Changes in Poverty and Inequality in Latin America during the Great Recession¹

1. Introduction

Poverty is perhaps the most important indicator of social welfare. The World Development Reports of 2000 and 2010 highlighted the prominence of poverty reduction as the main objective of developing economies. The Millenium Development Goals set by the United Nations made of poverty reduction a specific global target to achieve within a precise time frame. Setting goals and targets has induced a global agenda of poverty reduction and important advances have been achieved in the area of poverty reduction. However, economic crises, even though usually short-lived, may derail these objectives. It is been documented that these crises may delay the achievement of poverty reduction targets and may also have ripple effects on other areas of welfare beyond monetary poverty.²

This study aims at gauging the impact of the 2009 crisis on monetary poverty in Latin America. It compiles micro-data for 12 Latin American countries and makes comparable estimates of poverty and inequality measures before and after the 2009 crisis. The purpose of this is to describe what happened to poverty and establish stylized facts about the sources of poverty changes during the period of study.

The chapter has three main sections. Section 2 describes the tools of the trade for measuring poverty and inequality in the region. It explains the selection of countries and datasets for this study as well as the methods adopted for measuring and analyzing poverty trends. Section 3 provides a general overview of both counterfactual and before-and-after estimates of poverty changes for year 2009. It also provides measures of moderate and extreme poverty at the national level and profiles for different population groups of interest, such as urban, rural and female-headed households. Section 4 makes an elaborate description of the sources of poverty changes during the recession. This section makes use of a series of decomposition techniques that allows identification of the different forces driving poverty trends for the period under study. In this case the influence of economic growth, demographic changes, labor market dynamics and social policy are explored as main explanatory causes of the changes observed in poverty. Section five summarizes the conclusions of the previous analyses.

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² See Ferreira, Prennushi and Ravallion (1999), Fallon and Lucas (2002); Ferreira and Schady (2008), Griffith-Jones and Ocampo (2009), Blanchard, Faruqee and Das (2010) and World Bank (2010)

2. Tools of the trade for measuring poverty

The countries included in this section of the study are Argentina (urban only), Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Mexico, Paraguay, Peru, and Uruguay. Other countries in the region were not included because either they do not have annual surveys (e.g. Jamaica, Guatemala), or they do not make micro-data publically available on a regular basis (e.g., Bolivia, Venezuela). For most countries, data comes from annual household surveys carried out in 2008 and 2009. However, surveys from countries such as Mexico and Chile span a longer period of time. For the case of Chile we utilize survey data from 2006 and 2009, and for Mexico from 2008 and 2010.

The data come from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC)³, a joint collaboration between the Universidad Nacional de la Plata's Center for Distributional, Labor, and Social Studies (CEDLAS) and The World Bank's Poverty, Gender, and Equality unit for Latin America and the Caribbean (LCSPP). The SEDLAC database includes poverty statistics for Latin American and Caribbean countries, based on microdata from over 200 household surveys (see Table 1 for surveys used in this report). CEDLAS receives household surveys from national statistics institutes and the data are harmonized so they are comparable across time and countries. The exception to this rule is the case of Mexico where we have used the new Encuesta de Igresos y Gastos de los Hogares (also known as ENIGH, by its acronym) which, since 2008, includes an expanded sample labeled Modulo de Condiciones Socioeconómicas. This newly expanded survey has not yet been fully harmonized by CEDLAS and that is why we don't use a harmonized dataset for Mexico.⁴

The analysis of poverty and inequality requires the definition of three main components: the welfare aggregate, the unit of observation and the statistical index. The first component defines what is the welfare variable -for instance, health, education, expectancy or consumption, to name just a few of usual interest- whose deprivation or inequality is the subject of concern. The second component defines who is the person or group of persons who are subject to deprivation or inequality; that is individuals, families or localities. The third component defines the formula to be applied to the population of the unit of analysis for gauging deprivation or inequality in the welfare variable of concern. This section explains the specific choices taken in the study about these three components.

In the Latin American region, income is the aggregate used to measure welfare, not consumption. This is because many household surveys in Latin America do not include questions about consumption and expenditures, only income. Expenditure surveys are conducted in some LCR countries, in some cases with enough regularity but only every ten years in others, which do not lend themselves well to precise estimates for evaluating short-term changes.

³ The SEDLAC database can be found on-line at: <u>http://sedlac.econo.unlp.edu.ar/eng/statistics.php</u>. SEDLAC data are used in the World Bank's LAC Poverty and Labor briefs and for the on-line tool PovcalNet (for countries with income as their poverty measure). We have also benefitted from inputs of the Group for Statistical Development of the Poverty and Gender Unit for Latin America at the World Bank, and their recent publications on poverty during the crisis: "Did Latin America Learn to Shield its Poor from Economic Shocks?" and "On the edge of uncertainty" (visit: http://go.worldbank.org/HGK34AJW00)

⁴ Data for Honduras has been harmonized for Honduras, but we do not include these data in our study because of pending revisions regarding over-time comparability.

Table 1

Country	Name of survey	Acronym	Field Work	Circa 2008	Circa 2009
Argentina	Encuesta Permanente de Hogares-Continua	EPH-C	2nd Semester	2008	2009
Brazil	Pesquisa Nacional por Amostra de Domicilios	PNAD	Octubre	2008	2009
Chile	Encuesta de Caracterización Socioeconómica Nacional	CASEN	November	2006	2009
Colombia	Gran Encuesta Integrada de Hogares	GEIH	2nd Semester	2008	2009
Costa Rica	Encuesta de Hogares de Propósitos Múltiples	ЕНРМ	July	2008	2009
Dominican Republic	Encuesta Nacional de Fuerza de Trabajo	ENFT	October	2008	2009
El Salvador	Encuesta de Hogares de Propósitos Múltiples	EHPM	Continuous	2008	2009
Ecuador	Encuesta de Empleo, Desempleo y Subempleo	ENEMDU	December	2008	2009
Honduras	Encuesta Permanente de Hogares de Propósitos Múltiples	EPHPM	May August /	2008	2009
Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares	ENIGH	November	2008	2010
Paraguay	Encuesta Permanente de Hogares	EPH	December	2008	2009
Peru	Encuesta Nacional de Hogares	ENAHO	Continuous	2008	2009
Uruguay	Encuesta Continua de Hogares	ECH	Continuous	2008	2009

Source: SEDLAC data, 2012 (CEDLAS and the World Bank).

In order to compute the welfare aggregate, all income sources are added for each individual, excluding non-current income, sales, and income from gifts, gambling, inheritance, and life insurance. From that, household incomes are constructed income per capita is produced without adjusting by adult equivalence scales. In order to facilitate harmonization, only the last month's income is used and that is used to fill in any gaps in current income. In the case of non-response or negative income reporting, earnings are imputed by a matching process, or by applying the coefficient of a Mincer equation. When zero income is reported, it is taken into account for computing poverty statistics, but not inequality indicators. Any unreliable figures are ignored. Other adjustments are made to address underreporting and a lack information on the very rich. Real income is always used, and rural incomes are boosted by 15 percent in order to account for price differences in rural and urban areas. Official consumer price indices (CPIs) are used to adjust for inflation.⁵

The unit of analysis will be the individual person. However, poverty is computed at the family level. Namely, the total income of the family is the summation of all income sources earned or non-earned by all family members. This aggregate is then divided by the number of household members, so defining the income aggregate at the individual level. We do not adjust by household composition or structure.

The poverty and inequality indicators used are the poverty headcount and the poverty gap, regarding poverty, and the Gini Index, and 90th, 50th and 10th deciles ratios, regarding inequality. The *poverty headcount index* is the percentage of a population living below the poverty line. The formula is H=q/n where H is the Headcount Index, q is the number of people living below the poverty line, and n is the total population. The *poverty gap index* is the mean shortfall from the poverty line. This measures not only poverty incidence, but also depth. The formula is: $PG=I^*H$ where PG is the poverty gap index, H is the poverty headcount index, and I represents the income gap [(z-yq)/z] where z is the poverty line and yq is the average income for the poor.

This report evaluates those classified as living in moderate poverty and extreme poverty. The poverty lines that we use are \$2.50USD-a-day (extreme) and \$4.00USD-a-day (moderate) in PPP dollars. Extreme poverty is interpreted as the income needed to cover basic food requirements and the moderate poverty line as income needed to cover food and other basic necessities like clothing and shelter. These international poverty lines differ from official poverty lines. Moreover, income aggregates from SEDLAC's harmonized databases may be different from income aggregates used in different countries. We adopt international poverty lines and a cross-country harmonized database with the intent to compare across countries and over time. This does not, by any means, imply a criticism of official statistics. It simply means that SEDLAC uses different methodologies like accounting only for last month's income and standardizes the moderate and extreme poverty line across countries, among other things. The purpose is to avoid methodological differences that would render cross country comparisons untenable (see Box 1).

⁵ For further details about the harmonization of surveys and other methodological aspects by SEDLAC visit: <u>http://sedlac.econo.unlp.edu.ar/eng/methodology.php</u>. In the case of Mexico, we use the income aggregates as defined by CONEVAL for producing its estimates of monetary poverty. For details visit: <u>http://web.coneval.gob.mx/Medicion/Paginas/Medici%C3%B3n/Programas-de-Calculo.aspx</u>

The *Gini Index* measures the extent to which the distribution of income among individuals within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 1 implies perfect inequality. Despite its generalized use in inequality studies, the Gini coefficient is neither the unique nor the most self-explanatory measure. The *income ratios*, instead, are a plainer description of the distribution of income. They represent the ratio of the mean income of a certain percentile of a population to another. For instance, if a population were divided into 100 groups, a 90/50 ratio would compare the mean income of the people in the 90 percentile to the 50th percentile. We also include the FGT(2), a index of the Foster-Greer-Throbecke family of poverty indexes which measures income inequality among the poor.⁶

Box 1

On the limits of harmonization and comparable poverty numbers

The adoption of a harmonized database and a common poverty line aim at making poverty numbers comparable across countries and over time. Using different income aggregates and different poverty lines would imply that individuals with similar standards of living may be considered poor in some country but would not be so in another; hence neither cross-country comparisons nor regional aggregates would make any sense.

However, despite considerable efforts, harmonization does not necessarily solve all the problems. The main reason is the different quality and extension of surveys. The fact that different surveys gather different data implies that some income sources are collected in some surveys but not in others. This implies that income aggregates do not measure the same in every country. Even if a common income aggregate is devised using only the subset of income sources that is available from every survey, it may happen that some variables are not collected some years, then making the aggregates not comparable over time. For example, in our study this is the case of Costa Rica whose survey for 2009 failed to include the usual question about income from transfers, making the aggregate for that year not strictly comparable to the survey from other years.

Even in the case of identical surveys, comparable poverty estimates are difficult to obtain. Two additional hurdles have to be dealt with. First, the reference period. In some cases, surveys capture incomes from the previous month, or the previous quarter or even the previous year. This elicits the problem of survey comparability mentioned in the previous paragraph, but it also brings about the issue of whether the data capture the economic forces under study. If the survey collects incomes from last month but the crisis ended six or twelve months ago, the survey will fail to register the impact of the crisis.

The second hurdle is the definition of the unit of observation and the use, or not, of adult equivalence scales. The adoption of no adult equivalence scale may have little impact on poverty estimates for countries with low fertility rates, but may have a significant impact for countries with a large children population. Furthermore, the same adult equivalence scale needs to be applied to every country, even though the consumption patterns of families with children relative to adult-only families may differ from one country to another. The same problem happens with the use of an international poverty line, even though it makes the standards of living comparable across countries, the poverty threshold that defines poverty may be too high or too low for a certain country given its general standard of living. In these cases, making the estimates comparable across countries may produce estimates that are unrepresentative at the national level.

⁶ For the formula of the Gini and the FGT(2) indexes see Sen and Foster (1997) or Cowell (2011).

We illustrate these dilemmas with the case of Mexico's ENIGH. Graph A includes the cumulative distribution of income and moderate and poverty rates under different methods for year 2010. Using an international poverty line of US\$ 4.0 per day (which at purchasing power parity equals MX \$ 1074.12 per person and per month) moderate poverty reaches 22.4 percent of the urban population if no adult equivalence is adopted and the average income of the last six months is used as an income aggregate. The adoption of adult equivalence scales, which in Mexico makes individuals aged less than 18 represent around 70 percent of individuals aged 19 and more, makes the urban poverty rate to fall, using the same poverty line and the same income aggregate, to 17.4 percent. If income from the last month only is considered (that is incomes around August 2010, rather than the average around the period March-August 2010), then moderate poverty in urban areas falls to 16.0 percent. In other words, using the same poverty line, assumptions about equivalence scales and income aggregates make a difference of more than 6 percentage points in poverty estimates. The differences are less pronounced in the case of extreme poverty (US\$ 2.5 per day, which equals MX\$ 671.33 per month) because much less people lives with so little.



