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Is Labor Income Responsible for Poverty Reduction?

A Decomposition Approach

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Abstract

Demographics, labor income, public transfers, or remittances: Which factor contributes the most to observed reductions in poverty? Using counterfactual simulations, this paper accounts for the contribution labor income has made to the observed changes in poverty over the past decade for a set of 16 countries that have experienced substantial declines in poverty. In contrast to methods that focus on aggregate summary statistics, the analysis generates entire counterfactual distributions that allow assessing the contributions of different factors to observed distributional changes. Decompositions across all possible paths are calculated so the estimates are not subject to path-dependence. The analysis shows that for most countries in the sample, labor income is the most important contributor to changes in poverty. In ten of the countries, labor income explains more than half of the change in moderate poverty; in another four, it accounts for more than 40 percent of the reduction in poverty. Although public and private transfers were relatively more important in explaining the reduction in extreme poverty, more and better-paying jobs were the key factors behind poverty reduction over the past decade.

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1. Introduction

For the first time since the early 1980s, when systematic poverty-rate monitoring started, data for the first decade of the 21st century indicate a decline in both the poverty rate and the number of poor in all regions of the developing world. This progress represents a substantial step in reaching the Millennium Development Goals (MDGs), and the goal of halving the global extreme poverty rate by 2015 has been reached five years ahead of schedule,[1] based on 2010 estimates. Whether one uses national or international poverty lines, there is evidence of steady reductions in poverty incidence and depth. In more than 80 percent of the countries for which a poverty spell can be calculated, the last decade shows a reduction in poverty. Despite this positive development, 1.2 billion people around the world still are desperately poor, living below the low threshold of US$1.25 a day, and many more remain vulnerable.

The reduction in poverty observed in the majority of countries during the last decade, however, provides an opportunity to study the most significant factors that were at work in favor of the poor. Was the observed reduction in poverty a result of demographic changes that led to lower dependency ratios? Was poverty reduction the result of higher employment or higher labor income thanks to improved labor market conditions? Was this success due to improved and more effective social policies? Was it an improvement in labor market conditions in richer countries and an increase in remittances in poorer ones?

To answer these questions, and to contribute to the evidence base for future policy, we focus on a subsample of countries where there was a substantial decline in poverty. The questions are relevant for some Latin American countries where there is a debate about the relative roles of better job opportunities and of the expansion and effectiveness of transfer policies in explaining the observed reductions in poverty and inequality. Similarly, in some South Asian and Eastern European countries, some observers question whether the reduction in poverty was on account of better job opportunities or higher remittances. In East Asia, several countries have seen strong growth, job creation, and poverty reduction, but are now questioning whether social policy should focus more on redistribution.

The literature has proposed counterfactual decomposition methods to identify the contribution to variations in overall poverty.[2] These decompositions include the Datt-Ravallion (1992) method, which splits the change in poverty into distribution-neutral growth and redistribution effects. Kolenikov and Shorrocks (2000) decompose variations in poverty into growth, distribution, and prices, while Ravallion and Huppi (1991) offer a way of decomposing changes in poverty over time into intra-sectoral effects and population shifts. However, the usefulness of these decomposition methods is severely limited in policymaking by the fact that they explain changes

[1] For more detail on the MDGs see http://www.un.org/millenniumgoals/. For more details on global changes in poverty see Chen and Ravallion 2008; World Bank 2013.

[2] For a recent review of micro-decomposition methods see Fortin et al. 2011; Essama-Nssah 2012.

in poverty on the basis of changes only in summary statistics that are hard to target with policy instruments (Ravallion 2001). For instance, it is hard to see what role demographics played in reducing poverty, or what the roles of employment and labor income were relative to the role of remittances and public transfers.

The objective of this paper is to quantify, based on a series of counterfactual simulations, the contribution of labor income to changes in poverty across countries. Unlike methods that focus on aggregate summary statistics, the method adopted in this paper generates entire counterfactual distributions, allowing us to quantify the contribution of changes in labor and nonlabor income, and those related to demographic characteristics to the observed distributional change using a variant of the method proposed by Barros et al. (2006). Because most countries measure welfare through household expenditures or consumption (as opposed to income), this paper modifies the methodology to decompose consumption-based measures of poverty.

