. This sharp distributional effect was strong enough to actually lower the real

incomes of the bottom 10 percent of households during a period in which overall household income grew on average 8 percent. The overall increase in income from the Cruzado Plan dominated the distributional effects for the all but the poorest of the poor, however, as the poverty gap still fell slightly between 1985 and 1987. Not surprisingly, the evolution of poverty over the seven year period is closely correlated with the rate of GDP growth per capita. The poverty headcount increased during the recession of 1981-3, and decreased during the recovery of 1984-85 and the Cruzado Plan boom of 1986.

Table 3: Brazil - Evolution of Poverty, 1981-1987, (Measured by Household Income per Capita)

	1981	1983	1985	1987
Incidence of Poverty	26.4	32.1	26.2	24.2
Income Gap Ratio	38.1	40.7	37.7	39.0
Poverty Gap Ratio	10.1	13.1	9.9	9.5
GDP per capita	1.0	0.93	1.01	1.08
Index of Mean Income				
Total	1.0	0.88	1.08	1.16
Bottom 10 Percent	1.0	0.90	1.8	1.06

Source: See Appendix. Deflator: INPC.

Given such a poor economic growth record, it is somewhat surprising that any poverty reduction at all was recorded. Part of the answer to this puzzle is shown by the difference between the growth of GDP per capita and mean household income. For household income to rise twice as fast as per capita GNP is unusual; it did not occur during the previous decade (Tables 1-2). There are several possible explanations for this trend. First, it is possible that the survey coverage improved (e.g. more income was recorded in the later survey than in the earlier surveys). This did not happen. Comparison of the nominal value of survey income with GDP in 1981 and in 1987 shows that survey coverage actually declined from 46 percent in 1981 to 45 percent in 1987. A second explanation is that part of the sharp divergence represents differences in the speed of change of relative prices during a period of high and accelerating inflation. The GDP numbers are deflated by the implicit GDP deflator, while the household income numbers are deflated by our low income cost of living index. This does appear to be the case. The accumulated inflation over the period 1981-1987 recorded by the INPC (1981 = 100) was 34,385, while the implicit GDP deflator for the same period recorded 39,069. How much of this difference is simply "noise" associated with, for example, the seasonality of the survey period or other such factors and how much real gains in the relative price of consumption goods bought by lower income households compared with

prices in the rest of the economy (that is, a real gain in purchasing power for lower income households) is impossible to tell.

Table 4: Brazil - Simulation of Poverty Reduction with Distributionally Neutral Growth, 1981-1987

	1981	1987	1987*
Incidence of Poverty	26.5	24.2	22.0
Income Gap Ratio	38.1	39.0	35.0
Poverty Gap Index	10.1	9.5	7.7

*Simulated measure with distributionally neutral income growth.

Aggregate changes in the income of the poor can be decomposed into the portion explained by the overall growth in income in the economy and the portion explained by the distribution of that growth.[11] The growth component of a change in the poverty measure is defined as the change in poverty due to a change in the mean while holding the overall distribution of income in the economy (the Lorenz curve) constant. The distribution component is the change in poverty due to a change in the Lorenz curve while keeping the mean income constant. Using this decomposition, the reduction in poverty which would have occurred with a **distributionally neutral increase in income** can be calculated. Table 4 shows the results of this simulation for Brazil for the period 1981-1987 (the data for 1960-1980 were not sufficiently disaggregated to allow such an exercise for these years). The actual headcount of poverty declined from 26.5 percent of the population to 24.2 percent over the period. But as the poverty gap analysis above showed, the distribution of income within the poverty population worsened - the average poverty gap widened. Had the change in mean income been equally distributed (e.g had the growth in income available to households been distributionally neutral), the headcount of poverty would have declined to 22 percent of the population, a 50 percent greater improvement, the income gap ratio would have declined by 8 percent instead of increasing by 7 percent, and the fall in the poverty gap index would have been nearly four times greater.

During which part of the economic cycle did the distribution (or growth) component have the strongest poverty augmentation effect? This question can be answered by separating out the growth and distribution components of the change in the

[11]A number of papers have recently been prepared describing this methodology. The calculations shown here were prepared by Gaurav Datt and Martin Ravallion, and their methodology is described in Datt and Ravallion, 1990.

poverty indicators over the cycle. Table 5 shows this analysis for the poverty gap.[12] Each number in the table refers to the change (in percentage points of the poverty gap) attributable to the component part, with the last column showing the total change in the poverty gap at each time period.[13] As we suspected from our earlier analysis of the Lorenz curve data, the distribution effect reduced a significant portion of the growth effect of the Cruzado plan period (1985-87). But it also enhanced the poverty augmentation effect of the recession - by almost as much as the as it negated the growth effects of the Cruzado Plan era. By contrast, the growth of the pre-Cruzado Plan period was fairly evenly distributed, making growth relatively efficient at poverty alleviation over the 1983-85 period.

Table 5: Brazil - Poverty Gap Decomposition, 1981-1987

Period	Growth Component	Distribution Component	Residual	Total Change in Poverty Gap
	(in percentage points of the poverty gap)			
1981-83	2.18	0.72	0.11	3.02
1983-85	-3.18	0.15	-0.16	-3.19
1985-87	-1.34	0.92	-0.01	-0.44
1981-87	-2.34	1.80	-0.06	-0.60

Source: Datt and Ravallion, 1990.

This brief quantitative review shows that contrary to some popular conceptions, Brazil has made substantial progress in poverty alleviation. Most of the time, this poverty alleviation was associated with strong economic growth, e.g during the 1970s and in the middle years of the 1980s. However, growth is not always as efficient at poverty alleviation. During the period 1985-87, negative distributional movements wiped out most of the potential effect of growth on poverty. We now turn to a more in depth look at where this poverty alleviation occurred - what parts of the country, and what types of households. We also broaden our analysis of poverty to look at access to public social services as well as outcome measures of the interaction of income and access to social services. For the 1980s, we will use the same poverty line as we used in the above calculations. For the 1970s, we have to rely on published tabulations which do not use a constant poverty line (see Appendix for details).

[12]This analysis is from Datt and Ravallion (1990), who have also performed the same analysis for the headcount.

[13]The residual in the decomposition exists because the components are not addictively separable and represents the difference between the growth (or distribution) components evaluated at the terminal and initial Lorenz curves (mean incomes) respectively.