In order to make estimates of poverty rates in Mexico comparable to our estimates of poverty rates in other countries of the region, we adopt international poverty lines at US\$ 2.5 and 4.0 instead of the official poverty lines; and income per head estimates instead of the official adult equivalence scales. However, we adopt the official six-month income average in Mexico, instead of a last-month estimate used for the other countries, in order to capture some of the effects of the 2009 crisis. Graph B illustrates the implications of these assumptions as compared to the official poverty rates by CONEVAL. Official poverty estimates for urban Mexico show an increase in monetary extreme poverty (labeled Bienestar básico by CONEVAL) from 11.9 to 14.7 percent between 2008 and 2010. Our estimates show an increase in extreme poverty from 7.9 to 9.2. The difference is due to the use of different poverty liens and different adult equivalence scales.

These results show that methodological options may induce important differences in poverty levels and trends. For every country in this study, we choose a) international poverty lines, b) no adult equivalence scales and c) income aggregates as close to the crisis as possible. These are intended to make poverty rates comparable across countries and over time, and do not mean to belittle or criticize official or other estimates.



3. How much did poverty change during the crisis?

The international crisis of 2009 affected Latin American countries in an important manner. According to World Bank estimates, global GDP declined 2.2 percent in 2009.⁷ The impact of the crisis ranged from a GDP decline of 6.05 percent for countries in Eastern Europe and Central Asia and a fall of 3.91 percent for OECD members, the two regions most affected, to an expansion of 7.43 in South Asia and of 7.46 in East Asia and the Pacific, the two regions least affected. Latin America had an average GDP decline of 1.54 percent, very close to the global average.

The Latin American average hides very important differences across countries. Some countries experienced severe recessions, like Mexico (-6.0%), Paraguay (-4.9%) and Venezuela (-3.2%); while others sustained positive growth, like Colombia (+1.7%), Bolivia (+3.45%) and Panama (+3.85%). The dispersion is even wider among Caribbean countries ranging from -11.9 percent in Antigua and Barbuda to +5.9 percent in Dominica. This dispersion should not be interpreted as if some

⁷ World Bank (2012).

countries in the region, because having positive growth, eschewed the crisis altogether. Every country in the region, with the exception of Haiti and Guyana, had a slower growth in 2009 than in 2008. Even more, every country, with the same exceptions, had a slower growth in 2009 than the average growth of the period 2003-2008. The deceleration due to the crises meant a hiatus for the rapid growth decade experienced by the region.

The difference between an actual recession (i.e. negative GDP growth) and a deceleration of growth is key for understanding the poverty impact of the 2009 crisis. For the subset of countries for which poverty estimates in 2009 are available, moderate poverty increased only in those where GDP/head declined: that is Costa Rica, Ecuador, El Salvador, Mexico and Venezuela. All countries with positive GDP/head growth had a decline in poverty. Interestingly, some countries with negative growth also had a decline in poverty (i.e., Brazil, Honduras, Peru and Paraguay). No country had positive growth and poverty increases. See Figure 1.



Source: own calculations using SEDLAC and World Bank's World Development Indicators

Looking only at actual changes in poverty during the crisis may fail to ascertain the full impact of it. Had the crisis not occurred growth would have been higher in every country and, assuming that poverty declines with economic growth, poverty would have been lower than it is. Particularly, among those countries that experienced a decline in poverty due to some growth in 2009, faster growth would have involved an even larger decline in poverty. The difference between the poverty change that actually occurred and the poverty change that would have taken place is a measure of the actual impact of the crisis. An illustration of this idea is shown in Figure 2. The horizontal axis represents the difference in GDP/head growth rates between years 2009 and 2008. That is the deceleration of economic growth mentioned in previous paragraphs. The vertical axis stands for the difference between the poverty change in 2009 and the poverty change in 2008. That is how much

could poverty have declined (assuming 2008 poverty-growth relationship) as compared to how much it actually declined in 2009.

Figure 2 shows several facts. First, as mentioned before, every country in the region had a deceleration of GDP/head growth. Second, countries scatter a downward slope: the fastest the deceleration, the largest the excess poverty. The figure illustrates the following idea: the fastest the deceleration, the largest the poverty impact. With the exception of El Salvador and the Dominican Republic, most countries in the sample suffered a poverty impact between 1 and 3 percentage points. The case of Peru is illustrative. Peru actually had a moderate poverty decline of a little more than 1 percentage point between 2008 and 2009. However, the strong deceleration in GDP/head growth (nearly 9 percentage points) implied an impact of 2.6 percentage points. Namely, Peru's poverty declined in 1.2 percentage points in 2009, but had the crisis not occurred, and 2008 growth rate repeated, poverty would have declined 3.8 percentage points. In other words, according to this admittedly simple exercise, Peru's poverty impact of the crisis was 2.6 percent: 2.6 percent of the population would have escaped poverty but didn't.



Source: own calculations using SEDLAC and World Bank's World Development Indicators

This exercise is just a raw illustration of the need to build a counterfactual to understand the full impact of the crisis. It highlights the difference between what actually occurred (what is sometimes known as a naïve impact estimate) and what would have occurred instead (a counterfactual-based impact estimate). The previous exercise assumes that the link between poverty and GDP/head growth in 2008 is the regular link between these two variables. It also assumes that GDP/head growth in 2008 can be repeated in 2009, or that it is the usual GDP growth that ought to be expected. These assumptions can be substituted with more robust exercises based on different types of data and methods.

A usual tool for estimating the link between economic growth as measured by GDP and poverty changes is the growth-elasticity of poverty. The growth-elasticity of poverty is a measure of the change in poverty associated to a change in GDP growth. This has been a recurrent topic of research among those interested in identifying the impact of economic growth on poverty reduction.⁸ A canonical model for this relationship is the following:

$\Delta P = \alpha + \beta \Delta Y$

where ΔP stands for the change in poverty (usually the headcount, either moderate or extreme, but other measures such as poverty gaps could be also considered) and ΔY stands for changes in economic growth, normally measured by GDP/head growth. The coefficient β is an estimate of the growth-elasticity of poverty. This very simple model has been extended to include controls for inequality, level of development and recession vs. expansion years. These controls aim at assessing hypotheses stating that i) higher levels of inequality prevent economic growth to elicit more poverty reduction; ii) at higher levels of development, and lower poverty rates, growth brings slower poverty reductions and iii) the impact of economic growth on poverty differs between recessions and expansions.

Using a dataset of annual changes on poverty headcount, GDP/head and inequality for every country in the region with available data in the period 1989-2008, we estimate a general model as the following⁹:

$\Delta P = \alpha + \beta \Delta Y + \gamma \Delta G + \delta R + \varepsilon R * \Delta Y + \theta R * \Delta G + C\mu$

where ΔG stands for the change in inequality (measured by the Gini coefficient) and R stands for a categorical variable designating years with negative economic growth, C is a vector of categorical variables for each country in the sample. Table 2 summarizes the results of several experiments using different versions of this specification and several datasets. Columns 1 to 5 show the results of Ordinary Least Squares estimates using yearly GDP/head growth while columns 6 to 10 show the same specifications but using yearly growth of mean income as reported in the survey.¹⁰.

⁸ See Bourguignon (2003), Adams (2004) or for a forecasting exercise using elasticities see also Ravallion (2013).

⁹ We use SEDLAC's estimates of moderate poverty headcounts, gini coefficients and mean income per household member (see <u>http://sedlac.econo.unlp.edu.ar/eng/</u>). The dataset is an unbalanced panel of 17 countries over a 30 year period. The countries included are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. The number of observations ranges from 25 observations In Brazil, 20 in Costa Rica or 17 in Argentina, to 6 in Ecuador, 4 in Colombia or 2 in Nicaragua. Every poverty or inequality data point refers to the average change between two consecutive data points within the period 1989-2008, for these variables, as long as they are not more than five years apart. Changes in Real/GDP and mean income from survey's observations correspond to the geometric rate of growth between the two years that correspond to the available poverty/inequality data points.

¹⁰ Results using extreme poverty as dependent variable are qualitatively similar. These are available from the authors upon request. Every poverty or inequality datapoint refers to the average change correspond to the average change in poverty between two consecutive data points within the period 1989-2008, for these variables, as long as they are not more than five years apart. Real/GDP and mean income from survey's observations correspond to the geometric rate of growth between the two years that correspond to the available poverty/inequality data points.

explained variable	changes in Moderate poverty (in percentage points) 1 2 3 4 5 6 7 8 9 10												
	1	2	3	4	5	6	7	8	9	10			
real GDP/head growth (in percentage points)	-0.683 ***	-0.627 ***	-0.624 ***	-0.548 ***	-0.733 ***								
	0.057	0.098	0.059	0.099	0.125								
surveys' mean income (in percentage points)						-0.385 ***	-0.310 ***	-0.368 ***	-0.300 ***	-0.390 ***			
						0.024	0.050	0.021	0.042	0.050			
real GDP/head growth * recession years		-0.146		-0.159									
		0.192		0.191									
surveys' mean income/head growth * recession years							-0.183 ***		-0.142 **				
							0.077		0.066				
change in Gini (in Gini points)			0.495 ***	0.517 ***				0.811 ***	0.615 ***				
			0.153	0.168				0.111	0.173				
change in Gini * recession years				-0.153					0.306				
				0.420					0.224				
recession years		0.037		0.321			-0.214		0.078				
		0.851		0.886			0.601		0.513				
constant	0.961 ***	0.724	0.876 ***	0.545	1.940 **	0.111	-0.342	0.132	-0.333	1.003 *			
	0.261	0.455	0.265	0.457	0.802	0.187	0.384	0.161	0.327	0.561			
Country dummies	No	No	No	No	Yes	No	No	No	No	Yes			
Number of observations	184	184	173	173	184	143	137	137	137	143			
R-squared (adjusted)	0.437	0.432	0.462	0.456	0.450	0.641	0.736	0.736	0.744	0.642			

Table 2: Linear regressions of moderate poverty changes on changes in growth and inequality

Source: Own calculations using SEDLAC's poverty, inequality and mean income estimates and World Development indicators.

Note: Inter-annual poverty or inequality changes correspond to the average change in poverty between two consecutive data points within the period 1989-2008, for these variables, as long as they are not more than five years apart. Real/GDP and mean income from survey's observations correspond to the geometric rate of growth between the two years that correspond to the available poverty/inequality data points.

The main conclusion from these is the confirmation of the usual finding in the literature. Namely, holding other factors constant, positive economic growth is associated with a decline in poverty while an increase in inequality is associated with an increase in poverty. This result is statistically significant in all the specifications. Interestingly, no country categorical variable was statistically significant at less than 5 percent, which indicates that there are no country specific poverty-growth or poverty-inequality relationships in this sample.¹¹

Interestingly, when using GDP/head as an indicator of economic growth, there seems to be no change in the association between economic growth and poverty during recessions as compared to periods of expansion. Results in columns 1 to 5 of Table 2 indicate that an annual increase of one percentage point of GDP/head is associated with a decline of around 0.6 percentage points in moderate poverty headcount. However, when using mean average income as computed from the surveys, columns 7 and 9 indicate that a one percentage point of mean income growth brings about a reduction of 0.30 percentage points in moderate poverty whereas a fall of one percentage point would induce an increase of around 0.45 percentage points. Moreover, regressions using mean income from surveys explain a repeatedly higher percentage of the variance in poverty changes than regressions using GDP/head.

Given that poverty estimates are usually produced using survey data, the mean income per household member is a closer measure of economic growth as experienced by households, particularly among those in the lower end of the income distribution, and hence it provides a better look at poverty-growth elasticities. GDP/head, however, has the advantage of being useful for forecasts and ex-ante policy making.¹²

If we adopt the models of column 3 and 9 in Table 2 as appropriate for forecasting, we can use the models to interpret the impact of the 2009 crisis. A first interpretation of the results of these simulations is that poverty changes actually observed, for most countries in the sample, are within what would have been forecasted with a 95% statistical confidence. This means that poverty changes were not unusual given the trends observed in the region during recent years (see Figure 3).