It is important to explain that these decompositions are essentially an accounting exercise and do not allow for the identification of causal effects. For example, increases in cash transfers or non-contributory pensions may in some circumstances deter participation in the labor market, thus affecting labor incomes. Similarly, increases in labor income can make some households ineligible for transfer programs. For those reasons, we caution against interpreting changes in labor income (or, for that matter, changes in pensions or transfers) as "causing" changes in the poverty rate. Still, they are useful in identifying empirical regularities and, as an accounting tool, can help focus attention on factors that are quantitatively more important in describing distributional changes.

The rest of the paper is organized as follows: Section 2 describes the evolution of poverty across countries in our sample, highlighting the links to growth and redistribution outcomes and the sources for poverty reduction. Section 3 describes the decomposition methodology used to quantify the contributions of labor income, transfers, and demographic effects to the observed changes in poverty. Section 4 presents the results for each country, highlighting similarities and differences. Section 5 concludes. Finally, Annex 1 contains a description of the data sources.

2. Growth and poverty reduction

We focus on the 16 countries that exhibited substantial declines in moderate poverty using comparable consumption or income data in the decade from 2000 to 2010. The countries included in this analysis are Argentina, Bangladesh, Brazil, Chile, Colombia, Costa Rica, Ecuador, Ghana, Honduras, Moldova, Nepal, Panama, Paraguay, Peru, Romania and Thailand. All countries with substantial poverty-reduction episodes, defined as instances where there was an average decline in moderate poverty of 1 percentage point per year or more. [3] Because the

[3] Mexico and El Salvador were excluded from the analysis given this definition.

level for national moderate poverty lines varies from country to country, we refer to the international poverty line that is closest in magnitude to the national moderate poverty rate. For example, this reflects the fact that the moderate poverty line in Bangladesh is closer to the US$1.25-a-day poverty line, while the moderate poverty line in Peru is closer to the US$4-a-day poverty line (table 1).[4]

Poverty reduction in each of these cases was accompanied by strong economic growth (figure 1), albeit at different rates, ranging from an average of 3 percent a year in Paraguay to an average of 6.8 percent growth in Peru. Greater volatility and vulnerability to the 2008-2009 global financial crisis was observed in Thailand and Latin America, while Bangladesh enjoyed continued, almost uninterrupted growth of about 6 percent a year throughout the decade. Among the countries that use income-based poverty measures, the rate of moderate poverty reduction varied from an average 1 percentage point a year in Paraguay to a 2.8-percentage-point reduction in Colombia (figure 2). Among countries using expenditure-based measures, the decline varied from an average 1.7-percentage-point-per-year reduction in Bangladesh to an average 5.3-percentage-point-per year reduction in Romania.

The link between economic growth and poverty reduction has long been of interest to economists. As detailed in Ferreira (2010), the cross-country literature has found considerable evidence that economic growth is strongly and negatively correlated with changes in poverty (Ravallion 2007). In addition, the higher a country's initial level of inequality, the higher the growth rate needed to obtain a given amount of poverty reduction (World Bank 2005; Ravallion 2007).

One common way to assess these relations is using the Datt-Ravallion (1992) decomposition, which splits the change in poverty into distribution-neutral growth and redistribution effect. Using this method, we found that growth explains most of the observed reduction in moderate poverty for 14 of the 16 countries in this study (figure 2). Redistribution was found to be more important only in the cases of Argentina and Paraguay (table 2).

An obvious question is *how* growth led to poverty reduction in the cases where most of the reduction was due to growth, and whether the changes in redistribution seen in Latin America were associated with the introduction of public transfers or the result of market forces. Unfortunately, the Datt-Ravallion method is unable to make these explicit links because growth, inequality, and poverty measures are actually just three different aggregations of information about individual income dynamics. Moreover, they are jointly determined, such that cross-country estimates are unlikely to shed much light on the fundamental factors underlying distributional change (Ferreira 2010).

[4] Note that Latin American countries typically measure poverty using a household income aggregate, while most other countries around the world use a consumption aggregate. Because these measures are not comparable, we present them separately.

