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POVERTY AND INCOME INEQUALITY IN LATIN AMERICA DURING THE 1980s

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On average, poverty and income inequality increased in Latin America during the 1980s. Forty-six percent of the increase in poverty took place in the cities of Brazil alone, though part of this reflects the migration of poor rural inhabitants to urban areas. There is strong evidence that both income inequality and poverty mirrored the economic cycle, rising during recession and falling during recovery. Economies that grew (e.g. Colombia, Costa Rica) performed better with respect to poverty and income inequality than those that stagnated. In particular, countries that failed to stabilize effectively (e.g. Brazil, Peru) experienced substantial increases in poverty. Educational attainment has the greatest correlation with both income inequality and the probability of being poor. From a policy standpoint, there is a clear association between the provision of education, lessening of income inequality, and poverty reduction.

I. INTRODUCTION

For all the countries in Latin America the 1980s were a period of unprecedented adjustment. They came into the decade with unsustainable levels of foreign indebtedness and large trade deficits. After Mexico announced a moratorium on debt service in August 1982, all countries were forced to curtail borrowing. Seldom have a group of countries made so wrenching a change as these did. In ten years they turned a trade deficit of around 4 percent of GDP into a 4.6 percent surplus. In every country there was a contractionary recession. Only two countries (Chile and Colombia) ended the decade with a higher per capita income than they started with. For the region as a whole per capita income fell by 11 percent.

Note: The views expressed here are those of the authors and are not necessarily shared by the above institutions. We are grateful to Hongyu Yang for helpful assistance in preparing this paper.

Our goal here is to survey the effects of this difficult adjustment on poverty and income inequality. Our analysis is based for the most part on microdata obtained from household surveys in a total of eighteen countries in the region (see Appendix A-1). For thirteen of these countries, the availability of comparable data for points at the beginning and end of the decade has made it possible to examine how poverty and income inequality changed over that time period.

The paper is organized as follows. In section II we use the household surveys to estimate poverty at the beginning and end of the decade for both the rural and urban sectors of each country in the region. To give more of a perspective on the relationship between poverty and macro conditions, we also collected poverty estimates from other sources and made a preliminary effort to link them with the level of economic activity. In section III, we report what happened to the distribution of family income per capita over the decade. In section IV, we analyze the determinants of inequality among workers, focusing particularly on the role of education and how it responded to the change in economic conditions. Section V concludes.

II. Changes in Poverty During the 1980s

Our analysis is based on a common poverty line of $2 of household income per capita per day and on household surveys covering approximately 80 percent of the population in 1989 and around 50 percent for earlier years. In broad strokes, the picture we find is this. First, there has been a substantial increase in poverty between 1980 and 1989, the year of our most recent surveys. This increase raised the headcount ratio from around 26.5 percent to around 31 percent. Second, the rise was not uniform, either within or across countries or over time. According to our figures, the rise in poverty was concentrated in the urban sector which suffered a much more difficult adjustment than the rural sector. Despite the general rise in poverty, it seems that at least four countries (Costa Rica, Colombia, Paraguay and Uruguay) succeeded in reducing their levels of poverty over the decade. Furthermore, using the evidence of others, it is clear that within each country for which we have the appropriate observations, poverty followed the economic cycle, rising quite sharply in recession and falling, though less sharply, in recovery. Costa Rica and Colombia were successful in reducing poverty in large part because they had a short and relatively mild adjustment to the debt crisis, and were well into recovery by 1989.

Third, evidence is now beginning to appear which shows that the reforms and renewed growth after 1989 are reducing poverty. The reader should note that 1989 was probably the low point of the adjustment cycle in many countries.[1] Therefore the estimates of poverty we get from our surveys while showing clearly the high short-run cost of the adjustment process, do not tell the full story. Those countries which have begun to grow rapidly again such as Chile and Argentina have reduced their poverty headcount ratios as well.

No such optimism is possible for the poor who live in countries which have been unable to adjust and resume growth. Unfortunately this group covers much

[1]Argentina, Panama, Peru and Venezuela all had sharp declines in income in 1989.

of the continent's poor, some 70 percent to be exact. Just two countries (Brazil and Peru) contain about 55 percent of the total poor. Another 15 percent are in several smaller countries such as Guatemala, Honduras, Bolivia and Haiti. None of these countries is currently growing very rapidly, either because of policy failures or external conditions. Until macroconditions change for this group, one is unlikely to observe even the modest reductions in poverty that are presently occurring elsewhere on the continent.

Table 1 gives our estimate of the fraction of the population living on less than our poverty line of $60 per month. Poverty estimates such as those in the table are subject to a host of technical difficulties (a discussion of which can be found in Psacharopoulos *et al.*, 1993). There are, however, several points that require some discussion here.

First, for those countries or regions within countries where we had no household survey, our estimates are based on a cross-section regression (see Appendix A-2). Second, we used the same poverty line for all countries. Most analyses in Latin America have used country-specific poverty lines based on some multiple of the cost of a minimum basket of food. These lines differ quite widely even when translated with constant purchasing power exchange rates. That is because the market basket of food considered a basic minimum in a wealthy country like Argentina is very different from what would be considered a basic minimum in a poor country like Guatemala. Since we are making cross-country comparisons and trying to determine where the poor in Latin America are located, we need a uniform poverty line. Third, we largely followed the Economic Commission for Latin America (CEPAL) in correcting income for underreporting and making no correction for family composition (see Appendix A-2).

According to Table 1, we estimate that the population living with less than $60 per month grew by just under 40 million, increasing from 26.5 percent to 31 percent of the population. While poverty rose almost everywhere, it rose much faster in the cities than in the countryside. According to the table, urban poverty incidence rose by almost a third, compared to only an 18 percent increase in rural areas. Given that almost the entire increase in population over the decade took place in the cities, it may be that what we are seeing here is simply a transfer of the poverty problem from the countryside to the cities through migration rather than a real improvement in conditions in the rural sector.