Figure 3 is a replication of previous Figure 1 but with the regression lines and confidence intervals of models shown in columns 3 (left panel) and 9 (right panel). The dots represent the actual poverty and economic growth changes actually observed in the countries in 2009. The red line represents the expected poverty change that would have been predicted by the models, and the dotted lines represent the 95% confidence intervals of these predicted values. Interestingly, both models have the same few countries outside what would have been predicted: Colombia, Brazil, the Dominican Republic, Honduras and Paraguay, are slightly off the lower bound of fitted poverty changes.

¹¹ Interactions between country categorical variables and growth (inequality) measures were also included. In this case no interaction had statistical significance below 10 percent.

¹² Differences in trends and levels between GDP/head and other macroeconomic indicators of welfare as compared to mean incomes as reported by individuals in household surveys are a common finding in the literature. This is indicative of the differences in calculations, methods and purpose that these two indicators. For a recent discussion of this topic see Ravallion (2011)



Source: own calculations using SEDLAC's harmonized survey data and forecasts based on column 3 (left panel) and 9 (right panel) of Table 3

A second interpretation consists in forecasting poverty changes in 2009 had the crisis not occurred and usual economic growth had taken place instead. A comparison of these forecasts with the actual poverty rates of 2009 provides an estimate of the poverty impact of the 2009 crisis. Again, it would be a counterfactual-based estimate of the simulated impact, rather than a naïve before-and-after poverty rates difference. The counterfactual in this case is the moderate poverty change predicted by the model in column 9 of Table 3 assuming growth in 2009 would have been equal to the average GDP/head growth between 2003-2008, and inequality remained constant at the 2008 level.

Table 3 summarizes the results of these counterfactual simulations. Column 1 shows the rate of growth in GDP/head for 2009; Column 2 shows actual change in moderate poverty rates in years 2008 and 2009; column 3 the average GDP/head growth for 2003-2008, and column 4 the fitted poverty rates from the model in column 9 of Table 3.¹³ Finally the last column 5 (which equals column 2 minus column 6) shows the estimate of the impact of the crisis (that is the difference between the observed change of moderate poverty rates in 2008 minus the forecast change poverty rate in 2009).

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Table 3						
	!	actual change in		forecast change		
		moderate	average	in moderate		
	actual	poverty for 2009	GDP/head	poverty for 2009	estimated impact of the	
	GDP/head	(in percentage	growth 2003-	(in percentage	crisis on moderate poverty	
Country	growth in 2009	points)	2008	points)	(in percentage points)	
	1	2	3	4	(2-6)	
Argentina	0.0%	-0.9	7.5%	-2.6	1.7	
Brazil	-1.2%	-1.6	3.7%	-1.4	-0.2	
Chile ⁽¹⁾	-2.0%	-1.3	3.8%	-1.5	0.2	
Colombia	0.2%	-2.3	3.9%	-1.5	-0.8	
Costa Rica	-2.5%	0.7	4.2%	-1.6	2.3	
Dominican Republic	2.1%	-3.2	5.5%	-2.0	-1.2	
Ecuador	-1.1%	0.5	4.1%	-1.5	2.0	
El Salvador	-3.6%	0.6	2.5%	-1.1	1.7	
Honduras	-4.1%	-0.7	3.8%	-1.5	0.8	
Mexico ⁽²⁾	-7.1%	1.3	2.1%	-1.0	2.3	
Panama	2.2%	-2.4	7.2%	-2.5	0.1	
Paraguay	-5.2%	-1.4	3.6%	-1.4	0.0	
Peru	-0.2%	-1.2	6.5%	-2.3	1.1	
Uruguay	2.1%	-2.0	5.9%	-2.1	0.1	

Source: own calculations using SEDLAC's harmonized survey data and forecasts based on column 9 of Table 3 Notes: (1) Data for Chile corresponds to annualized rates for the period 2006-2009 (2) Data for Mexico corresponds to annualized rates for the period 2008-2010.

¹³ We choose this model because it explains a larger share of the variance in the data and produces narrower confidence intervals for the forecasts. By applying a GDP/head average as a measure of income growth we assume that this average is a good ex-ante approximation of the change in mean household incomes from the surveys.

This exercise suggests that the impact of the 2009 crisis was very heterogeneous. Some countries, like Mexico, Costa Rica and Ecuador, had impacts above 2.0 percentage points. Many countries had an impact between 0.5 and 2.0 percentage points (Argentina, El Salvador, Honduras and Peru), while others an impact below 0.5 percentage points (Brazil, Chile, Panama, and Uruguay. Some countries, according to this exercise, even had a faster poverty reduction during 2009 than what would be predicted (Brazil, Colombia and the Dominican Republic). For the region, the actual decline in moderate poverty of -0.9 percentage points (an unweighted average for the countries in the sample) hides a positive impact of 0.8 percentage points.

In population terms, moderate poverty for selected countries declined in 2.4 million people. Our simulation exercise, however, would have predicted a decline in numbers of the moderate poor of 5.7 million. This means that the crisis kept in moderate poverty around 3.3 million people. That is an estimate of the impact of the crisis.

			forecast				forecast		
	poverty	poverty	poverty	number of poor	number of		number of	forecast	
	in 2008	in 2009	in 2009	in 2008	poor in 2009	actual change	poor in2009	change	excess poor
	(%)	(%)	(%)	(in millions)	(in millions)	(in millions)	(in millions)	(in millions)	(in millions)
Argentina	17.3	16.4	14.7	6.87	6.57	-0.30	5.90	-0.97	0.67
Brazil	29.2	27.6	27.8	55.93	53.34	-2.59	53.64	-2.29	-0.30
Chile*	13.1	11.8	11.6	2.20	2.00	-0.20	1.97	-0.23	0.03
Colombia	44.9	42.6	43.4	20.21	19.45	-0.76	19.82	-0.39	-0.37
Costa Rica	18.9	19.6	17.3	0.85	0.90	0.05	0.80	-0.06	0.10
Dominican Republic	37.9	34.7	35.9	3.66	3.40	-0.26	3.52	-0.14	-0.12
Ecuador	37.1	37.6	35.6	5.22	5.36	0.15	5.07	-0.15	0.29
El Salvador	42.1	42.7	41.0	2.58	2.63	0.05	2.53	-0.05	0.10
Honduras	52.8	52.1	51.3	3.86	3.88	0.03	3.82	-0.03	0.06
Mexico *	27.5	28.8	26.5	30.42	32.27	1.84	29.74	-0.69	2.53
Panama	32.3	29.9	29.8	1.10	1.04	-0.07	1.03	-0.07	0.00
Paraguay	36.3	34.9	34.9	2.26	2.21	-0.05	2.21	-0.05	0.00
Peru	36.9	35.7	34.6	10.50	10.27	-0.23	9.96	-0.54	0.31
Uruguay	14.0	12.0	11.9	0.47	0.40	-0.07	0.40	-0.07	0.00
Total				146.1	143.7	-2.4	140.4	-5.7	3.3

Table 4: Moderate Poverty: actual and fitted values for 2009

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010.

Notes: (*) Poverty in Chile between 2008 and 2009 is derived from the average annual change from 2006 and 2009 surveys. Poverty in Mexico between 2008 and 2009 is derived from the average annual change from 2008-2010 surveys.

It is worth highlighting the contrasting results of the two largest countries of the region. Brazil had less people in moderate poverty than would have been predicted in our model (300 thousand). Mexico, on the contrary, had 2.5 million excess poverty: the sum of the actual increase in moderate poverty (1.9 million) and the forecast reductions that would have occurred had average economic growth taken place instead (600 thousand). In the Latin America region, most of the new poor or still poor because of the 2009 crisis are Mexican.

3.1. How much poverty there is and among whom

Counterfactual simulations provide a measure of the impact of the crisis. However, counterfactuals are based on hypotheses and assumptions that may always be subject to controversy. Moreover, the use of aggregate data and average trends, somehow fails to provide a fine-print description of the characteristics of poor during the crisis. Before-and-after estimates provide such a description of the poor during the 2009 crisis.

The average (non-weighted) moderate poverty headcount observed for the selected countries in the region moved from 29.9 to 28.8 between 2008 and 2009, with an overall decrease of 1.1 percentage points (see Table 5 to Table 7).¹⁴ The regional averages hide important variations across countries. In 2009, Argentina, Chile and Uruguay had the lowest incidence (below 20 percent), but Colombia and El Salvador top out at rates above 40 percent. Trends in moderate poverty rates also differ by country. Of the selected countries, nine had a reduced moderate poverty overall whereas four saw an increase in moderate poverty (i.e., Costa Rica, Ecuador, El Salvador and Mexico).

The previous figures refer to national aggregates and non-weighted regional averages of national aggregates. These national aggregates, however, may hide important differences in the incidence of poverty among different population groups. Table 5 and Table 6 also include the poverty rates for six categories of groups of individuals. The first category classifies individuals according to the area they live in: urban or rural. The second category classifies individuals by the gender of the head of the household. The third category organizes individuals by the education of the household head, where unskilled heads are those with less than complete primary education. The fourth category refers to the employment status of the household head and classifies family members depending on whether the household-head is employed in the formal sector, employed in the informal sector or not employed at all.¹⁵ The fifth category distributes individuals by family group depending on weather the family receives income other than labor earnings. Finally, the sixth category groups individuals depending on whether the family receives some public sector transfers or subsidies.

¹⁴ This average includes Chile and Mexico, whose data span more than one year. A simple average of the remaining 10 countries would render moderate poverty rates of 31.5 and 30.4, respectively, for a decrease of 1.1 percentage points between 2008 and 2009.

¹⁵ Workers are defined as informal if it has no access to social security or a formal labor contract.

1	~	-										
	Argentina	Brazil	Chile*	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
National	17.3	29.2	15.8	44.9	18.9	37.9	37.1	42.1	27.5	37.1	36.9	13.9
By Area												
Urban	17.3	25.4	14.9	37.1	13.6	33.2	27.2	32.1	19.9	26.1	18.9	14.2
Rural	n/a	48.8	22.6	68.7	26.0	47.5	56.6	60.3	52.8	52.5	69.9	10.7
By Sex of Household Head												
Male	15.4	28.5	14.5	44.4	17.6	36.6	37.2	42.3	28.1	38.4	37.1	12.5
Female	22.1	30.8	19.5	46.1	22.7	41.2	36.7	41.5	25.5	30.7	37.1	17.2
By Education of Household Head												
Unskilled	30.5	39.2	24.4	65.3	34.5	48.8	54.0	52.3	42.3	58.0	54.5	21.6
Skilled	15.5	17.6	13.0	35.4	14.2	26.6	31.0	24.0	20.7	29.2	26.8	12.5
By Employment of Household Head												
Formal employed	6.0	18.2	12.4	16.6	9.7	27.1	14.2	18.3	6.3	10.8	9.4	9.6
Informal employed	30.2	49.1	31.3	59.7	26.2	42.3	46.3	52.7	34.6	37.9	34.5	31.4
Inactive/unemployed	22.5	32.8	23.2	48.3	29.4	46.2	39.6	46.8	30.3	22.3	41.1	13.2
By Sources of Household Income											_	
Some other income	22.5	23.4	19.0	46.2	n.a.	41.6	46.5	41.5	28.1	37.4	35.6	17.0
Only labor income	13.1	32.5	10.9	44.1		33.8	27.7	42.4	26.0	36.8	37.9	3.1
By Sources of Household Income												
No public transfers	12.4	28.9	10.7	42.2	n.a.	33.3	27.3	41.5	19.6	35.4	38.2	2.4
Some public transfers	35.7	43.0	22.4	53.3		42.5	49.6	43.0	44.1	39.6	35.1	21.6

Table 5: Profile of Moderate poverty rates, 2008

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

Table 6: Profile of Moderate poverty rates, 2009

	Argentina	Brazil	Chile*	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
National	16.4	27.6	11.8	42.6	19.6	34.7	37.6	42.7	30.1	34.9	35.7	12.0
By Area												
Urban	16.4	24.1	11.2	34.9	15.2	31.3	29.6	29.9	22.4	21.0	17.8	12.0
Rural	n/a	46.1	16.1	66.6	25.7	41.8	53.2	64.4	55.6	54.6	67.4	11.7
By Sex of Household Head												
Male	15.0	26.7	9.8	42.1	18.5	33.1	37.7	43.9	31.3	37.1	34.7	11.1
Female	19.8	29.7	16.6	44.0	22.6	38.4	37.2	40.1	25.3	29.7	35.3	13.9
By Education of Household Head												
Unskilled	30.1	37.1	18.2	62.9	33.9	44.5	51.5	53.0	46.7	54.9	53.8	17.4
Skilled	14.6	17.1	9.9	33.1	15.6	24.3	32.3	24.3	23.6	28.7	25.1	11.0
By Employment of Household Head					0 F							
Formal employed	5.5	16.4	6.7	14.0	9.5	25.3	15.0	15.4	7.7	10.9	4.9	8.2
Informal employed	30.1	47.6	19.3	55.2	28.3	37.9	42.6	54.0	38.3	38.0	32.1	28.0
Inactive/unemployed	20.2	31.8	20.6	45.7	31.0	41.2	39.0	48.1	31.5	20.8	38.8	10.9
By Sources of Household Income	21.0	22.6	140	46.1		27.1	46.2	45.2	21.2	25.0	25.5	140
Some other income	21.0	22.6	14.6	46.1	n.a.	37.1	46.2	45.3	31.2	35.9	35.5	14.9
Unly labor income	12.4	30.5	5.8	40.4		31.5	27.8	40.8	27.1	34.3	35.9	2.6
By Sources of Household Income	110	27.2	7.2	20.2		20.0	27.1	40 F	21.4	22 5	26.2	2.0
No public transfers	22.0	27.3	157	38.3	n.a.	30.0	27.1	42.5	21.4	32.5	30.2	2.0
some public transfers	33.8	41.1	15./	53.4		38.0	49.8	42.9	48.9	39.9	35.1	19.3

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010 In terms of the urban-rural divide, the stylized fact is that moderate poverty remains much higher in rural than urban areas (with the exception of Uruguay, where they are almost equal) and that rural poverty has declined faster than urban poverty in some countries but not in others (see Table 7 for poverty changes). The faster trend of moderate poverty reduction in rural areas holds except for El Salvador, Paraguay and Uruguay where rural poverty increased while urban poverty declined, and in Mexico where rural poverty rose faster than urban poverty.