Therefore, instead of relying on summary measures of poverty, one could use full distributions of income or consumption expenditures from representative household surveys to better understand distributional changes. Instead of focusing on economic growth, which can also be thought of as the proportional change in the mean of the income distribution, it is best to analyze how the entire distribution changes over time. Moreover, given the richness in household income and expenditure surveys, one can further disaggregate the observed distributional changes by decomposing the factors that underlie these distributions. The rest of the paper focuses precisely on this.

The forces behind poverty reduction

We begin with a household consumption identity where household consumption per capita is defined by

$$C_h = \theta_h \frac{Y_h}{n}, \quad (1)$$

where Y_h is total household income, n is the number of household members, and θ_h is the consumption-to-income ratio. Because poverty depends on the distribution of consumption, changes in any of the factors on the right-hand side of equation (1) will lead to changes in poverty: demographic changes (n), growth in labor and nonlabor income (which make up Y_h), and changes in consumption patterns (θ_h).

First, demographics could play a role by affecting the dependency ratio, or the number of earners relative to the number of consumers in a household. Among the countries considered here, the population of Bangladesh grew by 25 percent between 2000 and 2010, adding 19 million people to its total, while Brazil has added 18 million (a 16 percent increase) during the same time period. Despite these increases in population, the rate of population growth has decelerated enough so that the age-dependency ratio has begun to decline across countries in our sample (figure 3) as the number of adults per household has increased, on average (figure 4 and table 3). Note, however, that the share of adults per household among the poor decreased in some cases, notably in Panama and Colombia.

Second, growth in labor income could be the main driver in the observed changes in poverty. This could be due to greater employment, or due to an increase in earnings. As shown in figure 5 and table 4, the share of occupied adults per household increased for most of the countries in our sample. In some cases this was related to important increases in female employment. For example, in Bangladesh, the female employment-to-population rate increased from 53 to 56 percent between 2000 and 2008, equivalent to a 6 percent increase. In Costa Rica, both labor force participation and employment of women increased by about 23 percent between 2000 and 2008. [5] However, there is also evidence that labor incomes per adult increased at the bottom of

[5] World Development Indicators 2012.

the distribution in many of these countries. Unfortunately, we cannot determine whether this is due to higher earnings per hour to greater number of hours worked. In any case, in most instances the incomes that the poor derive from their work have increased.

Third, poverty reduction could have been strongly related to growth in nonlabor income. For example, figure 6 shows that public subsidies and other social transfers have increased in several countries over the last decade. Government spending for subsidies and transfers increased more than sevenfold in Ghana, and more than sixfold in Bangladesh as a share of GDP. In addition to public sources of transfers, private transfers in the form of remittances have also grown strongly (figure 7). In Nepal, for example, remittances grew from 1 percent of GDP to 12 percent; in Moldova, they increased from 14 to 22 percent of GDP; and in Honduras, they nearly tripled, going from 6 to 17.8 percent of GDP over the period of study. The question is how important these changes in public and private transfers have been to poverty reduction. Figure 8 shows that in most countries in our sample there was an increase in the share of transfers in total household income, particularly among the poor, which could clearly account for reductions in poverty (table 5).

Finally, in the absence of measurement error, changes in consumption-based poverty could also be related to changes in consumption patterns. In the context of growing incomes, households could either increase consumption proportionately or they could increase their savings rates. However, it is difficult to differentiate between changes in household consumption on account of real behavioral shifts, and changes due to measurement. Figure 9 and table 6 show that in Bangladesh, Ghana, and Peru the consumption-to-income ratio increased for households at the bottom of the income distribution, while it fell for those at the top. In Thailand and Nepal, this ratio remained more or less flat across the distribution. In Romania and Moldova, the consumption-to-income ratio fell more for households at the bottom of the income distribution than it did for those at the top.

In summary, each of the sources of change described above could have led to the observed reductions in poverty over the last decade. The next question is how large was the contribution of each of these forces.