Looking next at poverty profiles across countries, we find wide differences both in levels of poverty and changes over the decade. In 1989, over 45 percent of the poor lived in just one country—Brazil—even though that country had only one-third of the region's population. This reflects the extreme inequality which has historically characterized the Brazilian income distribution. As we shall show in the next section, in 1989 Brazil had the greatest degree of income inequality of any of the 18 countries for which we had data.

Several other countries contained a disproportionately large share of the poverty in the region as well. Over 9 percent of the poor were concentrated in Peru. An additional 19 percent of the poor lived in a group of small, relatively impoverished countries which depended heavily on natural resource exports.[2]

[2]We include in this group Haiti, Bolivia and all of Central America with the exception of Panama and Costa Rica.

TABLE 1

CHANGES IN POVERTY BY COUNTRY, 1980–89

Country	Poverty Headcount Index (percent below $60 poverty line)				Change in Population in Poverty, 1980–89	
	1980		1989			
	Urban	Rural	Urban	Rural	Urban	Rural
Argentina	3.0	11.5[1]	6.4	23.4[1]	1,052,000	482,000
Bolivia	34.1	81.3[1]	54.0	76.3[1]	1,105,000	152,000
Brazil	23.9	55.0	33.2	63.1	18,255,000	178,000
Chile	15.9[1]	34.0[1]	9.9	10.4	−341,000	−512,000
Colombia	13.0	58.4[1]	8.0	40.6[1]	−392,000	−1,518,000
Costa Rica	9.9	16.7	3.5	3.2	−60,000	−157,000
Dominican Rep.*	19.2[1]	—	24.1	—	564,000	-
Ecuador	19.2[1]	41.2[1]	24.2	47.4[1]	661,000	389,000
El Salvador	23.6[1]	50.6[1]	41.5	51.5[1]	498,000	150,000
Guatemala	35.7	52.7	54.8	79.4	798,000	2,333,000
Honduras	38.8	70.6[1]	54.4	82.6	650,000	698,000
Jamaica	25.0[1]	53.5[1]	4.4[1]	18.3[1]	−191,000	−386,000
Mexico	9.4	19.7	9.1	31.6	1,204,000	2,900,000
Panama	26.0	36.8	26.9	33.0	85,000	86,000
Paraguay	9.0	58.4[1]	7.6	47.9[1]	30,000	−11,000
Peru	30.9	46.0	49.4	73.4	3,281,000	1,892,000
Uruguay	6.2	13.5	5.3	31.3[1]	−12,000	79,000
Venezuela	2.5	9.0	10.8	23.5	1,414,000	516,000
Other Countries	36.7[1]	70.2[1]	53.0[1]	84.4[1]	1,564,000	566,000
	16.8	45.1	22.0	53.4	27,862,000	11,560,000
Overal	26.5		31.1		39,422,000	

Source: Psacharopoulos *et al.*, 1993.

*National sample.

[1]Based on cross-section regression displayed in Appendix A-2.

Most of these countries were not a part of the debt crisis *per se*, but they all had falling or stagnant per capita income over the decade for a variety of reasons.

Altogether, Brazil, Peru and this group of small countries accounted for over 70 percent of total poverty in Latin America even though they contained only 48 percent of the population. Furthermore, none of these countries has resumed a stable growth trajectory since 1989, so their situation is probably worse today than it was at the end of the decade.

The incidence of poverty differs widely across countries. The main cause for this is sharp differences in per capita income across countries. However, income inequality also accounts for variations in the poverty measure. Countries with relatively low inequality have lower poverty headcounts than countries at the same per capita income level but with greater inequality. Brazil, as discussed above, is an excellent example of this. If the Brazilian poverty rates were reduced to those of Mexico, a country with roughly the same per capita income, the overall poverty headcount index for Latin America would be cut by more than one-fourth; this is the equivalent of raising 38 million people out of poverty. At the other extreme, Costa Rica and Jamaica have low levels of poverty, despite the fact that neither has a particularly high level of per capita income.

The right-hand columns of Table 1 show where the big increases in poverty took place over the 1980s. These columns reinforce the point that the poverty problem is now quite highly localized. Of the overall increase in poverty, 48 percent came from the cities of Brazil. Another 14.5 percent came from Peru. Overall, if one looks at these two countries plus the group of small, stagnant and poor economies, we account for 84 percent of the change in poverty over the decade.[3] This from a group of countries with only 48 percent of the population in 1980. Mexico accounted for another 11 percent of the poverty increase. However, unlike the other countries in the group, 1989 probably represented a high point for poverty in Mexico. Economic growth since that year has undoubtedly reduced its poverty population.

A Counterfactual. According to our estimates there was a large increase in poverty during the 1980s in Latin America. One can ask whether this was due to the decline in income that occurred, or to increases in inequality. Are there more poor now than in 1980 because income is lower or because income was transferred from the poor to the rich? The household surveys, where available for both 1980 and 1989, can help us answer that question. They permit us to calculate what the poverty index would have been in 1989 with the observed in per capita income and the 1980 distribution. In this counterfactual exercise, each percentile of the 1980 population receives the national average percentage increase or reduction in income, and we then count the hypothetical number falling below the poverty line. We have made this calculation and reported the results elsewhere (Morley, 1994). Summarizing, we find that in the urban sector, half of the countries had a lower poverty level in 1989 than one would have expected based on what happened to their incomes. That is, they had an equalization in the distribution of income. This group includes the "good" cases that we have already discussed (Colombia, Costa Rica, Paraguay and Uruguay). It also includes Mexico and Panama. These were countries where poverty should have risen more than it actually did given their reduction in income. In the rural sector the picture is less favorable. There are only six observations, but in just two, Panama and Costa Rica, do equalizations in the distribution make the 1989 poverty level better than expected, based on income growth.

There were five countries where poverty rose more than expected based on what happened to per capita income. They are Argentina, Brazil, Venezuela, Guatemala and Honduras.[4] Of all the countries, Brazil appears to be the case where the divergence due to rising inequality is the largest. That has to be due to a very sharp increase in income inequality after 1987. Prior to that Brazil had a relatively good record on poverty and growth.