When disaggregating poverty by sex of the head of household, female-headed households tend to have higher moderate poverty rates than male-headed households, with the exception of El Salvador, Mexico and Paraguay. In several countries women's moderate poverty rates have declined faster, or increased slower, than men's. In all other countries the opposite has been true. This indicates that no systematic pattern regarding household head gender is found during this crisis.

Table 7. Changes Moderate pover												
	Argentina	Brazil	Chile *	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
National	-0.9	-1.6	-4.0	-2.2	0.7	-3.2	0.5	0.6	2.6	-2.2	-1.2	-2.0
By Area												
Urban	-0.9	-1.3	-3.7	-2.2	1.7	-2.0	2.4	-2.2	2.5	-5.1	-1.1	-2.2
Rural	n/a	-2.7	-6.4	-2.1	-0.3	-5.7	-3.4	4.0	2.8	2.1	-2.5	1.0
By Sex of Household Head												
Male	-0.4	-1.8	-4.7	-2.3	0.8	-3.5	0.5	1.6	3.2	-1.3	-2.3	-1.4
Female	-2.3	-1.1	-2.9	-2.2	-0.1	-2.7	0.5	-1.4	-0.2	-1.0	-1.8	-3.3
By Education of Household Head												
Unskilled	-0.4	-2.1	-6.2	-2.4	-0.6	-4.3	-2.6	0.8	4.5	-3.1	-0.7	-4.2
Skilled	-0.9	-0.5	-3.2	-2.2	1.4	-2.2	1.4	0.3	3.0	-0.5	-1.7	-1.5
By Employment of Household Head												
Formal employed	-0.5	-1.9	-5.8	-2.6	-0.1	-1.8	0.7	-2.9	1.4	0.0	-4.5	-1.4
Informal employed	-0.1	-1.6	-12.0	-4.5	2.1	-4.3	-3.7	1.3	3.8	0.1	-2.4	-3.4
Inactive/unemployed	-2.3	-1.0	-2.6	-2.6	1.6	-5.0	-0.6	1.3	1.2	-1.5	-2.3	-2.3
By Sources of Household Income												
Some other income	-1.5	-0.7	-4.4	-0.1	n.a.	-4.5	-0.3	3.8	3.2	-1.5	-0.1	-2.1
Only labor income	-0.7	-2.0	-5.1	-3.7		-2.3	0.1	-1.6	1.1	-2.5	-2.0	-0.5
By Sources of Household Income												
No public transfers	-0.8	-1.6	-3.6	-3.9	n.a.	-2.6	-0.2	1.0	1.8	-2.8	-2.0	-0.4
Some public transfers	-1.8	-1.9	-6.7	0.1		-4.5	0.2	-0.2	4.8	0.3	0.0	-2.3

Table 7: Changes Moderate poverty 2008-2009

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

In the case of poverty profiles by schooling of household heads, members of families whose household heads completed at least primary school (skilled), consistently have lower moderate poverty rates than those who did not finish primary school (unskilled). In most cases, poverty declined faster among the unskilled than the skilled. Some countries with an increase in national poverty show that those with skilled household heads show a higher increase in poverty than others. This is the case of Costa Rica, Ecuador, but not of Mexico and El Salvador. Again, no systematic pattern can be discerned across countries regarding changes in poverty rates by education of the household heads.

In the case of employment status, moderate poverty is always the lowest among those who live in households whose head is employed in the formal sector. This difference is stark: in most countries moderate poverty rates for this group are half or even less than half the moderate poverty rates of those with household heads working in the informal sector or heads who are jobless (i.e., unemployed/inactive). There is no regular pattern in moderate poverty dynamics by head's employment status, however. This indicates that while formal employment is associated to lower poverty rates, it is not necessarily associated with faster (or slower) poverty changes.

Moderate poverty profiles that characterize households by sources of income show that households with only labor incomes generally have lower moderate poverty rates than households with other sources of income. Sources of income other than labor range from pensions, to rents, dividends, remittances or public sectors transfers from social programs. Different surveys have different ways of capturing these non-labor sources of income and, therefore, this decomposition may be indicating differences in survey design rather than actual sources of income. Concentrating on public sector transfers, which all surveys capture in some way, the profile shows that moderate poverty is higher among households that receive public transfers.¹⁶ The exceptions to this is Peru, where rates are very similar between the two groups. Over time changes in poverty observed across all these groups show no regular pattern. These profiles indicate that public transfers are more common among households living in poverty, but those households do not necessarily have faster or slower poverty changes than other households.

In summary, moderate poverty profiles show that poverty is regularly higher in rural areas, and among households whose head is female or unskilled or not employed in the formal sector. Households with access to public transfers, also show higher poverty rates. However, poverty changes show very few stylized facts for the period under consideration. No regular pattern in poverty changes, however, is observed among the other categories.

Box 2

Poverty numbers in other countries

The description of poverty trends and profiles in this section makes use of available micro-data from a subset of countries in the region that produce regular surveys for measuring poverty. Other countries were not included in this subset for several reasons. In some cases, countries produce annual household surveys, like Bolivia and Venezuela, but micro-data were not available to us at the moment of producing this report. In others, too wide a period elapses between surveys to be useful for analyzing the impact of the 2009 crisis. This is the case of Guatemala whose "Encuesta de Condiciones de Vida" took place in 2006 and 2011, or Nicaragua's "Encuesta Nacional de Hogares sobre Medición de Nivel de Vida" in 2005 and 2009. Jamaica produces an annual Jamaica Survey of Living Conditions, but uses a consumption aggregate, rather than an income aggregate, to measure poverty. In the case of Panama, the "Encuesta de Hogares" was surveyed in 2009 and 2010, but not in 2008.

In some of these cases, we can report official poverty numbers, based on official methodologies, for the most recent years

¹⁶ The Costa Rican 2009 survey does not provide information about public transfers so no profile by this characteristic is discussed here.

for which data are available. Interestingly, all these countries show a decline in extreme poverty. Only Guatemala, Jamaica and Venezuela report an increase in moderate poverty. The following table summarizes these official estimates.

		Official Poverty	Headcount
		(as a percenta	ge of total
	-	populati	ion)
	-	Extreme	Moderate
Bolivia	2008	30.1	57.3
	2009	26.1	51.3
Jamaica	2008		16.5
	2009		17.6
Guatemala	2006	15.2	51.0
	2011	13.3	53.7
Honduras	2008	44.1	65.7
	2009	42.4	64.5
Nicaragua	2005	17.2	48.3
	2009	14.6	42.5
Panama	2009		
	2010		
Venezuela	2008	9.2	31.8
	2008	8.8	32.5

More serious is the case of many Caribbean countries which have no recent surveys. For instance, the latest Bahamas Living Conditions Survey took place in 2001. No reporting or analyses of poverty trends can be done in these circumstances, despite these countries being among those who endured wider swings in economic growth due to the 2009 crisis.

Source: SEDLAC, Socio Economic Database for Latin America and the Caribbean (http://sedlac.econo.unlp.edu.ar/eng/index.php)

Does Extreme poverty show different patterns than moderate poverty?

The average (non-weighted) extreme poverty in the region moved from 16.6 to 16.3, an overall decline of 0.3 percentage points, half of what was seen regarding moderate poverty.¹⁷ In other words, extreme poverty shows a much slower decline than moderate poverty for the period under study. Again, Argentina, Chile and Uruguay show the lowest extreme poverty rates (all below 10 percent) while only Honduras shows extreme poverty rates above the 30 percent mark. Regarding poverty changes some interesting variations can be observed. Most countries show a decline in extreme poverty that mirrors their declines in moderate poverty. Costa Rica, El Salvador and Mexico show an increase in extreme poverty which follows their increases in moderate poverty. In most of

¹⁷ This average includes Chile and Mexico, whose data span more than one year. A simple average of the remaining 11 countries would render moderate poverty rates of 18.1 and 17.7, respectively, for a decrease of 0.4 percentage points between 2008 and 2009.

these cases changes in moderate poverty are of different magnitude than changes in extreme poverty. Moreover, Ecuador shows a decline in extreme poverty, in contrast to its increase in moderate poverty, whereas Paraguay shows an increase in extreme poverty, in contrast to its decline in moderate poverty. These different dynamics, namely changes of different magnitude and even different direction, imply the importance of distributive forces and changes in inequality to explain poverty changes. In other words, those at the bottom of the distribution (the extreme poor) may have endured income shocks of different magnitude than those in the middle of the distribution.

Most of the regularities found in the profiles of moderate poverty by groups are confirmed when looking at extreme poverty. Extreme poverty is higher in rural areas (except in Uruguay), in female headed households (except in Paraguay), in households that receive some public transfers (except in Honduras), in unskilled head households and in households with heads not working in the formal sector (see Table 8 and Table 9). As it was the case with moderate poverty profiles, extreme poverty changes by area, head's sex, employment, and households income sources show no regular patterns across countries. As it was the case with moderate poverty, it is also the case that households whose head is skilled have larger poverty increases, or lower decreases, than other households (see Table 10).