3. Decomposing the changes in poverty

In order to decompose the contribution of each factor to poverty reduction, we need a framework that allows us to measure the contribution of each factor to the total change in poverty. We begin by following Barros et al. (2006), and model household per capita income as:

$$Y_{pc} = \frac{Y_h}{n} = \frac{1}{n}\sum_{i=1}^{n} y_i. \qquad (2)$$

Income per capita is the sum of each individual's income; it depends on the number of household members, *n*. If we recognize that only individuals older than 15 contribute to family income, income per capita depends on the number of adults in the family, n_A, so income per capita can be written as:

$$Y_{pc} = \frac{n_A}{n}\left(\frac{1}{n_A}\sum_{i=1}^{n} y_i\right). \quad (3)$$

Income per adult includes labor income, y_i^L, and nonlabor income, y_i^L; nonlabor income includes public social transfers, pensions, remittances, and other private transfers:

$$Y_{pc} = \frac{n_A}{n}\left(\frac{1}{n_A}\sum_{i\in A}^{n} y_i^L + \frac{1}{n_A}\sum_{i\in A}^{n} y_i^{NL}\right). \quad (4)$$

Finally, not all adults in the household are occupied and household labor income per capita depends on the income of employed adults. Therefore we can decompose the labor income per occupied adult as:

$$Y_{pc} = \frac{n_A}{n}\left[\frac{n_o}{n_A}\left(\frac{1}{n_o}\sum_{i\in A}^{n} y_i^L\right) + \frac{1}{n_A}\sum_{i\in A}^{n} y_i^{NL}\right], \quad (5)$$

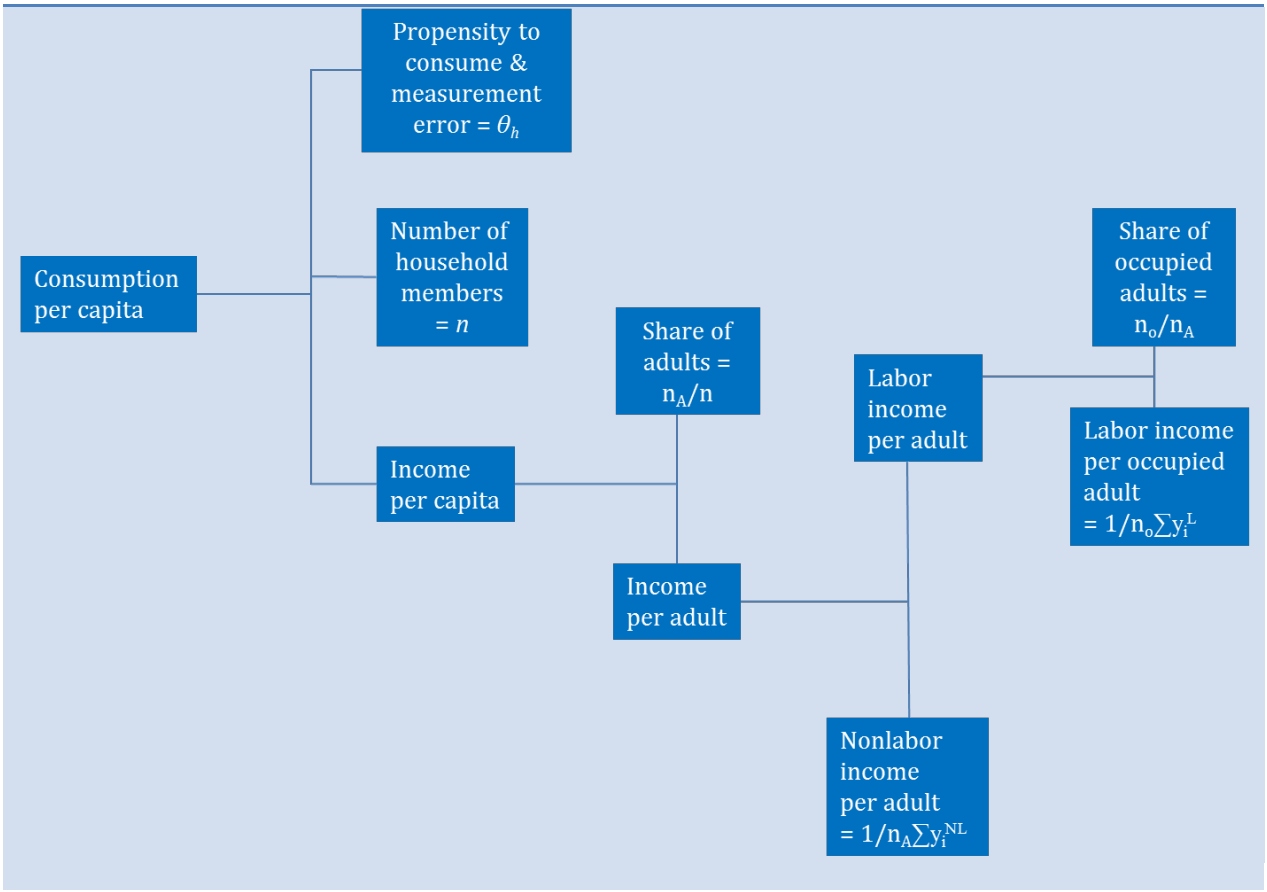
where n_o is the number of occupied adults.