Further evidence on poverty and income growth. The surveys examined up to this point permit an assessment of poverty at the beginning and the end of the decade, but they have limited benefit for evaluating the evolution of poverty *during* the decade, particularly in relation to the economic cycles of each country. For example the Brazilian observations are for 1979 and 1989. The former corresponds

[3]Brazil −43.9 percent, Peru −17.3 percent, El Salvador, Guatemala, Haiti, Honduras, Bolivia and Nicargua—21.5 percent.

[4]Mexico's record is better in the urban sector and worse in the rural, while Bolivia was excluded here because it has only a very slight increase in inequality.

to a time period prior to the debt crisis, and the latter is after an entire recession-recovery cycle that peaked in 1986. In order to effectively examine the impact of recession and recovery on poverty in Brazil, observations would be needed for 1983 and 1986 since these match the trough and peak of the economic cycle.

Similar mismatches between the observation time frame and economic cycle occur for many of the countries for which we had household surveys. To help give more perspective on the relationship between macroconditions and poverty, we collected a large number of poverty estimates from studies done at various times in the different countries of the region. These studies in many cases do correspond exactly to the peaks and troughs of the economic cycle and therefore give us a better idea of how poverty conforms to the economic cycle.[5] In the interest of space, we will not display the various poverty headcount series, but instead only report some of the patterns we found.[6]

Where we have observations at the appropriate points in the cycle, the evidence strongly supports the hypothesis that poverty is countercyclical. It rises, often sharply in recession and falls, usually less sharply in recovery. Brazil, Costa Rica and Uruguay are good examples of this. In the case of Brazil poverty rose by almost one-fourth between 1981 and 1983 during the recession, then fell by more than 50 percent as the economy recovered to 1986, and finally rose to a new peak in 1989 during the second round of stabilization and inflation.

This same correspondence can be seen in Costa Rica. In that country the adjustment took place in the period 1981–82, with the recessionary bottom being 1982. Poverty peaked the same year. Subsequently the economy recovered, and the poverty indices decline. What is particularly noteworthy in this case is that by either 1987 or 1988, the absolute level of poverty appears to have fallen below its 1979, preadjustment level, despite the fact that per capita income was lower throughout the decade than it was in 1980.

The picture is similar in Uruguay. There the early 1980s were a period of adjustment and recession, with a trough in 1985. The available observations do not exactly match this period, but are close enough to suggest that here too, recession caused an increase in poverty. Subsequently, between 1986 and 1989, the economy recovered, with per capita income growing by 10 percent. Urban poverty fell quite sharply and rural poverty remained constant during this period.

Although we were able to find 58 observations in which we had comparable poverty estimates during a recession which we defined as at least two years of falling output. In 55 out of those 58 cases, poverty increased. By the same token, we had 32 recovery observations. In 22 of those, poverty fell, in 3 cases there was no change and in the remaining seven, poverty increased.[7]

[5]To make any comparison valid, an intertemporal estimate of poverty must use the same poverty line and methodology. Only such estimates were used here.

[6]See Morley (1994) for a display of most of these estimates.

[7]The seven cases were the metropolitan areas of Colombia 1980–86, Argentina, 1985–88, Chile 1984–86, the urban sector of Colombia 1986–89, and all three observations of CEPAL for Costa Rica between 1981 and 1988. We should add that these CEPAL estimates are outliers. All other estimates for the same period show poverty declining in Costa Rica.

III. The Distribution of per capita Household Income

Two principal indicators of income inequality are presented for each household survey: the decile income distribution and the Gini coefficient. Each of these is based on household per capita income for all individuals surveyed. Table 2 reports the Gini coefficient and percentage share of income accruing to the bottom 20 percent of the population in eighteen LAC countries for various years since 1979. It is emphasized that the results for seven of these countries are for metropolitan or urban regions only. Twelve of these countries have data at two points, which enables us to compare changes in income inequality over time.[8]

Looking at the latest available data, income inequality as measured by both the Gini coefficient and income share of the bottom 20 percent, remains high in Latin America relative to similar statistics for other parts of the world (see van Ginneken and Park, 1984). Brazil, Chile, Guatemala, Honduras and Panama all have Gini coefficients which exceed 0.55. The bottom 20 percent of the income distribution receives less than 3 percent of total income in Brazil, Guatemala, Honduras and Panama. At the other end of the spectrum, Paraguay (Asunción) and Uruguay (urban) demonstrate the least degree of inequality, with Gini coefficients of 0.398 and 0.424, respectively, and 5.9 percent and 5.4 percent of income accruing to the bottom 20 percent of the income distribution.

Changes in income inequality, 1980–89. According to the figures in Table 2, the changes in income inequality show mixed results for the time periods examined. The Gini coefficient increased in Argentina (Buenos Aires), Bolivia (urban), Brazil, Guatemala, Honduras, Mexico, Panama, Peru (Lima) and Venezuela. By this same measure, income inequality fell in Colombia (urban), Costa Rica, Paraguay (Asunción) and Uruguay (urban). As might be expected, the bottom 20 percent income share went up in all countries whose Gini coefficient declined, and it went down in all countries whose Gini coefficient increased.

Of particular interest are the seven country cases for which there are observations at the beginning and the end of the decade. Argentina, Brazil and Panama each experienced a sharp rise in inequality, while Venezuela showed a modest increase in inequality. Colombia, Costa Rica and Uruguay had substantial reductions in inequality. The latter three countries which showed reductions in income inequality had an *average* growth of 3 percent in per capita income for the entire decade, while the four countries which experienced an increase in income inequality had an *average* decline of 12 percent in per capita income for the same period.

Examining each country separately permits a better assessment of individual country performance. Unfortunately, the surveys on which this study is based do not necessarily correspond to the high and low points of the economic trends of their respective countries. This makes it difficult to examine the relationship between inequality and country economic performance. Nonetheless, there does seem to be some definite links between these two conditions. Argentina, Panama and Venezuela all experienced a rise in inequality and negative per capita income

[8]There is no strict over time comparability for Honduras. The 1986 data for Honduras cover urban areas, while the 1989 data are national in coverage. However a separate Gini coefficient and bottom 20 percent income share have been calculated for urban individuals only for the Honduras 1989 data set.