	Argentina	Brazil	Chile *	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
National	8.3	15.7	5.3	27.2	7.6	18.4	19.6	21.3	13.8	19.5	20.4	4.1
By Area												
Urban	8.3	12.7	4.9	20.5	5.3	14.9	12.6	13.1	8.0	10.7	6.5	4.2
Rural		30.8	7.7	48.0	10.7	25.7	33.2	36.4	33.1	31.9	45.9	2.2
By Sex of Household Head												
Male	7.1	14.8	4.4	26.2	6.5	17.2	19.2	22.2	14.2	21.6	20.2	3.3
Female	11.3	17.6	7.8	30.1	10.8	21.6	21.1	19.4	12.2	15.3	17.6	5.7
By Education of Household Head												_
Unskilled	14.7	22.1	9.1	44.2	15.3	25.4	31.3	27.8	23.6	35.5	31.3	7.0
Skilled	7.4	8.2	4.1	19.4	5.3	11.2	15.3	9.8	9.2	14.9	12.5	3.5
By Employment of Household Head						100					1.0	
Formal employed	1.4	5.6	2.4	4.5	2.2	10.2	4.3	4.3	1.3	2.2	1.2	1.7
Informal employed	14.0	27.7	12.7	33.2	8.3	19.7	21.0	25.8	17.8	14.9	14.2	9.9
Inactive/unemployed	12.7	21.1	10.2	33.7	16.1	26.5	22.9	25.7	15.8	10.8	19.7	4.2
By Sources of Household Income	445			04.0		04.4	25.4	20.0	440	100		F 0
Some other income	11.5	14.7	6.7	31.3	n.a.	21.1	25.6	20.8	14.2	18.3	20.9	5.0
Unly labor income	5.7	16.2	3.1	25.1		15.5	13.5	21.6	12.5	20.5	20.1	0.7
By Sources of Household Income		45.4	0.7	24.0		45.0	440		0.4	10.0	20.4	0.0
No public transfers	5.5	15.4	3./	24.8	n.a.	15.3	14.2	21.4	8.4	19.8	20.4	0.6
Some public transfers	18.7	26.5	7.3	34.7		21.6	26.4	21.2	25.0	19.0	20.5	6.3

Table 8: Profile of extreme poverty rates, 2008

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

	Argentina	Brazil	Chile*	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
National	8.1	15.1	4.3	24.8	8.1	16.4	19.4	23.1	15.1	20.6	20.0	3.4
By Area												
Urban	8.1	12.6	4.0	18.8	5.3	14.0	13.7	12.3	9.2	10.5	6.6	3.5
Rural		28.1	6.1	43.3	11.9	21.4	30.4	41.6	34.6	34.8	43.9	2.6
By Sex of Household Head												
Male	7.1	14.0	3.1	23.7	6.9	15.6	19.5	25.2	15.9	21.0	20.6	2.8
Female	10.5	17.3	7.0	27.4	11.0	18.3	18.8	18.9	11.9	15.8	20.5	4.9
By Education of Household Head												
Unskilled	15.8	21.1	6.8	40.3	15.8	22.1	27.4	29.8	22.0	33.9	34.2	5.0
Skilled	7.1	8.3	3.5	17.5	5.9	10.3	16.3	11.3	7.9	15.0	13.5	3.2
By Employment of Household Head												
Formal employed	1.6	4.6	0.9	2.8	1.8	8.6	3.5	3.7	0.9	2.5	0.3	1.5
Informal employed	15.4	26.8	5.0	28.0	11.0	16.7	18.0	26.0	15.6	16.8	11.8	9.0
Inactive/unemployed	11.4	21.4	10.5	31.1	17.0	22.0	22.2	28.7	13.4	10.5	23.9	3.9
By Sources of Household Income												
Some other income	11.1	14.9	5.5	29.5	n.a.	16.9	25.1	27.0	16.1	22.7	21.4	4.3
Only labor income	5.5	15.1	1.6	21.8		15.6	12.8	20.4	12.4	19.2	19.0	0.8
By Sources of Household Income												
No public transfers	5.4	14.9	3.2	21.5	n.a.	15.1	13.4	24.1	9.2	18.7	19.3	0.6
Some public transfers	17.8	24.4	5.2	32.8		17.5	26.3	21.1	27.7	24.5	21.0	5.6

Table 9: Profile of extreme poverty rates, 2009

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

Table 10: Changes in extreme poverty, 2008-2009

	Argentina	Brazil	Chile*	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
National	-0.2	-0.6	-1.0	-2.5	0.5	-2.0	-0.2	1.8	1.3	1.1	-0.4	-0.6
By Area												
Urban	-0.2	-0.2	-0.9	-1.7	0.0	-0.9	1.1	-0.8	1.2	-0.1	0.1	-0.7
Rural		-2.7	-1.6	-4.7	1.3	-4.3	-2.8	5.2	1.6	2.9	-2.0	0.4
By Sex of Household Head												
Male	0.0	-0.8	-1.2	-2.4	0.4	-1.6	0.3	3.0	1.7	-0.6	0.5	-0.5
Female	-0.8	-0.3	-0.8	-2.7	0.2	-3.3	-2.2	-0.5	-0.3	0.6	2.8	-0.8
By Education of Household Head												
Unskilled	1.1	-1.0	-2.2	-3.9	0.5	-3.3	-4.0	1.9	-1.6	-1.6	2.8	-2.0
Skilled	-0.3	0.1	-0.5	-1.9	0.7	-0.9	1.1	1.5	-1.3	0.1	1.0	-0.3
By Employment of Household Head												
Formal employed	0.2	-1.0	-1.5	-1.7	-0.4	-1.6	-0.8	-0.6	-0.4	0.2	-0.9	-0.2
Informal employed	1.4	-0.8	-7.6	-5.2	2.7	-2.9	-3.0	0.2	-2.2	1.8	-2.4	-0.9
Inactive/unemployed	-1.2	0.3	0.3	-2.6	0.9	-4.5	-0.7	2.9	-2.4	-0.3	4.2	-0.3
By Sources of Household Income												
Some other income	-0.4	0.2	-1.2	-1.8	n.a.	-4.1	-0.5	6.2	1.9	4.4	0.6	-0.7
Only labor income	-0.2	-1.1	-1.5	-3.2		0.2	-0.7	-1.3	-0.1	-1.2	-1.0	0.1
By Sources of Household Income												
No public transfers	-0.1	-0.6	-0.5	-3.3	n.a.	-0.2	-0.8	2.7	0.8	-1.2	-1.0	0.0
Some public transfers	-0.9	-2.1	-2.2	-2.0		-4.1	-0.1	0.0	2.7	5.4	0.6	-0.8

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

And what about the poverty gap?

Headcount poverty rates only measure the share of the poor within total population. Changes in headcounts are very sensible to changes across the poverty line even if these do not entail a significant change in incomes and wellbeing. They do not indicate what happens to the actual income levels of the poor, namely if the poor remain, or not, as poor as before. The poverty gap, by measuring the average distance to the poverty line, reveals if the poor are closer or farther away from the poverty line and thus if their situation has changed in terms of average standards of living.

The non-weighted average moderate poverty gap declined from 13.2 to 13.0 whereas the extreme poverty gap stayed at 6.8, implying only a decline of 0.2 percentage points in the former. Again Argentina, Chile and Uruguay have the lowest poverty gaps. Costa Rica joins this group characterized by moderate poverty gaps below 7 percent and extreme poverty gaps below 4 percent. Honduras remains the country with the highest poverty gaps. The country has a moderate poverty gaps above 25 percent and an extreme poverty gap above 15 percent. IN other words, poverty gaps indicate the same rankings than poverty headcounts.

The evolution of poverty gaps is closely consistent with the evolution of poverty rates as well. Costa Rica, El Salvador and Mexico show an increase in moderate and extreme poverty rates as well as an increase in both moderate and extreme poverty gaps. In Paraguay, both poverty gaps increased which is consistent with the increase in extreme poverty. In Ecuador the rise in both poverty gaps is consistent with the increase in moderate poverty. For all the remaining countries the decline in poverty gaps is consistent with the decline of moderate and extreme poverty.

Table II. Toverty gaps												
	Argentina	Brazil	Chile*	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Peru	Paraguay	Uruguay
In 2008												
Poverty Gap (4.0 usd-a-day poverty line)	6.8	12.8	4.8	21.6	6.8	14.0	15.4	16.6	11.1	15.5	15.0	3.8
Poverty Gap (2.5 usd-a-day poverty line)	3.3	7.0	1.7	12.6	3.1	5.5	7.6	7.4	5.4	7.5	7.2	0.9
In 2009												
Poverty Gap (4.0 usd-a-day poverty line)	6.6	12.4	3.9	19.6	7.2	12.6	15.5	18.8	12.2	15.0	15.6	3.3
Poverty Gap (2.5 usd-a-day poverty line)	3.2	6.9	1.6	10.9	3.6	4.8	7.6	10.1	6.0	7.1	8.3	0.7
Changes (2009-2008)												
Poverty Gap (4.0 usd-a-day poverty line)	-0.2	-0.4	-1.0	-2.0	0.4	-1.4	0.1	2.2	1.1	-0.5	0.6	-0.6
Poverty Gap (2.5 usd-a-day poverty line)	-0.1	0.0	-0.1	-1.7	0.5	-0.7	0.0	2.6	0.7	-0.4	1.1	-0.1

Table 11: Poverty gaps

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010.

Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

The evidence from poverty gaps indicates that reductions in poverty were accompanied by a narrowing of the distance between the average income of the poor and the poverty line. In countries were poverty increased, the poverty gaps did too so there is more people in poverty and the average income deficit also increased among the poor.

Given the similarity of patterns and trends between moderate and extreme poverty rates and poverty gaps in most countries, we concentrate further analyses on moderate poverty rates.¹⁸ In a few cases, however, we will bring to the fore data about extreme poverty or poverty gaps, when these provide additional insights to the analysis.

4. Decomposing changes in poverty

The previous section showed that poverty declined in the region, for most countries and for most population groups. This seems to indicate that among countries where poverty declined, this reduction was pervasive and few distinctive trends, by country or population group, are apparent. However, in countries where poverty increased (Costa Rica, Ecuador, El Salvador, Mexico and Paraguay) some divergent trends can be identified. For instance, in Costa Rica and in Ecuador the increase of moderate poverty is associated to an increase in poverty in urban areas, whereas in El Salvador it is due to an increase in poverty in rural areas and in Mexico both urban and rural areas show an increase. In the case of extreme poverty, however, every country experiencing an increase in poverty did so because an increase in rural poverty. Are there then specific forces that account poverty changes in different counties? Is it possible to identify the driving force behind changes in poverty?

The purpose of this section is to further analyze the observed poverty changes by applying decomposition techniques that separate and gauge the influence of demographic groups, income sources, and changes in economic growth and inequality. The main idea is to estimate how much of the poverty change observed at the national level can be ascribed to different forces. There are several methods for accounting how much of a total change in poverty can be allocated to different groups or factors.

This section of the study uses 3 types of decompositions, named after the authors who devised these methods (i.e., Datt-Ravallion, Huppi-Ravallion, Fournier and Paes de Barros), to identify the components of poverty changes observed. These decomposition methods do not prove causality, but do account for the size of different components and their contributions to changes in poverty. The Datt-Ravallion decomposition measures how much of the poverty change can be attributed to changes in income growth or in distribution of income (see Box). This decomposition shows how much poverty would have changed if inequality would have remained constant during the period under consideration (what is termed the growth effect) and how much if instead growth would have remained constant (what is called the redistribution effect). The Huppi-Ravallion decomposition separates the total change in poverty incidence into the change in poverty incidence of each population group, the change in the relative size of each population group and an interaction term (see Box). This decomposition allows to identify if aggregate poverty changes are due to the change

¹⁸ Further decomposition results for extreme poverty rates and poverty gaps are available from the authors upon request.

in poverty incidence of a group, the relative size of a group, or a mixture of all these. Finally, the Fournier decomposition separates poverty changes into changes attributable to labor earnings and changes attributable to non-labor incomes (see Box). Further refinements of this decomposition by income sources have been developed recently by Paes de Barros (2006) and we provide crucial results from these (see Box).

The application of all these methods is akin to comparing a political map with an orographic map or a road or an isobars map. All of them refer to the same territory but highlighting different aspects of it. What is shown in one of them is not seen in the others, but full knowledge of the territory demands reading them all.

4.1 Is it all due to economic growth?

The close link between economic growth and poverty reduction has been widely documented worldwide.¹⁹ The evidence for the selected countries of this study, presented earlier in this chapter, confirms the close link between economic growth and poverty changes. For the Latin American region there are several studies documenting the success in poverty reduction associated to sustained growth observed in the region during the last decade. These studies also highlight the importance of redistributive policies in explaining this decline in poverty.²⁰ It is then natural to start our analysis by trying to ascertain how much of the poverty changes observed during the crisis can be ascribed to either growth or inequality changes.

The Datt-Ravallion decomposition (see Table 12) shows that in the majority of countries, growth is the dominant factor explaining changes in both moderate and extreme poverty. In every country where poverty declined (Argentina, Brazil, Chile, Colombia, Dominican Republic, Honduras, Peru and Uruguay) growth was the predominant factor driving such decline. Similarly, in every country where poverty rose (Ecuador, El Salvador and Mexico), lack of growth was the predominant factor explaining such rise. The exceptions here are the cases of Costa Rica and Paraguay, where poverty increases have been mostly driven by redistribution forces.