How Economic Development Alleviated Poverty - Evidence from the 1970s

While substantial poverty reduction occurred in all areas of the country, the rate of change varied by location (Table 6).[14] The rate of poverty reduction was much faster in the areas which had a lower incidence of poverty in 1970 - urban areas relative to rural areas, the South and Southeast relative to the Northeast. As a result, the regional disparities in the incidence of poverty widened. By 1980, 50 percent of poor families were concentrated in the Northeast, where only 28 percent of the population live, while the Southeast, with 44 percent of the population, had just over one-quarter of the poor families.

Table 6: Brazil - Poverty Reduction by Region, 1970-1980
(percent of families)

	Incidence of Poverty		Share of Poor		Share of Population	Reduction in Poverty	Share of Reduction
	1970	1980	1970	1980	1980	1970-1980	1970-1980
BRAZIL	51.5	21.5	100.0	100.0	100.0	-58.2	100.0
Rural	73.7	41.9	64.2	63.4	32.5	-43.1	65.1
Urban	33.4	11.7	35.8	36.7	67.5	-65.1	34.7
North	50.2	23.8	3.3	5.0	4.5	-52.6	1.4
Northeast	69.5	38.0	40.9	50.0	28.2	-45.3	29.6
Southeast	39.6	12.5	33.1	26.0	44.7	-68.5	41.9
South	49.9	18.4	17.5	14.3	16.6	-63.1	21.6
Central	51.0	17.1	5.1	4.8	6.0	-66.5	5.5

Source: Based on Pastore et al, 1983
Poverty Line: 1/4 minimum salary per capita for 1970 and 1980 (see Appendix).

[14]Note that the poverty line is not constant in the data from Pastore et al in this table and those that follow from this source. The 1980 poverty line is roughly 10 percent above the 1970 poverty line in real terms. See Appendix for details.

Table 7: Brazil - Demographic Characteristics of Households, 1970 and 1980
(percent of families)

Characteristic	Poor		All Brazil	
	1970	1980	1970	1980
Sex of Head:				
Male	88.0	89.9	88.2	88.2
Female	12.0	16.2	10.1	11.8
Family Size:				
2	8.2	8.9	14.3	17.4
3-4	25.3	27.2	34.9	41.4
5-6	28.8	30.8	26.0	24.9
7-9	27.0	25.4	18.4	12.8
10+	10.8	7.7	6.5	3.3
Life Cycle of Family:				
Very Young	16.2	24.3	20.0	29.0
Young	43.5	45.0	37.6	36.7
Middle Age	36.9	28.9	35.5	28.2
Old	3.4	1.7	6.8	6.2
Incidence of Over-employment:				
No Overemployment	72.9	54.9	50.5	68.2
Overemployment	27.1	45.1	49.5	31.8

Source: Based on Pastore et al, 1983

The changing demographics of Brazil are reflected in the characteristics of poor families at the beginning and end of the decade. Over the decade, families became smaller and younger, and poor families were no exception (Table 7).[15] However, the basic demographic factors distinguishing poor from non-poor families over the period did not change. Poor families remained on average larger than non-poor families (27 percent larger in 1980), and younger. Female headship also increased, such that by 1980, 12 percent of all households and 16 percent of poor households were headed by women.

Recent research suggests that the family unit increased its labor force participation over the decade in all income levels, especially the poorest families. (Pastore, et al, 1983). Women entered the labor force in increasing numbers throughout the decade, including in poor households. The participation of minors (ages 10-16) also appears to have increased over the decade, although this may be in part explained by increased reporting. Average reported hours worked also increased among the

[15]The "age" of families is captured by a life cycle index, which measures the average age of parents and children, and the difference between the age of the oldest parent and the oldest child.

economically active. These latter two factors (the extension of hours worked beyond 48 per week and the employment of minors) are captured in Pastore et al's "overemployment" index. By 1980, over 50 percent of Brazilian families were classified as "overemployed" compared to only 32 percent in 1970. The percentage increase was even higher among poor families. Their incidence of overemployment rose from 27 percent to 45 percent, a 2/3 increase. As many of those who entered the labor force over the decade probably substituted time in market activities for non-market activities, overall consumption levels among the poor and those who escaped poverty may not have increased as much as the income figures would lead one to expect.

Numerous studies have shown that the economic growth of the miracle period brought substantial upward mobility, and this mobility was an important factor in the poverty alleviation process. Total employment grew at the rate of 4 percent per annum, but employment in the primary sector (the low income, low status sector) was flat. In order to employ the growing labor force, employment in the secondary (manufacturing and construction) and tertiary (commerce and services) sectors grew at an annual rate of over 7 percent per annum each, so that by 1980 only 30 percent of the economically active were employed in agriculture, fishing, mining or other such activities.

Who got these new jobs outside the primary sector? Brazilians from all backgrounds, rural and urban. Using a standard index of socio-economic status (SES), Pastore (1979) found that the majority of heads of households in 1973 were in higher status occupations than their fathers. Even the 65 percent whose father came from the lowest SES strata (unskilled rural workers, fisherman, rubber gatherers), experienced this mobility, as 55 percent of this group had moved to a higher strata by 1973. In a similar analysis, Pastore compared current position of heads of households in 1973 with their starting position, and found that less than half of current heads who started in the lowest strata were still in the strata, and in the next highest strata, (urban manual workers, and other urban informal sector unskilled occupations), only 22 percent of those who started in this strata remained by 1973. Compared with other countries, Brazil was second only to the United States in total mobility for those heads of households in the age group 30-50 in 1973.[16]

A sizeable fraction of the population was left behind during this growth period however. We do not have detailed data on the income sources for this group, but we do have some information on the characteristics of heads of these households.[17] The characteristics of the heads of poor households who remained in 1980 were very similar to the those of heads of poor households at the beginning of the decade (Table 8).

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[16]Mobility is not the same as earnings or income inequality. At the same time that Brazilians were experiencing high social mobility, individual income inequality was increasing rapidly. Between 1960 and 1970, the Gini coefficient for individual earners rose from .497 to .565, and from 1970 to 1980, from .565 to .59 (Bonelli and Sedlacek, 1989).

[17]In 1985, 3/4 of heads of poor households provided over 90 percent of recorded income, implying that the income-earning characteristics of the head of household provide a robust indicator of monetary income flows into poor households.