TABLE 2

GINI COEFFICIENT AND BOTTOM 20 PERCENT SHARE OF INCOME AT THE INDIVIDUAL LEVEL

Country	Year of Survey		Gini Coefficient		Percent Share of Income of Bottom 20% of Population	
			Earlier	Later	Earlier	Later
National						
Brazil	1979	1989	0.59	0.63	2.6	2.1
Chile	—	1989	—	0.57	—	3.7
Costa Rica	1981	1989	0.48	0.46	3.3	4.0
Dom. Republic	—	1989	—	0.50	—	4.2
Guatemala	1986–87	1989	0.58	0.59	2.7	2.2
Honduras[a]	1986	1989	0.54	0.59	3.2	2.8
Jamaica[b]	—	1989	—	0.44	—	5.1
Mexico	1984	1989	0.51	0.52	4.1	3.9
Panama	1979	1989	0.49	0.57	3.9	2.0
Venezuela	1981	1989	0.43	0.44	5.0	4.8
Urban						
Argentina	1980	1989	0.40	0.48	5.3	4.2
Bolivia	1986	1989	0.51	0.53	3.9	3.5
Colombia	1980	1989	0.59	0.53	2.5	3.4
Ecuador	—	1987	—	0.45	—	5.4
El Salvador	—	1990	—	0.45	—	4.5
Paraguay (Asunción)	1983	1990	0.45	0.40	4.9	5.9
Peru (Lima)[b]	1985–86	1990	0.43	0.44	6.2	5.7
Uruguay (Urban)	1981	1989	0.44	0.42	4.9	5.4

Source: Based on country-specific household surveys described in Psacharopoulos *et al.*, 1993, Annex 1.

Notes: Individual income has been calculated by dividing total household income by the number of individuals in the household.

— not available

[a]Results are not strictly comparable due to differences in geographical coverage between the 1986 and 1989 surveys. The Gini coefficient based on urban households only for Honduras 1989 is 0.56 while the bottom 20 percent income share is 3.5 percent.

[b]Based on consumption data.

growth between 1980 and 1989. All three of these countries were in severe recession in 1989. Argentina had yet to come to terms with its crippling fiscal deficits, while Panama was reeling from the effects of U.S.-imposed sanctions which had begun in 1987. Venezuela was experiencing severe contraction, as a new government sought to bring fiscal policy in line with revenues. On the other hand, Colombia and Costa Rica both had a lessening of inequality coupled with positive per capita income growth during the decade. Colombia was experiencing slow but positive growth in 1989, while Costa Rica was growing a bit more rapidly.

In contrast, Uruguay experienced a fall in urban income inequality despite a general reduction in per capita income over the decade, while the exact opposite trends occurred in Brazil. Yet these simple observations ignore the specific context of each country. In 1989, Uruguay was undergoing a strong and extended recovery phase which followed a severe recession that had occurred earlier in the decade. At the time of the 1989 survey, Uruguay was beginning to enjoy the benefits of the painful adjustments it had made between 1980 and 1985. On the other hand, Brazil was in the middle of a downturn in 1989 after having experienced very

strong growth during 1986. In fact, the economic expansion in the middle of the decade was so strong that, despite a subsequent severe recession, per capita income in 1989 was still above its 1979 level.

Thus it seems that income inequality, as measured by the Gini, is responsive to fluctuations in economic growth. The direction of change in inequality appears sensitive to the direction of economic performance. The country cases described above all indicate that recession is associated with rising inequality. Examining the extremes of the income distribution, the bottom 20 percent received a smaller percentage of national income, while the top 20 percent expanded its share for every case where the country was in recession at the time of the 1989 survey. The opposite is true for all countries which were experiencing recovery. In the cases of Colombia, Costa Rica and Uruguay, the poorest 20 percent of the population actually increased their relative income share during the course of the decade.

Inequality trends during the 1980s: A broader picture. We have examined all available comparable evidence on trends in the Gini coefficients for fourteen Latin American countries, both from the surveys used in this study and from the work of others (see Psacharopoulos *et al.*, 1993). Each source represents a set of consistent and comparable estimates of the Gini coefficient for a particular country; however, different sources are often *not* strictly comparable, even for the same country. In most cases, the Gini coefficients are based on total household income per capita, although in some instances they have been calculated using total household income.

The data strongly confirm the relationship between the economic cycle of a country and its level of inequality. In the vast majority of cases, economic recession was accompanied by rising inequality while recovery was accompanied by falling inequality. Figure 1 is based on 22 country economic cycles. Each cycle corresponds to a period of recovery or recession, with several periods included for those countries for which the data are more complete. Recession is defined as a period of falling per capita income, while recovery is a period of rising per capita income. The few observations which span the entire decade are classified according to the state of the economy in 1989. This makes no difference for Argentina, Colombia, Costa Rica, Panama and Venezuela, but it does cause Uruguay to be classified as in recovery even though average per capita income growth was negative for the decade. By these criteria, all but two of the twenty-two observations contained in Figure 1 fall in either the northwest or the southeast quadrant, suggesting that economic recovery reduces inequality.

The evidence presented thus far bears on the relationship between income level and the distribution of income. This relationship has been the subject of much debate in the literature. Kuznets analyzed historical data from developed countries and found an inverted U-shaped curve when graphing income against inequality levels (see Kuznets, 1955; 1966). However, the Kuznets curve reflects a long-run relationship which is based on the movement of the population between agricultural and non-agricultural sectors as society grows over time. Latin America during the 1980s did not demonstrate a reversal of this process. Rather, structural imbalances in the economy were exacerbated by shifts in the external sector; the combined effect was a cyclical downturn for many countries. However, there was not a migration of workers from the urban sector back into agriculture. Therefore

Higher Inequality			
Argentina	1985–88		
Argentina	1980–89		
Bolivia	1986–89		
Brazil	1986–89		
Brazil	1979–89		
Chile	1980–83	Guatamala	1986–89
Costa Rica	1980–82	Chile	1987–90
Guatemala	1981–86		
Mexico	1977–84		
Mexico	1984–89		
Peru	1981–84		
Peru	1984–89		
Panama	1979–89		
Venezuela	1981–89		
Recession			Recovery
		Chile	1983–87
		Colombia	1980–89
		Costa Rica	1983–86
		Costa Rica	1981–89
		Venezuela	1989–91
		Uruguay	1981–89
Lower Inequality			

Source: Psacharopoulos *et al.*, 1993.