Note that official poverty rates in some countries are calculated on the basis of household income. In these cases, equation (5) is sufficient to decompose the contribution of demographic factors, labor income, and nonlabor income to observed poverty reduction. However, most countries measure the distribution of welfare, and poverty in particular using household consumption. Therefore, we modify the Barros et al. (2006) approach by mapping consumption to income. In particular, we refer to the household consumption identity in (1). Combining (1) and (5) above, we can express household consumption per capita as:

$$C_{pc} = \theta_h\left[\frac{n_A}{n}\left[\frac{n_o}{n_A}\left(\frac{1}{n_o}\sum_{i\in A}^{n} y_i^L\right) + \frac{1}{n_A}\sum_{i\in A}^{n} y_i^{NL}\right]\right]. \quad (6)$$

With this framework, whether countries measure welfare by per capita household income or consumption, we can separate the demographic, labor, and nonlabor components discussed earlier. In addition, we can separate the contribution of changes in consumption patterns over time in poverty reduction. The determinants of per capita consumption are summarized in box 1.

Box 1. Decomposition of Consumption per Capita



Source: Author's adaptation of Barros et al. (2006).

Measuring the contributions to poverty reduction

Let $F(.)$ be the cumulative density function of the distribution of welfare. Since poverty rates depend on $F(.)$, then we can decompose household consumption in each household by the factors in equation (6). As a result, any poverty measure can be written as a function of each of these components. Therefore the contribution of each component towards changes in poverty or distribution can be expressed as a function of these indicators in the initial and end periods.

Following Barros et al. (2006), we can then simulate the distribution of welfare by changing each of these components one at a time, to calculate their contribution to the observed changes in poverty. In particular, let ϑ be a measure of poverty, inequality or any other distributional statistic. Then, this measure will be a function of the cumulative density function, $F(.)$, which in turn depends on each of the factors above:

$$\vartheta = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{n_A}{n}, \frac{n_o}{n_A}, y_{PO}^{L}, y_{PA}^{NL}\right)\right)\right), \quad (7)$$

where

$$y_{PO}^{L} = \frac{1}{n_o}\sum_{i\in A}^{n} y_i^L$$

and

$$y_{PA}^{NL} = \frac{1}{n_A}\sum_{i\in A}^{n} y_i^{NL}.$$

Given that the distribution of per capita consumption for period 0 and period 1 are known, we can construct counterfactual distributions for period 1 by substituting the observed level of the indicators in period 0, one at a time. For each counterfactual distribution, we can compute the poverty measures, and interpret those counterfactuals as the poverty that would have prevailed in the absence of a change in that indicator. For example, to see the impact of the change in the share of occupied adults, we can compute $\hat{\vartheta}$, where we substitute the value of $\frac{\mathrm{n_o}}{\mathrm{n_A}}$ observed in period 0 to the observed distribution in period 1. We can then compute:

$$\hat{\vartheta} = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{n_A}{n}, \frac{\widehat{n_o}}{n_A}, y_{PO}^{L}, y_{PA}^{NL}\right)\right)\right), \tag{8}$$

such that the contribution of the share of occupied adults is the difference between the observed ϑ in period 1 and the estimated counterfactual, $\hat{\vartheta}$. Similarly, each of the other components in the consumption per capita distribution in period 1 can be substituted by their values in period 0 so that their contribution to changes in poverty can be computed.