Heads of poor households tended to have very low levels of human capital (age and education), and were overwhelmingly concentrated in primary sector activities. The most significant change over the period was the increase in heads of poor households who are employees. This shift is a reflection of the growing use of wage labor in Brazil over the decade. For all heads of households, the percentage who were employees increased from 49 percent to 59 percent over the same period.

Table 8: Brazil - Characteristics of Heads of Households, 1970 - 1980

Characteristic	1970 Poor	1980 Poor	1980 All Brazil
Age of Head:			
Under 30	18.6	22.6	22.8
30-39	31.1	30.7	26.2
40-49	25.4	22.5	21.1
50-64	18.5	16.6	20.7
64+	6.4	7.5	9.2
Education of Head:			
None	58.3	58.8	31.2
Some Primary	37.9	37.6	46.7
Some Lower Sec.	3.3	2.7	11.0
Some Upper Sec.	0.3	0.7	6.3
Some University	0.1	0.1	4.8
Sector of Employment of Head:			
Primary	77.0	75.2	35.3
Secondary	5.0	4.9	15.9
Tertiary	13.4	14.7	9.3
Civil Construct.	4.6	5.2	39.5
Employment Status			
Employee	37.3	41.6	58.9
Self-Employed	48.3	47.4	33.3
Sharecropper or Family Worker	13.3	9.3	3.0
Employer	0.7	0.9	4.6
Employee Without Pay	0.4	0.8	0.2

Source: Based on Pastore et al, 1983.

In sum, the effect of the economic growth and structural change which occurred over the decade was not to change fundamentally characteristics of the poor, but to move large numbers of households with these characteristics in 1970 out of

poverty by 1980. This movement was facilitated by Brazil's considerable social mobility. In addition, economic development lowered the extent of deprivation for those who remained - in others words, some of the overall income growth must have trickled down to the poorest of the poor. It is noteworthy, however, that this growth cum mobility process worked best in the areas where the incidence of poverty was lowest.

The decade of the 1970s was also characterized by a major expansion in social services (Denslow and Tyler, 1983). Between 1970 and 1980, household access to piped water increased at a rate of 9.3 percent per annum, and access to sewerage treatment increased at a rate of 8.9 percent per annum. Almost all of the increase in access to these health-related social services was concentrated in urban areas, however, so that by 1980 over 3/4 of urban households but only 3.2 percent of rural households had access to piped water. Unfortunately, we do not have the data to break down this increased access by income group, so we do not know how much of the expansion reached the poor, especially those urban households who may have moved out of poverty over the decade. We can be sure, however, that very little of expansion reached the over 60 percent of the poor in rural areas.

Similar increases were recorded in literacy rates and school enrollment rates (Denslow and Tyler, 1983). Between 1970 and 1980, primary school enrollment rates increased 12 percent overall and 19 percent in the Northeast, but Northeast rates are still only 75 percent of the Southeast, which had achieved almost 100 percent primary school enrollment by 1980. Average literacy rates also increased faster in the Northeast than in other regions, but still at the end of the decade only two thirds of those aged 20 years or more in urban areas and one third of the same population in rural areas in the Northeast was literate. For 1980, estimates of literacy are available by income group for the population aged 10-17 (Table 9). Analysis of literacy in this age group can provide some clues about the effectiveness of Brazil's education effort in the 1970s. These figures show clearly that while Brazil has achieved significant progress in closing the literacy gap in urban areas of the Northeast, rural educational achievement is still an enormous problem. Not surprisingly, the gap is widest in the lowest income groups.

Table 9: Brazil - Average Literacy Rates in the Population Aged 10-17, by Income Group, 1980

	Income per Capita (in minimum salaries)		
	Poor	Poor	
	under 1\4	1\4 - 1\2	1\2 & Above
Brazil	50.5	79.0	93.0
Northeast	32.7	62.7	80.6
Rural			
Brazil	51.6	66.2	80.5
Northeast	28.0	43.8	54.6
Urban			
Brazil	74.0	86.7	95.4
Northeast	64.6	76.8	87.8

Source: Calsing, Schmidt and Costa, 1986.

Table 10: Brazil - Changes in Life Expectancy, 1960-1980, by Household Income and Place of Residence

	Household Income (1)	1960/70 (2)	1970/80 (3)	(3)-(2) (4)
Total	1-150	49.9	53.9	4.0
	151-300	54.5	58.3	3.8
	301-500	57.6	61.7	4.1
	501 +	62.0	66.3	4.3
Rural	1-150	51.4	55.6	4.2
	151-300	55.9	59.8	3.9
	301-500	57.6	62.3	4.7
	501 +	60.0	65.3	5.3
Urban	1-150	46.0	50.7	4.7
	151-300	53.7	58.2	4.5
	301-500	57.6	61.6	4.0
	501 +	62.2	66.4	4.2

Note: Household income strata are expressed in 1970 cruzeiros. For a household of 5 persons, our 1980 poverty line would be equal to about 200 1970 cruzeiros.
Source: Wood & Carvalho (1988) p.102.

These expansions in social services, combined with expansion in other social programs (health care, nutrition, etc.) and the overall income growth, were reflected in another indicator of living standards - life expectancy (Table 10). Both infant mortality and overall life expectancy indicators improved over the decade in all regions. The reduction in overall mortality was highest for poor and near-poor urban households, providing some evidence that these groups indeed benefitted from the increased expansion. On the other hand, the reduction in infant mortality was lowest in the regions where the poor are concentrated - the rural areas and the Northeast (Table 11). And despite the sizable progress in infant mortality registered over the period, Brazil's infant mortality rates were still more than twice those of Costa Rica in 1980, and well above the rate reported in 1980 in Colombia, Thailand, and Sri Lanka, all countries with a much lower per capita income than Brazil.

Table 11: Brazil - Infant Mortality Rate by Region, 1970-1980
(per 1000 births)

Great Region	Total		Urban		Rural	
	1970	1980	1970	1980	1970	1980
Brazil	113.8	77.2	111.2	77.0	115.0	81.6
North	109.1	68.1	94.4	78.8	116.6	63.5
Northeast	146.3	85.1	151.0	84.1	135.2	90.3
Southeast	98.3	72.8	96.7	74.9	103.1	66.6
South	88.1	69.1	88.7	70.2	87.8	67.1
Center-West	92.3	79.6	93.7	79.2	83.2	88.0

Source: IBGE

How Recession and Adjustment Changed the Face of Poverty - Evidence from the 1980s

In the 1970s, we saw that the fundamental factors associated with poverty remained roughly the same. This was not true in the 1980s. For the first time in two decades, the share of the poor in urban areas increased substantially (Table 12). Regionally, the Northeast continued to increase its share of the poor, although the incidence of poverty increased more rapidly in the South and Southeast. That the Northeast region, with only 27 percent of the population, actually increased its share of the poor over this period is somewhat surprising, as throughout the period the rate of economic growth was substantially higher in the Northeast and the variance in the rate of growth lower. Not only was overall economic growth higher, but average growth in the agricultural sector (where the majority of the poor earn their living) was higher as the Northeast recovered in the middle years of the decade from the drought of 1979-82 (Table 13). In the 1980s, the Northeast was simply not as efficient as the Southeast in using growth to alleviate poverty.