Figure 1. *Income Inequality and the Economic Cycle*

it is unlikely that the findings of this report have much bearing on the existence or shape of the Kuznets curve.

A more likely interpretation of the relationship between income and inequality levels for Latin America during the 1980s is that the intense recessions put strong downward pressure on wages and employment levels, particularly for those at the bottom of the income pyramid and those living in urban areas. With limited unemployment insurance coverage, many workers were forced to accept either severe real wage reductions, unemployment or work in the informal sector. Thus rising inequality was due more to increased intra-sectoral stratification than to movement between sectors, as would be expected in the Kuznets process.

The hardest hit groups in the 1980s appear to have been the new entrants into the labor market and the poor. The former suffered from the handicap of little or no experience, while the latter tended to be the least well-educated group in the work force. New entrants into the labor force accounted for the bulk of the rising unemployment levels during the decade. Furthermore, for those who found work, the evidence suggests that there was a rise in the age-wage differential in most of the countries for which such statistics have been calculated. (See Morley, 1992 and Morley and Alvarez, 1992a, b and c.)

IV. An Analysis of Workers' Income Inequality

This section examines inequality in the distribution of income among workers. Its main purpose is to identify the principal factors associated with income inequality among individuals, rather than among families. After summarizing the main

indicators, we present a decomposition of levels of income inequality and develop a comprehensive profile which highlights the most prominent characteristics of those individuals in the work force who comprise the bottom 20 percent of the income distribution.[9] In this section we only consider a subset of those countries used in the previous two sections. These are Argentina, Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Honduras, Panama, Uruguay and Venezuela.

Changes in the distribution of workers' income during the 1980s. The changes in levels of income inequality between the early and late periods are shown in Table 3. With all the caveats resulting from the differences in coverage between countries, the results give a comparative idea of levels of income inequality among the ten countries included in the present sample.

TABLE 3

MEASURES OF INEQUALITY IN WORKERS' INCOME

	Gini Index		Theil Index (T)		Standard Theil Index (T*%)	
Country	Earlier	Later	Earlier	Later	Earlier	Later
National						
Brazil	0.57	0.63	0.691	0.843	5.86	7.27
Costa Rica	0.45	0.41	0.339	0.317	3.76	3.49
Guatemala	0.53	0.53	0.612	0.584	6.55	6.19
Honduras	0.53	0.53	0.551	0.563	5.91	5.96
Panama	0.38	0.45	0.266	0.361	2.98	4.09
Venezuela	0.51	0.50	0.436	0.451	3.95	4.08
Urban						
Argentina	0.39	0.46	0.264	0.431	3.25	5.02
Bolivia	0.48	0.52	0.443	0.559	5.41	6.02
Colombia	0.58	0.52	0.673	0.526	7.20	5.16
Uruguay	0.45	0.42	0.394	0.329	4.22	3.51

Income inequality—measured both through the Gini and Theil indices—is found to have increased in five of the ten countries: Argentina, Bolivia, Brazil, Honduras and Panama. The increase was the highest in Argentina, Brazil and Panama. In the case of Venezuela, there is a discrepancy in the direction of change for the two measures of inequality. When the Venezuelan distributions by decile are considered, it appears that the top six deciles all improved their share of income at the expense of the seventh to nine deciles.

The remaining four countries in the sample show reductions in income inequality. The reduction is particularly impressive in the case of Colombia, where the equivalent of six and one-half percentage points of total income were transferred from the top two deciles to the rest of the population. Though less dramatic, the reductions in inequality that took place in Costa Rica and Uruguay are still very significant. Finally, the relatively small increase in income inequality found in the case of Honduras cannot be adequately interpreted, given that the survey coverage differs between the two years.

[9]The analysis is based on all individuals 15 years of age or older who were in the labor force and had positive income at the time of the survey. In seven of the ten country cases considered, the source of income includes work, rents and transfers. For Bolivia, Panama and Venezuela however, the income variable corresponds exclusively to income from work.

Among the countries with the most unequal distribution of workers' income, Colombia registered a significant improvement between 1980 and 1989. Having ranked first in inequality during the early period by the Gini and Theil indices, Colombia ranked fifth during the late period.[10] Brazil, which ranked fourth by the Theil index in the early period, exhibited the greatest degree of inequality during the late period. Bolivia, Guatemala and Honduras also continued to demonstrate very high degrees of inequality among workers.

There have also been some changes regarding the ranking of countries with the least inequality. In the late 1970s/early 1980s, Argentina and Panama had the lowest levels of income inequality among the ten countries. this was no longer true by the late 1980s, and by 1989, Argentina presented a moderately high level of income inequality. Costa Rica and Uruguay, which already presented relatively low levels of income inequality in the early 1980s, exhibit the least inequality by the end of the decade.

We have examined the changes in income inequality (measured in terms of the standardized Theil index) against changes in per capita income for the ten countries. With two exceptions, the evidence indicates the existence of a negative relationship between changes in income and inequality. The two exceptions are Brazil and Uruguay. Brazil shows inequality to have increased at the same time as a rise in income per capita, while Uruguay experienced a reduction in inequality during a period of falling average standards of living. In sum, the different distributive performance of the ten countries suggests a counter-cyclical relationship between worker's income inequality and macroeconomic conditions which mirrors the relationship found in Section III between per capita income of the entire population and income inequality. However, the diverse patterns found within the present samples of countries clearly rules out a simple relationship between the changes in average income and those in inequality.