¹⁹ For a thorough discussion about the links between economic growth and poverty see Ravallion (2011, 2004 and 2001)

²⁰ See World Bank (...) and Lustig and López-Calva (2010)

	Argentina	Brazil	Chile *	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
Moderate Poverty												
Growth	-0.7	-1.0	-3.2	-1.9	-2.2	-2.9	2.2	1.6	2.1	0.1	-1.2	-2.0
Redistribution	-0.2	-0.6	-0.8	-0.3	2.9	-0.2	-1.7	-1.0	0.5	-2.3	0.0	0.1
Total change 2009-2008	-0.9	-1.6	-4.0	-2.2	0.7	-3.2	0.5	0.6	2.6	-2.2	-1.2	-2.0
Extreme Poverty												
Growth	-0.3	-0.5	-1.0	-1.5	-1.0	-1.9	1.5	1.1	1.2	0.2	-0.9	-0.8
Redistribution	0.1	-0.2	0.0	-1.0	1.5	-0.2	-1.7	0.7	0.1	0.9	0.5	0.2
Total change 2009-2008	-0.2	-0.6	-1.0	-2.5	0.5	-2.0	-0.2	1.8	1.3	1.1	-0.4	-0.6

Table 12: Growth-redistribution decomposition (Datt-Ravallion) of moderate and extreme poverty, 2009-2008

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

Often the redistribution effect goes in a different direction than the growth effect. In half the countries considered in this study, the redistribution effect partly compensates the growth effect and in the other half it intensifies the growth effect. In the case of Costa Rica, growing inequality more than compensates positive growth and creates an increase in both moderate and extreme poverty. In the case of Honduras, on the contrary, the redistribution effect more than compensates the negative effect of declining growth allowing for a reduction of extreme and moderate poverty. In the case of Ecuador, the redistribution effect compensates the decline in growth such that it moderates the increase in moderate poverty and reduces extreme poverty. In Uruguay, the redistribution effect is regressive and of the opposite sign to the effect of growth so that it moderates the declines in poverty of this country. In Argentina, Brazil, Chile and Colombia the redistribution effect goes in the same direction than the growth effect, enhancing the reduction of moderate poverty.

Box 3

Datt-Ravallion decomposition of poverty changes by growth and distribution

The Datt and Ravallion (1992) decomposition is:

$$P_f - P_i = G(f, i; r) + D(f, i; r) + R(f, i; r)$$

where G(.); D(.) and R(.) stand for growth, distribution and residual components. The first two are defined as:

$$G(f,i;r) = P(z,\mu_f,L_r) - P(z,\mu_{fi},L_r)$$
$$D(f,i;r) = P(z,\mu_r,L_f) - P(z,\mu_r,L_{ri})$$

The *growth component* of a change in the poverty measure is defined as the change in poverty due to a change in the mean income (from μ_i to μ_f) while holding the Lorenz curve constant at some reference level (L_r). The *redistribution component* is the change in poverty due to a change in the Lorenz curve (from L_i to L_f) while keeping the mean income constant at a reference level (μ_r). The poverty line is kept at a constant level z. Lastly, the residual can be interpreted as the difference between the growth (redistribution) components evaluated and the poverty change. If the mean income or the Lorenz curve remained unchanged over this period, then the residual would be zero. In order to deal with changes in the poverty line, there is an extension of this method has been proposed by Kolenikov and Shorrocks (2005).¹

By allowing several different reference levels for more two or more parameters in each component, different decompositions are possible depending on the sequence (or path) taken, and none are preferable a-priori. In order to deal with this problem, Shorrocks (1999) applies what is known as a Shapley approach, deriving a single decomposition that is always exact and treats all possible routes symmetrically. An empirical implementation of this method can be found in Kolenikov and Shorrocks (2005).

Sources: Datt, G. and Ravallion, M. (1992); Shorrocks, A.F. (1999); Kolenikov, S. & Shorrocks, A. (2005).

Then, what is the role of changes in inequality?

The previous section shows that poverty changes are mostly driven by changes in economic growth, but redistribution can enhance or hinder the effects of growth. It is then necessary to explore what happened to inequality during the crisis. The inequality indexes included in this section show whether changes in inequality occurred at the top or the bottom of the distribution. It is mostly the latter which may have an effect on poverty dynamics.

A further look at Table 12 shows that the redistribution effect was reducing moderate poverty in every country but Costa Rica and Mexico. In the case of extreme poverty, more countries show a poverty-increasing redistribution effect. A first look at inequality measures (see Table 13) shows that Costa Rica and Mexico had an increase in all the inequality measures included, which is fully consistent with the enhancing effect on poverty of the redistribution effect. In these two countries increases in inequality, no matter how it is measured, worsened effect of the recession. In Costa Rica income differentials increased in the bottom as well as in the top of the distribution. In Mexico, however, it seems that worsening inequality concentrated in the bottom of the distribution: FGT(2) measures increased for both moderate and extreme poverty lines, but decile ratios stayed unaltered.

On the other hand, Colombia is the only country where all inequality measures declined, confirming the poverty reduction impact of redistribution in this country. In this case, inequality declined because of a reduction of income differences in the bottom of the distribution, as seen in the decline of the FGT(2) for both moderate and extreme poverty lines, as well as in the reduction of the 50-to-10 deciles income gap.

In other cases the results are not so consistent. Argentina, Costa Rica, El Salvador and Paraguay, also show an increase in the 50 to 10 percentile ratio, indicating a worsening of the income distribution at the bottom end, but only Argentina and Paraguay have a redistribution effect that increases extreme poverty. However, in cases like Peru or Uruguay, measures of inequality show no or very little change, despite the redistribution component having a positive effect on extreme poverty in these countries. In these cases inequality indexes, because they focus on a specific part of the income distribution, fail to capture the redistribution component that affects poverty dynamics

	Argentina	Brazil	Chile *	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Peru	Paraguay	Uruguay
In 2008												
Percentil 90 / Percentil 10	10.0	13.1	8.7	15.2	8.7	8.3	10.1	8.8	11.0	10.5	9.9	8.4
Percentil 90 / Percentil 50	2.9	3.5	3.3	3.6	3.1	3.0	3.2	3.0	3.2	3.1	3.1	3.0
Percentil 50 / Percentil 10	3.5	3.8	2.6	4.2	2.8	2.7	3.2	2.9	3.4	3.4	3.2	2.8
FGT (2) (moderate)	3.9	7.9	2.3	13.8	3.8	7.0	8.9	9.0	6.0	8.7	8.4	1.5
FGT (2) (extreme)	2.0	4.6	0.9	8.1	2.0	2.4	4.6	3.8	3.0	3.8	3.8	0.3
Gini Coefficient	46.3	55.1	51.8	57.2	48.9	49.0	50.6	46.8	51.8	49.0	52.0	46.3
In 2009												
Percentil 90 / Percentil 10	10.3	13.1	8.3	13.8	9.9	8.5	9.7	10.0	11.1	10.6	11.0	8.3
Percentil 90 / Percentil 50	2.8	3.4	3.2	3.6	3.4	3.1	3.1	2.9	3.3	3.1	2.9	3.0
Percentil 50 / Percentil 10	3.6	3.9	2.6	3.8	2.9	2.8	3.2	3.5	3.4	3.4	3.7	2.8
FGT (2) (moderate)	3.8	7.8	2.0	12.1	4.2	6.2	9.0	11.4	7.0	8.3	9.4	1.3
FGT (2) (extreme)	2.0	4.7	1.0	6.8	2.4	2.1	4.5	6.3	3.5	3.5	4.9	0.3
Gini Coefficient	45.2	54.7	52.1	56.7	50.7	48.9	49.4	48.3	52.1	49.1	51.0	46.3
Changes (2009-2008)												
Percentil 90 / Percentil 10	0.3	0.0	-0.4	-1.4	1.2	0.1	-0.4	1.3	0.1	0.0	1.1	-0.1
Percentil 90 / Percentil 50	-0.1	-0.1	-0.1	0.0	0.2	0.0	-0.1	-0.2	0.1	0.0	-0.1	0.0
Percentil 50 / Percentil 10	0.2	0.1	-0.1	-0.4	0.2	0.0	0.0	0.6	0.0	0.0	0.5	0.0
FGT (2) (moderate)	-0.1	-0.1	-0.3	-1.6	0.4	-0.8	0.0	2.4	1.0	-0.4	1.0	-0.2
FGT (2) (extreme)	0.0	0.1	0.1	-1.3	0.4	-0.3	0.0	2.5	0.5	-0.3	1.1	0.0
Gini Coefficient	-1.0	-0.4	0.2	-0.6	1.9	-0.1	-1.2	1.6	0.3	0.1	-1.0	0.0

Table 13: Inequality Measures, 2008 and 2009

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

Another light at the redistribution effect upon poverty changes is cast by growth incidence curves. Inequality measures shown before gauge inequality at specific levels of the income distribution, whereas the growth incidence curve shows relative changes at the entire income distribution, and particularly among those close to the poverty lines. We identify four types of growth incidence curve for the countries in the study.

First, for the country with the lowest extreme poverty headcount rate, Uruguay, all deciles increased their average income by a strong amount. That is an almost flat growth incidence curve. Hence, the trend was not particularly pro-poor in Uruguay, as the poorest deciles gained about as much as the middle and upper deciles. The Dominican Republic and Peru also showed this general trend where all deciles increased average income (see Figure 4).²¹



Figure 4: Flat growth incidence curves, 2008-2009

²¹ In Peru, the spike of incomes growth at the bottom of the distribution is associated with the declined of extreme poverty.



Costa Rica, El Salvador and Mexico have growth incidence curves with a positive slope. That is, these are countries where those at the bottom of the distribution had lower incomes gains (or larger income losses) than those in the middle and the top of the distribution. These are countries where the redistribution effect increased extreme poverty during the crisis (see Figure 5).

Argentina, Brazil and Paraguay, have growth

incidence curves with a stylized inverted-U shape. That is, those at the bottom of the distribution had lower income gains (or larger income losses) than those in the middle, and the latter had larger income gains than those in the top. Interestingly, this is consistent with all these countries having a redistribution effect that reduces moderate poverty. In the cases of Argentina and Paraguay, however, the redistribution effect increased extreme poverty because, as shown in the figures, those at the bottom of the distribution did worse than those in the middle (see Figure 6).

Finally, Chile, Colombia, Ecuador and Honduras, show incidence curves with a negative slope. That means that those in the bottom of the distribution had larger income growth than those in the middle or the top of the distribution. These are all countries were the redistribution effect reduced moderate and extreme poverty during the crisis (see Figure 7).



Figure 5: regressive growth incidence curves, 2008-2009

Figure 6 Inverted-U growth incidence curves, 2008-2009



Figure 7: Progressive growth incidence curves 2008-2009

4.2 But who bear the brunt of the crisis?

The growth-redistribution decompositions of the previous section distinguish who was more or less affected by the crisis in terms of their initial position in the income distribution. This decomposition, however, does not identify the personal characteristics of those who suffered poverty increases or eschewed them. Decompositions by demographic groups allow identifying the personal characteristics of those affected by the crisis (see Box). Table 14 includes decompositions using the same demographic groups used in the poverty profiles of Table 5 to Table 10.

Box 4

Huppi-Ravallion decomposition of poverty changes by population group

Given poverty rates for final and initial year (P_f and P_i , respectively) the decomposition is:

$$P_{f} - P_{i} = \sum_{k} (P_{k,f} - P_{k,i}) N_{k,i} + \sum_{k} (N_{k,f} - N_{k,i}) P_{k,i} + \sum_{k} (N_{k,f} - N_{k,i}) (P_{k,f} - P_{k,i})$$

where $P_{k,f}(P_{k,i})$ stands for the poverty incidence and $N_{k,f}(N_{k,i})$ represents the population share in group k for initial (final) period. The first right hand term represents the *intra-sectoral effect* that is the change in poverty that can be attributed to changes in the incidence of poverty in each k group of the population, assuming the relative size of the population groups remains as in the initial year of the comparison. The second term stands for the *population shift effects*, namely the change in poverty that is due to population changing from one group to another, assuming poverty incidence in each group stays at the level of the initial period. The third term is an *interaction effect* that indicates if there is correlation between the poverty incidence and population movements: a negative sign would indicate that people tend to switch to groups where poverty is falling.

Source: Huppi, Monika & Ravallion, Martin (1990).