Table 12: BRAZIL - Evolution of Poverty, 1981 - 1987

	Incidence of Poverty by Location				Share of Poor	
	1981	1983	1985	1987	1981	1987
Brazil	24.8	30.9	25.4	23.3	100.0	100.0
Urban	14.9	21.6	17.1	14.8	42.5	46.4
Rural	46.8	54.2	47.1	46.3	57.5	53.6
North	18.0	24.8	18.0	16.8	2.0	2.3
Northeast	44.9	52.5	46.3	44.2	54.2	55.7
Urban	31.1	40.2	32.0	31.4	19.8	22.0
Rural	60.5	66.8	63.3	60.1	34.4	33.7
Southeast	13.5	19.4	15.5	13.0	24.3	24.9
Urban	9.3	15.0	11.4	9.2	14.1	15.1
Rural	36.6	43.8	39.1	34.2	10.3	9.8
South	16.6	25.1	17.4	17.3	10.9	11.6
Urban	9.0	16.6	11.7	10.1	3.6	4.5
Rural	28.9	39.4	27.8	31.6	7.2	7.1
Center/West	23.1	28.1	20.9	18.5	6.2	5.5

Source: See Appendix. Deflator: INPC.

Table 13: Brazil - Growth and Variance in GDP,1980-86

	Brazil		Northeast	
Period	Average Annual Rate of GDP Growth	Index of Variance	Average Annual Rate of GDP Growth	Index of Variance
1980-86	2.7	238	7.4	25
1980-83	-1.4	129	4.5	87
1984-86	7.9	0	10.2	7
Agriculture Only				
1980-86	2.1	181	4.7	384
1980-83	1.6	274	-5.2	450
1984-86	0.6	870	9.3	39

Source: Maia Gomez, 1987.

Table 14: BRAZIL - Occupational Characteristics of Heads of Poor Households, Selected Areas (1985)
(Percent of Poor Population in Household)

Characteristic of Head	Brazil	Urban Northeast	Urban Southeast	Rural Northeast	Rural Southeast
Technical/Administrative	4.4	5.2	6.8	2.7	3.1
Agriculture & Mining	39.2	27.6	13.6	85.9	84.9
Manufacturing & Construction	10.3	25.8	33.2	5.5	5.1
Commerce & Related Activities	8.6	12.1	6.7	1.7	0.8
Transport & Communications	4.6	4.3	5.7	0.9	0.6
Services	22.4	6.9	12.8	0.7	2.6
Others	13.3	18.2	19.5	2.6	3.0
Formal Sector Employment	17.7	31.8	50.1	5.5	10.9
Memo Item: Share of the Poor	100.0	20.2	17.2	33.8	10.2

Source: PNAD; (Special tabulations).

The limited data we have on the income-earning characteristics of poor households show significant changes in the profile of poverty over the period. Whereas at the beginning of the decade most heads of poor households worked in agriculture and mining, by 1985 under 40 percent of the poor lived in households where the main source of income was agriculture, again reflecting the growing urbanization of poverty (Table 14). For 1985, these data are available by region, and we can see that the characteristics show sharp differences by area. The characteristics of rural poor households are relatively homogeneous between Brazil's two largest areas. Rural poor households are overwhelming agriculture based, and few heads of these households have a signed labor card (implying access to a set of government mandated benefits), although this rate of formalization in the Southeast is twice that in the Northeast.[18] The characteristics of urban poor households are quite different, however. In both areas, urban household

[18]Within the survey data, there are two ways to measure formal sector employment. The first is whether an employee reports having a signed labor card, implying registration with the Ministry of Labor and the Social Security System. The second is whether the labor force participant (employee, employer, self employed) reports contributing to the Social Security System (e.g. pays the payroll tax). In principle, the second definition should be broader than the first, as all of the first should be included in the second, as well as public sector employees (who may not have a signed labor card but would be considered formal sector), and employers and self employed who register themselves. In practice, for all of Brazil, the first group is slightly larger than the second. For the poor, the difference is quite large. While only 17.7 percent of leads of poor households reported contributing to Social Security, 28 percent reported having a signed labor card. The numbers in Table 12 use the definition of contribution to social security and thus understate the rate of formalization.

heads are much more likely to have a formal sector job and be employed outside the primary sector and, in contrast with 1980, where few heads of poor households were in manufacturing and construction, 10 percent overall were employed in this sector. All of these trends are much more pronounced in the Southeast, however. In these cities, 50 percent of poor households' main source of income comes from a formal sector job.[19]

Despite the recession and persistent fiscal crises, Brazil continued to expand social infrastructure throughout the decade. By 1987, over 90 percent of urban households had access to potable water and electricity (Table 16). Significant progress was also achieved in the urban areas of the South and Southeast, while the rural Northeast remained far behind. This expansion in social services continued to pay off in improvements in infant mortality (Table 15). While the slight increase observed in 1984, and in areas outside of the South and Southeast during both 1983 and 1984 caused some concern at the time, since that period rates have continued to decline in all regions. The increase observed in 1983-84 is widely attributed to the recession of 1981-83. While the correlation is suggestive, the fact that the increases were more pronounced in the areas least affected by the recession then requires some explanation. More research is needed on this issue before any conclusions can be reached.