A decomposition of income inequality by source. Here we assess the relative influence of several variables in explaining the level of income inequality among workers. This is done by decomposing the Theil index to show inequality between groups (defined according to the values of the variables selected for the analysis) and within groups. It is then conventional to treat the between component as the inequality "explained" by the variable, and the within component as the amount of inequality which is "unexplained" by that variable.[11] We will refer to the inequality between the groups into which variable j has been classified as the gross contribution of variable j. The marginal contribution of variable j will be defined as the increase in "explained" inequality obtained when adding variable j into the decomposition analysis.

Four variables are used in this analysis: age, education, employment status and economic sector of employment. All variables have been categorized in a discrete fashion, with the criteria being the same for all countries. Although there is an obvious element of arbitrariness in the classification criteria, the important

[10]For the purpose of comparisons between countries, we use the standardized Theil index (T^*), rather than the Theil index (T) which expresses inequality as a percentage of the index maximum possible value.

[11]On the properties of Theil's entropy coefficient (T) which make it specially suitable for decomposition exercises, see Bourguignon (1979) and Shorrocks (1980).

consideration is that the same criteria are used in all cases (see Fiszbein and Psacharopoulos, forthcoming, for a description of the categories used). This ensures that differences in the explanatory power of each variable across countries and time are not due to the selection method.

Table 4 shows the main results of the decomposition analysis. In all but one instance (Venezuela), the "between" component of the decompositions was larger during the earlier period. For the early observations, the average joint contribution of the variables considered was 47 percent, while it was 42.4 percent for the later observations. [See Fiszbein and Psacharopoulos (forthcoming) for the country-specific results and the marginal contributions.] In other words, the models for the first period in each country tended to explain a higher percentage of total workers' income inequality than the models for the second period. This may reflect an increase in importance of unobserved factors in explaining income inequality throughout the decade. However, a dynamic decomposition analysis would be required to further assess the evolution of changes in income inequality over time (see Ramos, 1990 and Fiszbein, 1991).

TABLE 4

GROSS CONTRIBUTION OF INDIVIDUAL VARIABLES IN EXPLAINING INEQUALITY: DECOMPOSITION OF THEIL INDEX

(percent)

Country	Year	Age	Employment Status	Education	Economic Sector
Argentina	1980	8.6	7.7	18.2	3.6
	1989	6.9	6.2	20.2	4.7
Bolivia	1986	4.3	19.7	6.0	10.0
	1989	5.0	5.8	8.6	4.3
Brazil	1979	8.3	13.1	28.8	7.7
	1989	7.1	14.1	26.5	5.9
Colombia	1980	10.1	16.4	35.1	5.4
	1989	10.6	15.2	30.2	3.9
Costa Rica	1981	12.4	1.6	26.4	12.8
	1989	7.7	3.0	23.6	11.1
Guatemala	1986	2.8	18.9	30.3	8.2
	1989	2.6	20.1	29.3	11.4
Honduras	1986	11.2	12.8	37.4	4.9
	1989	5.1	20.7	37.3	13.1
Panama	1979	7.5	—	35.8	10.2
	1989	13.3	—	28.8	10.0
Uruguay	1981	8.1	13.1	13.4	5.0
	1989	8.1	11.8	10.1	5.8
Venezuela	1981	6.3	11.9	26.3	6.7
	1989	8.3	19.6	23.1	4.9

Note: — not available.

The most striking finding of the decompositions is the overwhelming preeminence of education inequality in explaining income inequality. In eighteen of the twenty cases (excepting Bolivia, 1986 and Uruguay, 1989), education has a higher gross contribution to inequality than any of the other variables. On average the gross contribution of education is approximately 25 percent; in other words, one fourth of total inequality can be explained as inequality between individuals grouped in just four groups according to their schooling level. In nineteen out of

the twenty cases (excepting Bolivia, 1986), education also has the highest marginal contribution to total inequality.

Employment status is the second most important variable in the present decomposition analysis.[12] Its average gross contribution to inequality is approximately 13 percent—half of the corresponding contribution of education. The contribution of the employment status variable is unusually low in the case of Costa Rica. This is probably due to relatively less stratification of the labor force in Costa Rica as compared with the other countries analyzed. The share of employees in the labor force is very high in Costa Rica, and the average employee income is extremely close to the overall mean income in the sample.[13] On average, the contribution of the age variable is somewhat smaller than that of employment status and in the large majority of cases, the economic sector component had the lowest contribution to income inequality among the four variables assessed on this study.

The preeminence of education as a source inequality when compared with age, employment status and economic sector has important implications. Relative to the other variables, education is a more permanent characteristic: individuals move from one age group to another throughout their lives, and are able to change sector of employment if sufficient mobility exists in their country. However, in many developing country settings (particularly with respect to the poor), it is not common for people to return to school in order to enhance their earnings capabilities. In general, once an individual reaches adulthood, little further schooling is attained.

On the other hand, of the four variables considered here, education is the most susceptible to public policies. However, as pointed out earlier, the static decomposition analysis presented here is not the most appropriate method to analyze the dynamic effects of changes in the distribution of education on income inequality. This would require a dynamic decomposition model which estimates the expected change in the returns to education associated with an expansion in the average level and dispersion of schooling.

The bottom 20 percent of the distribution: A probability analysis. The decomposition of the Theil index assesses the contribution of four principal variables in explaining workers' income inequality. Here we examine a greater number of variables and focus on those individuals who make up the bottom 20 percent of the workers' income distribution. The various factors which are included in each model are standardized in order to demonstrate the simultaneous contribution of each variable to the probability that an individual belongs to the bottom 20 percent of the workers' income distribution. By definition, this group would include the majority of the poorest of the poor. Since the factors which are examined are limited dependent variables, a logit model has been fitted. The model expresses the probability (P) of an individual belonging to the bottom 20 percent of the workers' income distribution, as a function of various personal characteristics such as age, gender, years of schooling and sector of employment.[14]

[12]This variable considers whether workers, self-employed or employers.

[13]The average employee income is fully equal to the overall mean per capita income for Costa Rica (1981), and is equal to 97 percent of mean income for Costa Rica (1989).

[14]The results of the individual country multivariate models are presented in Fiszbein and Psacharopoulos (1995).