	Argentina	Brazil	Chile*	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
Change 2009-2008	-0.9	-1.6	-4.0	-2.2	0.7	-3.2	0.5	0.6	2.6	-2.2	-1.2	-2.0
By Area												
Rural	n/a	-0.4	-0.8	-0.5	-0.1	-1.9	-1.1	1.4	0.7	0.9	-0.9	0.1
Urban Devedation shift offert	n/a	-1.1	-3.2	-1.6	1.0	-1.3	1.6	-1.4	1.9	-3.0	-0.7	-2.0
Population-shift effect	n/a	-0.1	0.0	-0.1	-0.2	0.0	0.1	0.5	0.0	-0.1	0.4	-0.1
Interaction effect	n/a	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
By Sex of Household Head												
Female	-0.7	-0.4	-0.8	-0.6	0.0	-0.8	0.1	-0.4	0.0	-0.5	-0.2	-1.0
Male	-0.3	-1.3	-3.5	-1.7	0.6	-2.5	0.4	1.1	2.5	-1.7	-1.0	-1.0
Population-shift effect	0.1	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Interaction effect	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Py Education of Household Hoad												
By Education of Household Head	-0.1	-11	-15	-0.8	-0.1	-22	-0.7	05	14	-0.3	-0.8	-0.7
Skilled	-0.8	-0.2	-2.4	-1.5	1.0	-1.1	1.0	0.5	2.0	-0.5	-0.4	-1.2
Population-shift effect	0.0	-0.2	-0.1	0.1	-0.2	0.1	0.2	0.0	-0.8	-0.8	0.0	-0.1
Interaction effect	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0
By Employment of Household Head												
Inactive/unemployed	-0.6	-0.7	-0.9	-1.2	0.2	-2.7	1.4	0.8	0.2	-1.8	-0.9	-1.0
Informal employed	0.0	-0.2	-0.9	-0.7	0.3	-0.3	-1.1	0.3	2.2	-0.5	0.0	-0.3
Formal employed	-0.2	-0.6	-2.6	-0.5	0.0	-0.5	0.1	-0.6	0.3	-0.7	0.0	-0.6
Population-shift effect	-0.1	0.0	0.3	0.1	0.2	0.3	-0.2	0.1	-0.1	0.8	-0.3	-0.2
Interaction effect	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
By Sources of Household Income												
Some other income	-0.7	-0.3	-2.7	0.0	n.a.	-2.4	-0.1	1.5	2.4	-0.7	0.0	-1.6
Only labor income	-0.4	-1.3	-2.0	-2.4		-1.1	0.0	-1.0	0.3	-1.4	-1.2	-0.1
Population-shift effect	0.2	-0.1	0.6	0.1		0.4	0.6	0.0	0.0	0.0	0.0	-0.3
Interaction effect	0.0	0.0	0.1	0.1		-0.1	0.0	0.1	0.0	-0.1	0.0	0.0
By Sources of Household Income												
No nublic transfore	-0.6	-15	-2.0	-29	na	-13	-0.1	07	12	-17	-12	-0.1
Some nublic transfers	-0.0	0.0	-2.0	0.0	11.a.	-1.3	0.1	-0.1	1.4	0.1	0.0	-0.1
Population-shift effect	0.7	0.0	-3.0	0.5		05	0.1	0.0	-0.1	-0.4	0.0	-05
Interaction effect	0.0	0.0	-0.3	0.2		-0.1	0.0	0.0	0.0	-0.3	0.0	0.1
interaction circer	0.0	0.0	0.0	0.4		0.1	0.0	0.0	0.0	0.0	0.0	0.1

Table 14: Decomposition of changes in moderate poverty by population groups

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

There are two main messages from these decompositions. First, changes in household demographics such as the gender or education level of the household head and urbanization do not change much between 2008 and 2009. This is to be expected since big changes in these dimensions occur over longer periods of time. On the other hand, the results show that the changes in household head's

employment status and household's source of income (by income and transfer) do have a larger effect. This indicates that poverty changes are not associated to demographic trends but to something that happened between 2008 and 2009 in terms of social policies or labor market dynamics.

When looking at demographic characteristics such as geographic area (urban/rural), gender of the head of household (male/female) and skills of the household head (high skill/low skill) all countries show mostly negligible interaction and population-shift effects.²² For gender and also for area, usually the largest share of change in poverty is attributed to the largest demographic group (urban households), not necessarily the poorest demographic group (rural households). For instance, members of male-headed households have a larger share of the population (not the highest poverty incidence), and they represent the greater share of changes in total incidence in most countries, like accounting for the decline of moderate poverty by 3.2 percentage points in Chile (versus 0.8 for women). However, there are two main exceptions to this general rule: first, female-headed households decreased moderate poverty at a higher or equal rate than males in Argentina (urban) and Uruguay; and, second, in the Dominican Republic poverty reductions are mostly accounted by poverty declines in rural and unskilled head households (non-largest groups).

Decompositions by groups according to employment status of the household head or by income sources do not show a regular pattern. In other words, the largest share of the poverty change cannot regularly be ascribed to either the largest group or the group with the highest poverty incidence. We interpret this heterogeneity as proof that different labor dynamics or different transfer policies by country motivate varied poverty dynamics. In contrast to slow demographic trends, which are pretty similar across countries, labor market performance and public transfer policies may diverge from one country to another.

Furthermore, when it comes to looking at household-head employment or sources of income, the population-shift plus interaction effect is negligible less often.²³ Some particular cases are of special significance. Chile and Paraguay have non-negligible population shift effects rising moderate poverty which are associated to an increase in the share of households with unemployed or inactive heads.²⁴ Similarly, Chile, Colombia, Dominican Republic and Ecuador show a non-negligible population-shift effects rising moderate poverty which are associated to a large increase in the population share who lives in households with access to public transfers.²⁵

Chile shows the largest effects overall because the data spans a three-year period, but it is an interesting example to explore further. Moderate poverty declined in 4 percentage points between 2006 and 2009. In this case the largest component is poverty reduction among households whose

²² In 31 of the 38 cases considered, the population-shift effects were within the range [-0.2, 0.2] which indicates that changes in the demographic structure were of minimal size in explaining poverty changes. An exception is, for instance, the case of El Salvador where these effects are high (0.6 percentage points) due to an increase in the rural population of 5 percentage points between 2008 and 2009. This contrasts with changes in urbanization never larger than 1 percentage point in all the other countries of the study.

²³ Only 20 out of 37 decompositions had a population-shift plus interaction effects in the [-0.2,0.2] range.

²⁴ In these two countries, the share of population in households with unemployed/inactive heads rose by 4 percentage points, whereas in the rest of the countries this change was never higher than 1 percentage point. ²⁵ In these countries the population share living in households with some public transfers rose by at least 4 percentage points, while the rest of the countries in the sample either have smaller increase or even a reduction in the population share with access to public transfers.

heads has a formal employment (2.6 percentage points), followed by declines in poverty in the other two groups (informal and jobless household heads) of equal size (0.9 percentage points). In this case the population-shift effect rises poverty in 0.3 percentage points because of an increase in the share of people living in households with a jobless head (this group increased in four percentage points for the period of reference).

Alternatively, the Chilean total change in moderate poverty of 4.0 percentage points can be decomposed by sources of income of the household. This decline is the combination of a reduction of 2.0 percentage points from households receiving no public transfers and a cutback of 3.0 percentage points for households receiving some public transfers and a population-shift effect of 1.3 percentage points. This positive interaction is interesting. It is the result of an increase in the population share of households receiving public transfers (almost 11 percentage points for the three-year period). Since this group has a higher incidence of poverty (which seems natural, because they receive public transfers) then we observe an increase in the relative size of the group with higher, but falling, poverty incidence. That's why the population-shift effect is positive (1.3 percentage points), and the interaction effect is negative (-0.3 percentage points).

We see something similar, regarding the expansion of population with access to public transfers, for the cases of Colombia, Ecuador, Dominican Republic, Honduras and Mexico, but of smaller magnitude. In the cases of Paraguay and Uruguay, in contrast, the population-shift effect is negative, that means that there is a reduction in the population group with higher poverty incidence. This is the case of the population with access to public transfers whose share fell during the period of analysis in these countries. Similarly, Ecuador, Dominican Republic and Paraguay show head's employment status population shifts as large as Chile's.

In general, population plus interaction effects are larger when decomposing poverty changes by income sources than by head's employment status. In fact, changes in the share of households with a jobless head. Therefore, the dynamics of public transfers is larger than changes in employment.²⁶ This indicates the relative importance, as compared to all the other decompositions, that changes in the number of households with sources of income other than labor earnings, and particularly public transfers, is having in poverty changes.²⁷

4.3 Decomposition by sources of income

The evidence described in the previous section suggests that the relative size of different groups of population with different sources of income had an important of poverty change taking place between 2008 and 2009. However, in order to investigate which source of income had the largest influence of poverty changes, independently of the type of population groups a different type of analysis is needed. A basic decomposition by income source explains how much of the change in poverty can be ascribed to changes in labor incomes or to changes in non-labor incomes (see Box).

²⁶ This is consistent with very low adjustment to crises by unemployment in Latin American countries. In these countries, crises entail increases in informality and lower productivity rather than increases in open unemployment. It is also consistent with the growing role of social policy as an anti-cyclical tool in the region.
²⁷ These decompositions show similar outcomes for extreme poverty. Results are available from the authors upon request.

Box 5

Fournier decomposition of poverty changes by income sources

In previous boxes we have explained several decomposition techniques for poverty levels and changes. However, a decomposition of poverty and inequality measures by income sources are specially intricate. Shorrocks (1982), and more recently Lerman (1999), show that decomposing a given income distribution or its change by income sources depends not only on how each income source is distributed, but also on how each income source interacts with another. Several methods have been proposed for decomposing specific inequality measures by income sources (see Lerman and Yitzhaki 1995; Shorrocks 1982 and Fei, Ranis and Kuo, 1978).

In this study we use a method proposed by Fournier (2001) who develops a decomposition by factor components for an entire distribution of incomes and, hence, is applicable to any poverty or inequality index. This decomposition uses *rank correlation* instead of statistical correlation for addressing the problem of how to include the interaction between different sources of income. It allows for the examination of the effects of changes in the sources of marginal distribution of each income source, as well as the change in correlation between those sources. Fournier argues that if total income consists of two different sources, the change in the distribution of total income is due to: (1) a change in the marginal distribution of the first income source; (2) a change in the marginal distribution of this method follows a non-parametric technique that creates hypothetical income distributions and the difference between these. For each individual or household observed at time *t*, the population is sorted by income sources and each individual or household is ranked. A counterfactual income is created for each possible combination by keeping either marginal distributions or rank-correlation between sources unchanged.

Source: Fournier, M. (2001) and Lerman (1999).

Table 15	: Decomposition	of poverty	changes by	sources of income	(Fournier), 2008-2009
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	Argentina	Brazil	Chile *	Colombia	Costa Rica	Dominican Rep.	Ecuador	El Salvador	Mexico *	Paraguay	Peru	Uruguay
Moderate Poverty												
Labor Income	-0.1	-0.7	-2.2	-1.2	2.3	-1.8	0.7	3.5	1.6	-1.5	-1.3	-2.1
non-Labor income	-0.4	-0.5	-1.4	-0.7	-0.4	-1.3	-0.3	1.0	1.0	-0.5	0.4	0.3
Rank-Correlation	-0.3	-0.4	-0.4	-0.3	-1.2	0.0	0.1	-3.9	0.0	-0.1	-0.3	-0.1
Total change 2009-2008	-0.9	-1.6	-4.0	-2.2	0.7	-3.2	0.5	0.6	2.6	-2.2	-1.2	-2.0
Extreme Poverty												
Labor Income	0.4	-0.1	0.4	-1.4	1.9	-1.2	0.6	5.0	0.8	1.0	-1.2	-0.9
non-Labor income	-0.2	-0.2	-0.8	-0.8	-0.2	-1.1	-0.4	1.3	0.5	0.1	0.4	0.3
Rank-Correlation	-0.3	-0.3	-0.6	-0.3	-1.1	0.3	-0.4	-4.6	0.0	0.0	0.4	0.1
Total change 2009-2008	-0.2	-0.6	-1.0	-2.5	0.5	-2.0	-0.2	1.8	1.3	1.1	-0.4	-0.6

Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010 When looking at this decomposition for moderate poverty, we see that average labor incomes have a larger effect on poverty as compared to non-labor incomes and rank-correlation (see Table 15). Changes due to labor incomes range from a large portion of the poverty reduction of -2.2 and -1.9 percentage points in the cases of Chile and Honduras, to a large part of the increase in the cases of Mexico and Costa Rica (with 2,3 percentage points). In all countries the changes in labor incomes go in the same direction and account for the largest share of changes in moderate poverty. The only exceptions to this are the cases of Argentina, where non-labor incomes have a larger effect than labor incomes, and El Salvador where the rank-correlation component is predominant. More importantly, in all cases where moderate poverty increased (Costa Rica, Ecuador, El Salvador and Mexico), the rise can mostly be ascribed to a reduction of labor incomes with non labor incomes playing a partially compensating effect.²⁸

In the case of extreme poverty, the story is more complicated. Labor incomes would have produced increases in poverty in some countries but not in others while non-labor income sources have compensating effects in some, but not all cases. Again, growth incidence curves can help to elucidate the different patterns of contribution of labor and non-labor incomes to poverty changes. In this case, we produce growth incidence curves that represent changes in average income by decile, separating the labor and non-labor components of each group.²⁹

The first group is corresponds to the cases of Argentina, Brazil, Chile and Ecuador, where non-labor incomes compensate part of the decline suffered in labor incomes among those at the bottom of the distribution (see Figure 8). These non-labor incomes (which include public transfers, but may also include other sources of income like pensions in Argentina) make the growth incidence curve less regressive than it would have been without them. In these four countries, people at the bottom of the distribution (in the first and even second or third deciles) had an absolute decline in labor incomes which was partly compensated by non-labor incomes hence reducing poverty increases.³⁰

A second group corresponds to countries like Colombia, where labor incomes where progressive (see Figure 9). Namely, those at the bottom of the distribution had larger labor income gains than those at the middle and the top of the distribution. Non-labor incomes were also progressive and hence both sources played a role in reducing moderate and extreme poverty.