Table 15: Brazil - Infant Mortality Rates, by Region
1980 - 1986
(per 1000 births)

Region	1980	1981	1982	1983	1984	1985	1986	1987*	1986/1980
Brazil	76.2	69.7	62.7	63.8	68.2	55.0	53.0	51.0	0.69
North	60.1	58.8	52.6	63.5	63.8	56.2	58.4	56.4	0.97
Northeast	120.1	109.3	91.1	101.1	113.7	81.6	74.7	76.6	0.62
Southeast	53.5	50.1	47.8	44.9	46.5	39.4	38.4	35.2	0.65
South	54.7	47.5	42.6	39.0	44.4	38.6	37.0	31.3	0.57
Center-West	59.0	56.5	39.4	62.9	47.1	45.5	40.7	41.5	0.70

Source: IBGE, (1989). 1980-1986: Corrected statistics from the Civil Register of Brazil. 1987: Uncorrected statistics.

[19]Preliminary analysis of data for urban areas in the South (4.5 percent of the poor) show a pattern similar to the Southeast.

Table 16: Brazil - Access to Safe Water and Electricity, 1987
(percent of Households)

	Water Supply		
	Piped Water	Well or Spring	Electricity
Brazil	70.00	19.93	84.41
Urban	88.28	6.92	96.42
Rural	12.65	60.71	46.78
North	79.72	13.94	91.89
Northeast	47.68	20.71	64.55
Urban	75.93	7.60	91.98
Rural	9.03	38.64	27.03
Southeast	84.28	13.52	94.09
Urban	93.96	4.42	98.62
Rural	19.50	74.41	63.77
South	66.89	31.28	88.74
Urban	90.54	7.85	96.17
Rural	13.69	83.95	72.04
Center-West	60.47	36.50	80.45
Urban	78.75	19.34	94.80
Rural	8.64	85.17	39.76

Source: PNAD 1987.

Using the data presented in Table 14, as well as the data on social services concentrated in the Northeast Region we can distinguish three basic categories of poor households: (a) the rural poor, who reside primarily in the Northeast and who are 50 percent of the poverty population; (b) the urban poor in the Northeast, most of whom continue to depend on agriculture and/or the informal sector for their income; and (c) the urban poor in the South and Southeast, who are more tightly linked to the formal sector. The remainder of this section draws on more general analyses available (e.g analyses not specifically identifying the poor as we have here) on the factors affecting income generation in these three groups, and looks more closely at a rapidly growing poverty group, the female-headed households.

The Northeast Rural Poor

The highest incidence of poverty in Brazil is in the rural Northeast, and here is where the largest group of poor live. In fact, two out of three of the rural poor live in the Northeast. In income terms, the Northeast is very far behind the rest of rural Brazil.

Per capita GDP in the rural Northeast was only 13 percent of Brazil's total GDP per capita in 1985 (IFAD, 1989). Mean household income per capita in Northeastern rural households in 1980 was only 55 percent of the mean for all of Brazil, and less than 40 percent of the mean for the South and Southeastern regions (Hoffman, 1990). Even daily wage agricultural workers earn 30 percent less in the Northeast than in the Southeast. The reasons for the concentration of poverty in the Northeast are well known, and lie primarily in the combination of (a) poorer soils and climatic conditions, and (b) very small farm size, compared with the rest of Brazil (IFAD, 1989). These factors interact, as the smallest farms tend to be located on the poorest land (IFAD, 1989). Of all Brazilian farms below 2 hectares, 80 percent are concentrated in the Northeast, and 70 percent of Northeast farms are below 10 hectares. The trend toward fragmentation in the Northeast appears to be accelerating; 90 percent of new farms established between 1980-85 were under 10 hectares, (IFAD, 1989, based on agricultural census data). Most small farms in the Northeast are not worked by landowners. Roughly one third of those who work small farms are squatters, and another one third either rent or sharecrop.[20] It is well known that the latter two groups are at a disadvantage relative to landowners in the production process, primarily because of lack of access to credit. All of these factors have been exacerbated by Brazil's poor performance in delivering social services to this population.

The agricultural sector in the region is far from homogeneous or static. The region is in fact a set of micro-regions, each characterized by its own economic evolution. Nonetheless, a few generalizations about the agricultural economy of the Northeast can be made. While the policy framework for agriculture has been far from perfect, it has encouraged steady investment and growth in the region since the drought of 1979-82. Throughout the region the productivity of large farms is increasing, through increased use of irrigation, improved farming techniques, and the conversion of farmland to livestock production based on improved pasture. This has been accompanied by an increasing proletarianization of the agricultural work force. In 1970, only 27 percent of those earning an income in agriculture were wage laborers (in their primary job) but by 1987, almost half of the labor force were so classified. In some areas, (for example on the sugar plantations of the Zona da Mata), not only has wage labor completely displaced sharecropping as the dominant form of contract, but permanent labor contracts (including a signed labor card) are increasingly replacing the "boias frias" - temporary labor contracts, (Anderson, 1988). Key factors underlying this shift appear to be (a) increased mechanization, which requires a steady supply of labor throughout the harvest period; and (b) increased labor organization in the area, enforcing workers demand for more permanent contracts.

The impact of these changes on poverty in the region is hard to assess, as we do not have the detailed data on wage rates, hours worked, and sources of income including income in kind of poor households, so we do not know if the income of households who switch from sharecropping to wage labor is higher or lower. Nor do we

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[20]Note that it is possible that a farm family may both own a parcel of land, and squat on or rent/sharecrop another, so that it cannot be concluded from this data that most poor households are not land owners.

know whether all the poor households who used to sharecrop were able to find wage employment. We can speculate that the economics of the household and its behavioral response to the external environment must have changed substantially with the increasing monetization of transactions. For example, households who rely on wage income are much more sensitive to economic cycles, inflation and relative price shifts than primarily subsistence households. In this way, the economic behavior of rural households is moving closer to the behavior of urban households. Nevertheless, the fact that through three decades of economic growth and development the dominant characteristic of the rural Northeast has been persistent and pervasive poverty suggests that this group is likely to need significant assistance into the next century, even if Brazil is able to return to a stable growth path. Part of any such assistance program should include attention to improvements in the policy framework which might improve the productivity of small farmers.

The Urban Poor

In contrast with the rural areas, poverty in urban areas is strongly and negatively related to economic growth, especially output growth in the private formal sector, which produced roughly 70 percent of total GDP in 1980 and employed 47 percent of the non-agricultural labor force (Table 17). While the relationship is strong in all urban areas, it is strongest in the South and Southeast. During the recession of 1981-83, the incidence of poverty increased by 50 percent, but in the urban Northeast, poverty increased by only 30 percent.[21] Likewise, poverty appeared to decline much faster during the recovery of 1983-85 and the boom of the Cruzado Plan in the Southeast and South compared with the Northeast.