We have estimated the marginal effects of the key variables, which indicate the change in the probability of belonging to the bottom 20 percent relative to a unit change in one of the independent variables (see Fiszbein and Psacharopoulos, forthcoming). There is a remarkable degreee of stability between the early and late probability values for almost all combinations of personal characteristics in each country examined. For the most part, individuals with no education in 1980 were just as likely to belong to the bottom 20 percent of the income distribution as individuals with no education in 1989. The same could be said about the other variables examined as well.

Schooling has a very strong effect on the probability of belonging to the bottom of the income distribution. In almost all countries an additional year of schooling is found to diminish the probability of being poor (belonging to the bottom of the distribution) by 3 to 4 percentage points (see Fiszbein and Psacharopoulos, forthcoming). The strong effect of schooling can be further seen in Table 5 which shows the simulated probabilities of belonging to the bottom of the distribution for individuals with different levels of education. On average, such a probability diminishes from 56 percent for someone without education to 4 percent for someone with higher education.

TABLE 5

PERCENT PROBABILITY OF BELONGING TO THE BOTTOM 20 PERCENT OF INCOME DISTRIBUTION BY EDUCATION, 1989

	Educational Level			
Country	None	Primary	Secondary	University
Argentina	69	36	13	6
Bolivia	42	27	14	9
Brazil	54	19	5	2
Colombia	67	32	9	4
Costa Rica	55	25	8	4
Guatemala	36	14	5	2
Honduras	43	15	4	1
Panama	83	45	12	4
Uruguay	65	31	10	4
Venezuela	50	25	10	5
LAC Region[a] (average)	56	27	9	4

[a]Refers to above countries only.

Another consistent finding is the large impact of gender. Males have a systematically lower probability of belonging to the bottom of the distribution. In most countries, this difference amounts to approximately 20 percentage points. As a result, on average, while the probability of being in the bottom 20 percent of the distribution is 15 percent for a male, females experience a probability of 34 percent. Colombia and Costa Rica in the earlier period, show a significantly lower gender effect than the rest of the region.

For those countries for which the information is available, the probabilities estimated for rural areas are approximately 15 percentage points higher than those for urban areas. Also, we found clear evidence that indigenous groups (in Bolivia,

Guatemala and Honduras) and blacks (in Brazil) have higher probabilities of belonging to the poorest group than whites.

The findings discussed in this section clearly indicate that education is the variable with the strongest impact on income inequality. On average, one-fourth of total income inequality can be attributed to inequalities in the level of schooling. Furthermore, the probability of belonging to the bottom 20 percent of the income distribution diminishes monotonically with schooling in all countries. An equalization in the distribution of education and the subsequent reduction in income differential/returns to education associated with higher average levels of schooling should contribute significantly to reductions in income disparities and poverty across the region.[15]

V. Conclusions

This paper has documented poverty and income inequality in Latin America during the 1980s in response to the region-wide recession. Its primary focus has been descriptive, in an effort to expand the existing state of statistical knowledge on these important issues. Not surprisingly, our results indicate that poverty in the region increased during the decade of the 1980s in response to the region-wide recession. According to our estimates the poverty headcount index for the region increased from 26.5 percent to 31 percent between 1980 and 1989. Other indices, not reported here, tell a similar story.

The comparisons between countries and over time reinforce the notion that slow or negative economic growth played a key role in the evolution of poverty. The evidence appears to indicate that, with few exceptions, poverty and income moved in opposite directions. The evidence also shows that changes in income inequality played an important role in explaining changes in poverty. As in the case of poverty, income inequality mirrored the economic cycle, rising during recession and falling during recovery. *Economies that grew (e.g. Colombia, Costa Rica) performed better with respect to income inequality than those that stagnated (e.g. Argenina, Venezuela).* Since most countries that experienced a rise in inequality also showed a drop in real per capita income during the decade, these findings indicate that the wealthy were better able to protect themselves from the impact of the recession than the poor.

Nevertheless, the diversity observed in country experiences suggests that, while economic growth had a strong influence on poverty and inequality, other factors must have contributed to the changes we observed. Poverty and inequality increased in a growing Brazil and decreased in a stagnant Uruguay. The descriptive focus of our work does not allow us to identify those factors. Future research efforts should be devoted to obtain a better understanding of the way in which economic structure and policy interact in determining the degree to which growth and adjustment translate into changes in poverty and inequality.

A decomposition of the regional increase in poverty during the 1980s shows that this rise occurred in a concentrated group of countries. In 1989, over 44

[15]For evidence in this respect in a number of Latin American countries, see Psacharopoulos (1989), Gomez-Castellanos and Psacharopoulos (1990) and Psacharopoulos and Ng (1994).

percent of the poor lived in Brazil alone, although that country was home to only one-third of the region's population. Mexico and Peru had 11 and 9 percent of the poor, respectively, while an additional 19 percent lived in a group of relatively small countries consisting of Bolivia, El Salvador, Guatemala, Haiti, Honduras and Nicaragua.

Another significant finding is that, in 1989, more of the poor were in the cities than in the countryside—a reversal from ten years earlier. At the close of the decade, sixty-nine million urban inhabitants and sixty-four million rural dwellers were living in absolute poverty in the region. This poses some potentially difficult policy trade-offs: while poverty is becoming an increasingly urban problem, the rural poor are still poorer than the urban poor.

The emphasis given here to the growth-poverty link, while descriptive of the story of the 1980s, should not divert attention away from the fact that poverty in Latin America is strongly associated with a skewed distribution of incomes. Inequality remains very high in the region relative to other areas of the world. The mean Gini coefficient for the most recent surveys we considered in 0.50, while the mean bottom 20 percent income share is 4 percent of total income. In the absence of policies which reduce the sharp differences in income which currently prevail in most countries in the region, growth will probably have a less than acceptable impact on poverty reduction.

Our results show that educational attainment has the greatest correlation with both income inequality and the probability of being poor. On average, differences in individual educational levels account for approximately 25 percent of total income inequality among the workforce in Latin America. From a policy standpoint, there is a clear association between the provision of education, lessening of income inequality, and poverty reduction.