Costa Rica, El Salvador, Paraguay and Mexico constitute a third group of countries (see Figure 10). In this case, labor incomes show a very regressive pattern (i.e. those at the bottom of the distribution show labor income losses, whereas those at the middle and the top of the distribution show labor income growth) but non-labor incomes fail to compensate this trend. Non-labor incomes in these countries barely or do not help the poor to ameliorate their income losses. Non labor incomes in these these countries are either regressive (e.g. Costa Rica) or if progressive, they fail to compensate the

²⁸ The exception is El Salvador.

²⁹ For each decile, each bar corresponds to the annual growth in total income. Formally: (Total Income_(final)-Total Income_(initial))/Total Income_(initial)).

Moreover, the labor component of each bar is computed as: $(Labor Income_{(final)} - Labor Income_{(initial)} / Total Income_{(initial)})$. And the non-labor income component as: $(Non-Labor Income_{(final)} - Non-Labor Income_{(initial)} / Total Income_{(initial)})$.

³⁰ This is precisely what the Fournier decomposition of extreme poverty shows for these countries (see Table 15).

severe decline of labor incomes among those at the bottom of the distribution (e.b., El Salvador, Mexico).





Figure 9: Growth incidence by income source



Finally, the Dominican Republic, Peru and Uruguay constitute a residual group.³¹ On the one hand, Uruguay shows quite even income growth across deciles both for labor and non-labor incomes. Both components reduce moderate and extreme poverty. Peru also shows uniform growth in labor incomes, but non-labor incomes show null or negative effect for deciles at the bottom of the distribution hence contributing to a dampening of the poverty reduction. On the other hand, the Dominican Republic shows a u-shape pattern of labor income growth by decile (that is, those at the bottom and top end of the distribution have larger increases than those in the middle) whereas growth of non-labor incomes shows the opposite pattern. The combination of these two makes for an uniform across-decile income growth in this country. Again, both components contribute to moderate and extreme poverty as shown in the Fournier decomposition above.



In summary, this evidence indicates that changes in labor incomes can be attributed the biggest share of total changes in moderate poverty. In the case of extreme poverty, however, the other sources of income, and its reallocation along the income distribution (that is the rank-correlation effect) may represent an additional force explaining changes in poverty helping, in a few cases, to reduce it further or avoiding a deeper shock.

³¹ Data and figures available upon request.

It's labor incomes...but what part of it?

The foregoing decomposition exercises seem to show an inconsistency. On the one hand, when decomposing by population groups (see section 4.1) it was stated that changes in the share of households with jobless household heads was less important in explaining poverty changes than the variation of the share of households with public transfers. On the other hand, when decomposing by income sources, labor incomes appear as the most important component of poverty changes. These apparently conflicting messages can be explained by the fact that changes in labor incomes may be due to either job losses (that is heads or any member becoming jobless) or by earnings losses (that is working members of the household earning less for their job). A refinement of the decomposition sources can expose the role of each of these factors (see Box).

In this case, we decompose the change in moderate and extreme poverty into three main components. First, the number of jobs per household member. This gauges the impact of unemployment on poverty changes. In particular, this refers to what economist call the extensive margin that is the loss of jobs rather than changes in the hours of work (also known as intensive margin). Second, the labor incomes per job in the household. This aims at measuring changes I productive and earnings associated to the crisis. It may be the result of actual wage drop, of an increase in the number of hours with same earnings or to lower earnings due to less hours of work. We do not separate these effects. Third, non-labor incomes per adult. This aggregates all non-labor incomes such as pensions, public transfers and other sources of income. As it was explained before, this may include different sources of income but, due to the limitations of the region's household surveys in collecting capital incomes, it is mostly a measure of transfers and pensions.

Box 6

Further refinements to decompositions by income sources

The decomposition proposed by Fournier (2001) only accounts for two income sources. However, total income at the household level can be explained by more than two income sources (e.g., labor earnings, capital rents, public transfers, remittances). Moreover, it may be of interest to know what explains changes in the distribution of a certain income source. For instance, Are changes in poverty or inequality due to changes in employment rates or in average earnings, in hourly wages or in hours of work?

Several methods have been proposed to address this type of question. Bourguignon and Ferreira (2005) and Paes de Barros, Carvalho, Franco and Mendonça (2006) propose methods that create a counterfactual distribution of income which include a change in only one of the components of household income, keeping the rest constant. The difference between the hypothetical income distribution and the original distribution (or the difference between the poverty or inequality indexes computed from them) is attributed to the variable that has been changed. Recent implementation of these methods has been produced by Inchauste et al. (2012) and Azevedo et al. (2012) for several developing countries. These studies propose the following formula for household income per capita (Y_b):

$$Y_h = \frac{A}{N} \left[\frac{L}{L} \left(\frac{1}{L} \sum_{i \in L} Y_i^L \right) + \left(\frac{1}{N} \sum_{i \in L} Y_i^T \right) + \left(\frac{1}{N} \sum_{i \in L} Y_i^R \right) \right]$$

and decompose changes in measures of inequality and poverty due to changes in the share of adults in the family (A/N), employment rates among adults (L/A), average wages $(\frac{1}{L}\sum_{i\in L}Y_i^L)$, average public transfers ($\frac{1}{N}\sum_{i\in L}Y_i^T$) and average private transfers, remittances or pensions $(\frac{1}{N}\sum_{i\in L}Y_i^R)$. In our study we produce a simplified decomposition by income sources that allows for only three components to be considered: average wages per worker, employment rates per household member, and non-labor incomes per household member.

This type of exercise has two main limitations. First, the order in which the impact of each component is simulated affects the results of the decomposition exercise. When more than two components are considered, there is a large number of possible paths in which the decomposition can be computed. In order to address this problem, a technique proposed by Shorrocks (1998, 2012) known as Shapley decomposition (Shapley 1955) is adopted. Second, these are accounting simulations which assume that when one income source changes all the others remain constant. However, it is well known that changes in economic conditions lead individuals and households to react and generate other sources of income. Hence, this type of decomposition fails to include economic behavior.

This decomposition shows two main facts. First, non-labor incomes represent an important share of poverty reduction, both moderate and extreme, in many countries of the region. Argentina, Brazil, Chile, Colombia, the Dominican Republic, El Salvador and Mexico are countries where non-labor sources of income have reduced both moderate and extreme poverty or curbed its increase. Non labor incomes were not relevant for, or even contrary to, poverty reduction in Honduras, Peru and Uruguay. In Ecuador, non-labor incomes contributed to reduce extreme poverty, but had no impact on moderate poverty, whereas in Paraguay the opposite was true. These results are pretty much consistent with what was formerly shown in Table 15.³²

³² It is not consistent only for the case of El Salvador.

Second, changes in jobs by household member (a measure of the impact of unemployment) have a smaller size than changes in labor income by job in most countries. The exceptions are Colombia, and Honduras for moderate and extreme poverty. In these two cases, poverty changes are associated to a large increase in jobs at the household. Argentina and Chile are also exceptions of interest. In both countries job losses increase poverty, but increases in labor incomes by job reduce moderate poverty (no impact on extreme poverty). In Paraguay the opposite occurs: that is, new jobs reduce poverty but declines in earnings per job increase extreme poverty and moderate poverty decline. In all the remaining countries, changes in earnings per job are larger than changes in jobs per household member. Namely, apart from the exceptions described, poverty changes are mainly driven by changes in earnings derived from work, rather than by changes in the access to jobs.

Moreover, countries with an increase in poverty are those who endured large changes in average earnings, not those that had large changes in employment rates. Figure 11 shows that both in the case of extreme and moderate poverty, countries with a poverty increase also show changes in average earnings as the main component of such poverty increase. On the other hand, poverty reductions are mostly explained by changes in employment or in non-labor incomes (in the case of extreme poverty) or by a combination of all three factors (in the case of moderate poverty).



Figure 11: Paes-de-Barros decomposition



Source: Author's calculations using SEDLAC harmonized datasets and INEGI's ENIGH 2008, 2010. Notes: (*) Chile refers to period 2006-2009 and Mexico to period 2008-2010

5. Conclusion

The foregoing analyses of poverty measures for a selection of Latin American countries concludes with a series of stylized facts about the impact of the 2009 crisis upon poverty in the region. These facts refer to four general areas. First regarding poverty elasticity of growth; second, regarding demographic trends; third, about the role of growth and redistribution; fourth and fifth refer to labor markets performance and social policy.

First, our estimates poverty elasticity of GDP growth confirm the negative association between economic growth and poverty reduction. For the countries in the region, a one percentage point of annual economic growth leads to a reduction of between 0.3/0.6 percentage points in moderate poverty, depending on the indicator economic growth adopted. Assuming the economy had grown at usual rates 9the average GDP/head growth between 2003 and 2008), and inequality had remained constant, poverty should have declined in 1.7 percentage points in 2009. The actual decline in moderate poverty of -0.9 percentage points (an unweighted average for the countries in the sample) hides therefore a positive impact of 0.8 percentage points. In population terms, moderate poverty for selected countries declined in 2.4 million people. Our simulation exercise, however, would have predicted a decline in numbers of the moderate poor of 5.7 million. This means that the crisis kept in moderate poverty around 3.3 million people.

Second, poverty profiles, that is poverty rates and trends by population groups, confirm for this crisis some well-known regularities. Namely, for almost every country in the sample moderate and

extreme poverty rates are higher among rural households, female-headed households, unskilled-head households and jobless or informal job head households. On the other hand there are no uniform patterns regarding convergence of poverty changes. In other words, in a few cases groups with higher poverty rates have larger downward (or smaller upward) poverty changes, like rural households in Colombia or female-headed households in Mexico, but this is seldom the case. The main driver of poverty changes are the larger population groups, not the poorer groups. In most cases, the largest share of national poverty changes can be ascribed to poverty changes in large population groups such as urban households or male-headed households.

Third, average income growth is the main driver of poverty changes, but redistribution can enhance or hinder the effects of growth. Some countries -i.e., Chile, Colombia, Ecuador and Honduras-, show a progressive growth incidence curve which implies that during the 2009 crisis those at the bottom of the distribution performed better than those at the middle or the top of the distribution thus accelerating poverty reduction (like in Colombia) or ameliorating the rise in poverty (like in Ecuador). On the other hand there were countries -i.e., Costa Rica, El Salvador and Mexico -with a regressive growth incidence curve. In these cases those at the bottom of the distribution performed worse than those at the middle or the top of the distribution. Therefore, the redistribution effect enhances the impact of the crises in terms of poverty increases.

Fourth, the redistribution component described above can be tracked down to labor markets performance and/or social policies. In some countries like Costa Rica, El Salvador and Paraguay, labor incomes show a very regressive pattern and non-labor incomes (which we interpret as a compound of mostly transfers and pensions) have no compensatory role. In other countries like Argentina, Brazil, Ecuador and Mexico, labor incomes also show a regressive pattern but non-labor incomes show a progressive pattern that helps compensate the impact of the shock among the poorest sections of the population. Yet in other cases, like Colombia, labor market performance was progressive and non-labor incomes were as well, thus inducing an accelerated poverty reduction. In summary, labor market performance determines how intense the impact of the crisis was among those at the bottom of the distribution, but non-labor incomes obtained through social policy can play a crucial compensatory role for the poor.

Fifth, a further scrutiny of the characteristics of the labor income component of the crisis indicates that, in the selected Latin American countries, most of the change in labor incomes is associated to changes in earnings rather than in employment. Job losses have predominance in explaining changes in extreme poverty for some countries, but moderate poverty changes are mostly explained by differences in earnings.

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