[21]That urban poverty increased at all is somewhat of a puzzle, as non-agricultural growth in the Northeast was very strong. This increase in poverty probably relates to a decline in remittances from temporary work in the Southeast.

Table 17: Brazil Urban Poverty and Economic Growth, 1981-1987
(percent change)

	1981-83	1983-85	1985-86	1986-87
Decrease/Increase in Incidence of Poverty:				
All Urban Areas	+44	-21	-45	+57
Southeast	+61	-24	-53	+70
South	+84	-30	-50	+71
Northeast	+29	-20	-33	+45
Output Growth				
GDP	-5	+16	+14	-4
Private Formal Sector	-15	+13	+17	-6

Source: Fox and Morley, 1990

Urban poverty in Brazil is not as concentrated regionally as rural poverty. While the incidence of poverty in urban areas in the Northeast is three times that of the South and Southeast, owing to the large concentration of the population in the urban areas of the South and Southeast, these two areas contain over 40 percent of the poor in Brazil. The large difference in the incidence of poverty between the two regions may be due in part to the definition of urban areas in the survey data, which labels all county government seats as urban, regardless of population. This classification clearly includes some very rural areas, especially in the Northeast, so that the apparent urban poverty concentration may actually be a reflection of the rural poverty differences. Considering only large metropolitan areas, the regional differences in the incidence of poverty narrows to roughly two to one, and the largest segment of the poverty population is actually in the megatropolises of the Southeast - Rio de Janeiro, Sao Paulo, and Belo Horizonte (Table 18).

Table 18: Brazil - Incidence of Poverty and Share of the Poor, Metropolitan Areas, 1985
(percent)

	Northeast	Southeast	South
Incidence of Poverty	21.0	9.9	8.6
Share of the Poor	4.3	8.5	1.1

Source: see Appendix.

Looking at the employment characteristics of heads of households, the difference in the character of urban poverty between the Northeast and the South and Southeast which was so striking in Table 14 (above) can be seen as a reflection of the overall development and employment structure of the three regions. In the South and Southeast, roughly half of heads of poor households have formal sector jobs, where average earnings are more than twice informal sector earnings (including the self employed). Average earnings are also much higher in the southern regions, in both formal and informal sectors (Table 19). In part, this earnings differential represents higher education levels in the southern urban areas but it also represents absolute wage differentials **controlling for education** between urban areas (Table 20) which are most pronounced at the lowest education levels and very small at the highest levels (Almeida dos Reis and Paes de Barros, 1990).

Table 19: Brazil - Average Monthly Earnings of Heads of Households, 1987
(Cz$)

Employment Status	Northeast	Southeast	South	Northeast/Southeast
Employees*				
Formal Sector	23,225	33,812	27,753	0.69
Informal Sector	10,511	22,000	20,664	0.47
Self Employed	12,180	30,383	25,263	0.40
Employer	58,121	81,647	82,150	0.71

* Not including agricultural laborers or unpaid workers.
Source: See Appendix.

Table 20: Brazil - Average Wage Differentials, Male Workers, by Metropolitan Area

(Average of Workers with More Than 11 Years of Education
Relative to the Average Wage of Those with 1-4 Years of Education)

Northeast		Southeast		South	
Fortaleza	8.2	Rio de Janeiro	7.0	Curitiba	4.9
Recife	7.4	Belo Horizonte	6.0	Porto Alegre	6.0
Salvador	7.1	Sao Paulo	4.6		

Source: Almeida dos Reis and Paes de Barros, 1990.

The character of formal sector employment is also different between the two regions (Table 21). In the state of Sao Paulo, which by itself accounts for 42 percent of total formal sector employment, only 14 percent of such employment is in public administration and 41 percent is located in industry. In the Northeast, these ratios are reversed. The six states, which together with the tiny state of Espirito Santo make up the South and Southeastern region, account for 81 percent of industrial formal sector employment but only 73 percent of total formal sector employment. Thus the expansion of formal sector employment in the Northeast has been much more heavily dominated by the public sector. While this large inflow of public sector resources, which allowed a 60 percent increase in public sector employment in the Northeast between 1980-86, may have been one of the factors causing the Northeast to experience higher rates of economic growth than other parts of Brazil in the 1980s, it also points up an important vulnerability of the urban economy in this region, as the public sector is not expected to experience much growth in the 1990s.

Table 21: Brazil - Sectoral Distribution of Formal Sector Employment by State, 1985; Selected States

	Sector*				Total Non-Agriculture Formal Sector Employees ('000)
	Industry	Services	Commerce	Public Administration	
	(percent of formal sector employment in state)				
Ceara	23.2	24.4	12.3	38.4	477
Paraiba	20.8	18.2	7.9	52.7	235
Pernambuco	32.1	27.3	11.5	27.8	738
Bahia	21.8	31.4	14.0	31.1	834
Rio de Janeiro	24.9	39.0	14.2	21.7	2,711
Sao Paulo	41.0	31.4	12.3	13.6	6,780
Total Brazil	32.1	30.9	13.1	22.3	20,172
	(percent of formal sector employment in sector)				
Sao Paulo	43.1	34.2	31.7	20.7	
6 States	81.1	76.0	75.4	57.0	
Rest of Brazil	18.9	24.0	24.6	43.0	

Source: Sabola, 1989

Female Headed Households and Poverty

Female headed households are on the rise all over the world, and Brazil is no exception. As in other countries, these households have a high incidence of poverty (Table 7). Whether female headedness among the poor is a cause or a consequence of poverty in Brazil is yet unknown, and probably will remain so for some time until the longitudinal (panel) data required to address this question is collected and analyzed. As the factors behind the growth of these households are not fully identified, it is difficult to predict whether the trends observed will continue.

Table 22: BRAZIL - Labor Force Participation of Minors (Age 10-17) by Household Income and Sex of Head, 1985

Metro Area	Sex of Head		Household Income*	
	Female	Male	Less than 2	Greater than 2
Belem	14.1	10.7	12.2	6.4
Fortaleza	22.5	17.2	19.7	4.6
Recife	21.9	14.4	16.9	4.9
Salvador	18.1	13.4	15.7	5.2
Belo Horizonte	29.3	16.7	21.0	7.4
Rio de Janeiro	21.5	15.1	18.0	6.4
São Paulo	33.8	23.5	26.9	18.3
Curitiba	33.4	24.4	27.8	14.0
Porto Alegre	30.3	22.1	26.2	13.7
Distrito Federal	17.7	11.9	14.8	6.8

* In minimum salaries per capita.
Source: PNAD, 1985.