The preeminence of education as a source of income inequality has important implications. Improvement in the provision and quality of education is an issue that lies well within the domain of public policy. An equalization in the access to and distribution of education, and the subsequent reduction in income differentials/returns associated with higher average levels of schooling, should contribute significantly to reductions in income disparities.

The choice of educational strategies to be followed is very important. Strategies that emphasize literacy and primary education tend to reduce income inequality because they equalize the distribution of education. They also have positive effects in terms of poverty reduction by directly increasing the productivity of the poor, improving their chances of obtaining better-paid employment, and generating a mechanism of upward social mobility for the economically disadvantaged—particularly for children raised in poor households.

Many factors other than education influence the existence and persistence of income inequality and poverty. Non-income characteristics reflect an important component of the welfare of an individual. Much has been written about the role of health, education, nutrition, family planning, social security and other human resource issues within the context of poverty reduction.[16] Unfortunately, data

[16]For an overview of these human resource issues as they pertain to Latin America and the Caribbean, see World Bank (1993).

limitations severely hamper the comprehensive assessment of links between income, health, education, region of residence and ethnicity. However, the available evidence demonstrates that the substantial variability behind agggregate social indicator statistics is due to observable factors that can be targeted through specific poverty reduction programs as well as through more general policies that incorporate targeting mechanisms into their overall design.

Finally, the majority of efforts for alleviating poverty have centered around improving the human capital assets of the poor in order to raise their productivity in the workplace. However, insufficient investigation has been done regarding how to incorporate the poor into the growth process from the demand side of the labor market. The position of the poor with respect to the labor market often is related to the unique structural development of the economy, and anti-poverty policies need to be understood within this context. If actions to improve the human capital of a country's poor can be met with increased chances of employment resulting from appropriate growth strategies, then efforts to reduce poverty and income inequality will proceed at a much more rapid pace.

Appendix A-1. Household Survey Data
Data Sets on Which This Study is Based

Country	Year	Geographic Coverage	No. of Household
Argentina	1980; 1989	Metropolitan Area	3,400; 16,759
Bolivia	1986; 1989	4 Cities; 17 Cities	12,226; 37,864
Brazil	1979; 1989	National	88,975; 70,777
Chile	1989	National	32,456
Colombia	1980; 1989	7 Cities; 8 Cities	7,473; 17,949
Costa Rica	1981; 1989	National	6,604; 7,637
Dominican Rep.	1989	National	799
Ecuador	1987	Urban	5,558
El Salvador	1990	Urban	23,773
Guatemala	1987; 1989	National	9,660; 10,934
Honduras	1986; 1989	Urban; National	8,650; 8,648
Jamaica	1989	National	2,725
Mexico	1984; 1989	National	4,963; 11,535
Panama	1979; 1989	National	8,593; 8,817
Paraguay	1983; 1990	Metropolitan Area	5,138; 4,791
Peru	1986; 1990	National; Lima	4,981; 1,385
Uruguay	1981; 1989	Urban	9,506; 21,473
Venezuela	1981; 1989	National	45,421; 61,385

Appendix A-2. Derivation of the Poverty Estimate

To overcome a lack of access to national account figures which are sufficiently disaggregated by income type to match the present household surveys, this study utilizes income expansion factors at the urban/rural subregion level within each country. These expansion factors have been derived according to three different methodologies, depending upon the particular country and year. (For drawbacks regarding this exercise, see Kuznets, 1963 and Altimir, 1987.)

The first methodology was applied to the early 1980s data of ten countries which have also been assessed by CEPAL (1991).[17] For each of these ten cases, CEPAL had access to detailed national account income data broken down by income source. If hard data for a particular country were not available, CEPAL developed a general equilibrium model to estimate income data by source. Each income type in the individual surveys was then expanded by a uniform amount across the distribution so that none would be less than the figure contained in the national account data. The one exception was income from monetary property rents. Since this type of income tends to be concentrated in wealthier groups, the correction factor for monetary property rents was only applied to households in the highest income quintile. Since the CEPAL method represents the most accurate means of correcting for income underreporting, this study uses the same adjustment factors as CEPAL.

For the countries in the CEPAL group there was no 1989 estimate to guide the determination of income underreporting. Therefore, a comparison was made between the per capita income from the 1980 and 1989 surveys and per capita income from the national accounts, and the change in this ratio was then applied to the 1980 CEPAL estimates of underreporting.

There were eleven country cases for which we had a survey, but no CEPAL estimate to guide the estimate of underreporting.[18] Here, a simple comparison was made between mean per capita income from the national accounts and mean per capita income from the data set. All income data from the survey were then expanded by this ratio.

Regarding the remaining countries, for both 1980 and 1989, the poverty estimates were based on either a 1980 or a 1989 cross-section regression of poverty on GDP per capita, an urban dummy and a Brazil dummy using all those countries for which we do have observations. The regressions were the following:

For 1980:

$$(1) \qquad \ln P^0 = 15.2 - 1.6 \ln Y - 0.76\, UD + 0.89\, BD \qquad \text{Adj } R^2 = 0.77$$
$$(-7.22) \quad (3.37) \quad (2.47) \qquad \text{d.f.} = 19.$$

P^0 = poverty headcount index;
Y = per capita income;
UD = urban dummy (one for urban observations);
BD = Brazil dummy.

For 1989:

$$(2) \qquad P^0 = 133.5 - 0.116\, Y + 0.0003\, Y^2 - 18.8\, UD + 36.3\, BD \qquad \text{Adj } R^2 = 0.52$$
$$(-3.15) \quad (2.54) \quad (-2.67) \quad (2.79) \qquad \text{d.f.} = 25.$$

[17]The ten country cases are Argentina (1980), Brazil (1979), Colombia (1980), Costa Rica (1981), Guatemala (1986), Mexico (1984), Panama (1979), Peru (1985–86), Uruguay (1981) and Venezuela (1981).

[18]Bolivia (1986, 1989), Chile (1989), Dominican Republic (1989), Ecuador (1989), El Salvador (1989), Honduras (1986, 1989), Jamaica (1989) and Paraguay (1983, 1990).

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