One aspect of poor female headed households does warrant increased policy attention, as the trends are very clear. While the labor force participation of youths aged 10-17 (and the resulting decline in enrollment ratios in this group) is a characteristic of the poor in Brazil in general (and the near poor as well, although with decreasing frequency), this participation is much more likely to occur in female-headed households (Table 22). This trend is worrisome, as it is likely to imply a transmission of poverty to the next generation (at least) in these households. Research is now underway to quantify the nature of the tradeoff for the household, identifying the size of the contribution these children make to household income and thus the opportunity cost of school attendance for these young workers.

Conclusions

Today, roughly one quarter of the population of Brazil lives in the state of poverty. Defining poverty as the inability to obtain an adequate standard of living, we have classified as poor those individuals living in households where the per capita household income is below 1/4 of the minimum salary in 1980. This represents an annual per capita income of roughly $200 in 1985, or about 13 percent of GDP. Drawing a poverty line is inevitably a somewhat arbitrary process; the poverty line used in this study is no exception. Other studies on Brazil have used poverty lines significantly higher, but few have used poverty lines lower. Thus we are confident that we have not underestimated the extent of poverty.

Over the last twenty years, Brazil has achieved significant progress in reducing the incidence and intensity of poverty as we have measured it. This progress was achieved almost exclusively during the decade of the 1970s, however. During this

period, per capita income grew on average 6 percent per year, the incidence of poverty fell by roughly 50 percent, and the index of the intensity of poverty fell by over 30 per cent. During the period 1981-1987, per capita income growth was 1.3 percent per annum and average per capita household income grew even faster (how fast depends on the deflator), but Brazil was unable to make progress toward poverty alleviation.

In 1970, roughly 50 percent of the population was classified as living in the state of poverty according to our definition. Most of these lived in the rural areas, received their income from work in the agricultural sector, and had little access to social services. During the decade of the 1970s, the character of poverty in Brazil did not appear to change. Economic growth and development alleviated poverty by (a) moving workers out of agricultural occupations and out of rural areas into non-agricultural occupations and urban areas; and (b) raising the incomes of those who remained in rural areas. Although rural areas still contained 2/3 of the poverty in Brazil in 1980, the incidence of poverty in rural areas fell 43 percent over the decade, and rural areas experienced the largest share of the reduction in poverty. As the household survey data used in this paper tends to underestimate rural poverty relative to urban poverty, our estimates of the reduction in rural poverty relative to urban poverty should be considered lower bound estimates.

Brazil's failures at stabilization and adjustment during the 1980s resulted in very low growth in per capita income, and no aggregate poverty alleviation. Indeed, the share of income going to the poorest families declined. In contrast with the 1970s, the structure of poverty changed over the period as the share of the poor in urban areas increased for the first time in twenty years. Today in Brazil, less than half of heads of poor families rely on incomes from the primary sector. And even in rural areas, where the bulk of Brazil's poverty remains, linkages to urban labor markets are stronger than ever.

The roughly 45 million people living in poverty in Brazil today are a heterogeneous group. Over half of these poor live in the Northeast, indicating that poverty is still a regional issue in Brazil. In the Northeast and the rural areas, most derive the bulk of their income from the urban informal sector or agriculture. By contrast, in the cities of the South and Southeast, over half of heads of poor household have signed labor cards, participate in public social insurance funds and earn at least the minimum wage. Many of these heads work in the secondary sector, once the ticket out of poverty for an urban household. Most poor households have more than one income earner in the household, and many employ their minor children. Nonetheless, the larger size of these households and the lower productivity of the earners relative to their better off counterparts above the poverty line leave these households without the resources to meet their basic needs according to Brazilian standards.

Although Brazil was not able to advance on poverty alleviation in the 1980s, progress initiated in the 1970s to improve access to social service and the living standards of the poor continued. Despite limited fiscal resources, social indicators showed steady improvement over the period. Brazil's social indicators remain well below

those of countries at similar income levels, and show a large variance, especially between the Northeast and South/Southeast.

As Brazil's economic structure develops, becoming more modern, complex, and similar to OECD countries, it is not surprising to see poverty taking on more of these characteristics as well. One striking characteristic of poverty in the U.S. over the last 15 years has been the feminization of poverty,[22] a phenomenon related to the changing household composition in the U.S., most notably the growth of female headed households. While poverty is far from feminized in Brazil, female-headed households are on the increase, and these households are 50 percent more likely to be in poverty than male-headed or joint-headed households. Especially troubling is the high labor force participation rate of minors in these households.

Lessons for the 1990s

The return to sustained economic growth is obviously a prerequisite to any poverty alleviation program. The evidence on this point from the last 20 years is clear. In addition, the increasing integration of Brazil's economy and labor markets, as well as the increasing importance of wage and salary income, has made poverty much more responsive to the business cycle than the climatic cycle (as the experience of the Northeast during the cycles of the 1980s showed). The bulk of Brazil's poor are not located in "marginalized" subsistence households, but in wage, salary or other type of monetary income-earning, market-consuming families trying to make ends meet. The impact of macroeconomic policy on poverty is surely greater now than ever before.

At the same time, Brazil needs to make growth more efficient at reducing poverty. The high rates of growth Brazil realized in the 1970s were facilitated by a large inflow of foreign capital, which is not likely to be available to Brazil in the 1990s. If Brazil is to realize high rates of per capita economic growth and increase average earnings of a labor force expected to grow at roughly 3 percent per annum, capital will have to used efficiently, implying a more labor intensive growth strategy. Policies already adopted by previous governments or announced by the current government including the reduction of subsidies to capital relative to labor, and policies to improve the overall competitiveness of the economy (reduction in credit subsidies, trade reform, deregulation) should help in this respect. From this point of view, there is no tradeoff at all between increasing medium term growth by improving the efficiency of the economy, and aggregate poverty reduction. The absorption of labor in the economy at higher median wage rates (e.g at higher rates for workers at the lowest skill levels, which is the bulk of the population) could also be facilitated by improvements in the tax system.[23]

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[22] This term has been used by many authors to refer to the large increase in the percent of poor households which are headed by females and receive little or no income from men. See Garfinkel and McLanahan (1986) for a discussion of the issue in the U.S.

[23] See World Bank, 1990b for a discussion of this issue.

The living standards of the poorest could also be improved by a targeted effort to increase access to social services. While Brazil has made significant progress in increasing access to social services in urban areas, education, health, and sanitation services in the rural areas, especially in the Northeast, have lagged. Over a long enough period of time, rural-urban migration would solve this problem. However, in the medium term Brazil will continue to have a large segment of the population living in the rural areas, (an estimated 17.5 million people in the year 2000 in the Northeast alone, according to Frias, 1987) who are as deserving of access to quality primary education, safe water and waste disposal, and efficient and effective health care as the their urban counterparts. While it is true that provision of these services is more complicated in rural communities and sometimes has a higher per unit cost owing to a lower population density, some successes have been registered in the Northeast (Tendler, 1990). Without access to such services, the poor in these areas will most likely not be able to take advantage of economic opportunities and escape poverty (World Bank, 1990a).

The major poverty alleviation issue for Brazil in the 1990s is how to make growth in income more efficient at poverty reduction in the Northeast. If history is any guide, a return to sustained economic growth in Brazil is likely to have the least effect on poverty in the Northeast, which contains 27 percent of Brazil's population but over half of its poor. In rural areas, even if the trends of the 1980s in growth and modernization continue, large numbers of poor households, with few assets and limited access to social services will remain. In urban areas, the improvement in public sector finances required for Brazil's reentry into the path of sustained growth might actually cause a more severe recession than in other parts of the country, owing to the heavy dependence of the region on public sector employment for income generation.

While the persistence of poverty in the Northeast is in part a result of poor resource endowment relative to the Southeast and the political-economy of the last two centuries, the poor performance relative to the rest of Brazil is nonetheless noteworthy as a major goal of a number of Brazil's sector policies and programs has been the eradication of poverty in this region. These policies have included pricing policies, regional tax incentives, credit subsidies and the like. Programs have included infrastructure development, agricultural extension, technical assistance to various groups, employment programs (off season and during the drought), and social assistance. It appears that these policies and programs have fallen well short of their goals, although it is possible that the regional concentration of poverty might have been worse without these programs and policies. Certainly the level of public sector employment would have been lower. Nonetheless, the performance of the region in the 1970s and 1980s suggests that the time has come to take a hard look at the policy framework for regional development. This task should be at the top of any research agenda on poverty in Brazil.

In the South and Southeast urban areas, economic growth should have a major impact on the incidence of poverty overall. In these areas, attention should be focussed on vulnerable groups and on temporary social safety-net type programs, especially important in the event of a recession. The fact that social indicators remain low given the high per capita income levels of these areas suggest that a major effort is need to improve the quality of social services available to low income households.[24]

[24] See World Bank, 1988, for a discussion of the mistargeting of social services and recommendations to improve service delivery.

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Data Appendix

Data Sources, 1960-1980

The estimates of poverty used in the text for these years come from tabulations of the 1980 censuses. For 1960, the results reported in Fishlow, (1972) were used. For 1970 Tables 1-2, the results reported in Fox (1982) were used. For 1980 estimates in Tables 1-2, we used the distribution of households ranked by household income per capita in the final IBGE published tabulation. To get the distribution of people, we multiplied the distribution of households by the average household size in each household group reported in Hoffman and Kayagama (1986). For Tables 3-5, the data reported in Pastore, et al, were used. Pastore's 1980 data were based on the preliminary results of the 1980 census, computed before a serious sampling problem became apparent. This sampling problem (an undersampling of large families) was corrected in the final tabulations, but Pastore's results undercount the poor in 1980, as the poor tend to have larger households. In the Pastore et al tabulations, a constant poverty line was not used. Pastore et al's 1980 poverty line is roughly equivalent to the poverty line used in Table 2, and the subsequent tables presenting data for 1981-87. In both 1980 and 1970, the authors classified persons as poor if they lived in families whose per capita income was less than 1/4 of the actual minimum wage in the area in which they resided (see Pastore et al p. 30 for details). On average, the minimum wage increased by about 10 percent over the period, implying that Pastore et al have underestimated the extent of poverty in 1970 relative to 1980, thus overestimating the decline in the poverty population over the decade.

Data Sources, 1981-1987

The data for these years are from the annual household sample survey, PNAD. Published tabulations of the distribution of per capita income are only available for selected years, and are found in the IBGE series, Maes and Criancas. Income is reported in minimum salaries (after 1986, the piso national). Our constant poverty line was obtained by (a) converting minimum salaries for the reference month for each year into constant cruzados; and the (b) converting this value into constant 1980 minimum salaries (e.g. correcting for changes in the real minimum wage). As the survey reference period often spanned a period of minimum salary change, we had to choose a reference month. In these cases, we chose the reference month identified by IBGE in the published tabulations of the PNAD data. Table A-1 shows the calculation of the constant poverty line. Once we calculated a constant poverty line, we estimated the number of households in poverty by interpolating from the published tabulations. For 1985, the interpolations were made from special tabulations of the PNAD data prepared by IBGE for Nelson do Valle Silva. Dr. Silva generously made these tabulations available to us.

TABLE A-1: REAL MINIMUM WAGE INDEX FOR PNAD, CENSUS DATA

Survey Ref. Period	Index Ref. Period	Nominal Value (Cz$)	INPC (3/86 = 100)	Real Value (Cz$)	Index	Poverty Line, per Capita (MS)
1/8 - 31/8	1980 (average)	4.02	0.48	8.37	1.00	0.250
11/8 - 11/14	10/1981	8.46	1.21	6.97	0.83	0.301
9/19 - 12/11	11/1982	23.57	2.38	9.90	1.18	
9/25 - 1/10	9/1983	34.78	5.58	6.23	0.74	0.337
9/23 - 9/29	9/1984	97.18	16.24	5.98	0.71	
9/22 - 9/28	9/1985	333.10	51.42	6.48	0.77	0.323
9/28 - 10/4	9/1986	804.00	106.15	7.57	0.90	0.276
9/27 - 10/3	9/1987	2,400.00	406.24	5.91	0.71	0.352

The data for Tables 3-4 are from special tabulations of the PNAD data prepared by INPES/IPEA. The population in poverty was estimated by fitting a Lorenz curve to the data and estimating the headcount are poverty gap (see Datt and Ravallion, 1990, for details). The data for Table 18 are from special tabulations of the 1987 PNAD, also prepared by INPES/IPEA.