Since we do not have panel data, we do not observe period 1 households in period 0. Therefore, we use a rank-preserving transformation to assign first-period characteristics to the second period. This method uses an idea first proposed by Juhn, Murphy, and Pierce (1993), who decomposed changes in wages by running Mincer-type Ordinary Least Squares (OLS) regressions that make it possible to decompose labor income inequality, using any measure of inequality, in three parts. The first are quantity effects, which refers to the distribution of observable workers' characteristics, such as education and labor market experience, and are included as regressors in the equation. The second are price effects, which captures changes in returns to observed characteristics through the regression's coefficients. The third is the regression residual (unobservables), which reflect changes in inequality within education and experience groups. While counterfactuals for the quantity effects can be created by assigning the mean observable characteristic from one period to the other, and the counterfactual for the price effects can be created by substituting regression coefficients from one period to another, to complete that analysis, the authors needed to assign a value to the residuals in each period. So they created a counterfactual by ordering households by their earnings in each period, and then

taking the average residual value in each quantile from the first period and assigning it to all households in the same quantile in the second period.

In this case, instead of running a Mincer model, we create counterfactuals by ordering households by their total household income, and then taking the average value of each characteristic in equation (5) for each quantile in period 0 and assigning it to each household in that same quantile in period 1. For example, if we are decomposing the effect of labor income, we order households into quantiles by their observed total household income in periods 0 and 1. Then for every quantile in period 1, we replace the period 1 labor income with the average labor income in period 0 from households that were in the same quantile.

Box 2. Barros et al. (2006) Methodology

1.	$\vartheta_0 = \Phi\left(F\left(Y_{pc}\left(\frac{n_A}{n}, \frac{n_o}{n_A}, y^L_{PO}, y^{NL}_{PA}\right)\right)\right)$	Initial poverty rate
2.	$\widehat{\vartheta_{a1}} = \Phi\left(F\left(Y_{pc}\left(\frac{\widehat{n_A}}{n}, \widehat{y_{PA}}\right)\right)\right)$	Contribution of the interaction between share of adults and income per adult is $\widehat{\vartheta_{a1}} - \vartheta_0$
3.	$\widehat{\vartheta_{nA}} = \Phi\left(F\left(Y_{pc}\left(\frac{\widehat{n_A}}{n}, y_{PA}\right)\right)\right)$	Contribution of share of household adults is $\widehat{\vartheta_{nA}} - \widehat{\vartheta_{a1}}$
4.	$\widehat{\vartheta_{a2}} = \Phi\left(F\left(Y_{pc}\left(\frac{n_A}{n}, \frac{n_o}{n_A}, \widehat{y^L_{PO}}, \widehat{y^{NL}_{PA}}\right)\right)\right)$	Contribution of the interaction between labor and nonlabor income is $\widehat{\vartheta_{a2}} - \widehat{\vartheta_{nA}}$.
5.	$\widehat{\vartheta_{NL}} = \Phi\left(F\left(Y_{pc}\left(\frac{n_A}{n}, \frac{n_o}{n_A}, y^L_{PO}, \widehat{y^{NL}_{PA}}\right)\right)\right)$	Contribution of nonlabor income is $\widehat{\vartheta_{NL}} - \widehat{\vartheta_{a1}}$.
6.	$\widehat{\vartheta_{a3}} = \Phi\left(F\left(Y_{pc}\left(\frac{n_A}{n}, \frac{\widehat{n_o}}{n_A}, \widehat{y^L_{PO}}, y^{NL}_{PA}\right)\right)\right)$	Contribution of the interaction between labor income and the share of occupied adults is $\widehat{\vartheta_{a3}} - \widehat{\vartheta_{NL}}$.
7.	$\widehat{\vartheta_{no}} = \Phi\left(F\left(Y_{pc}\left(\frac{n_A}{n}, \frac{\widehat{n_o}}{n_A}, y^L_{PO}, y^{NL}_{PA}\right)\right)\right)$	Contribution of the share of occupied adults is $\widehat{\vartheta_{no}} - \widehat{\vartheta_{a3}}$.
8.	$\vartheta_F = \Phi\left(F\left(Y_{pc}\left(\frac{n_A}{n}, \frac{n_o}{n_A}, y^L_{PO}, y^{NL}_{PA}\right)\right)\right)$	Final poverty rate, ϑ_F . The contribution of labor income, y^L_{PO}, is calculated as a residual: $\vartheta_f - \widehat{\vartheta_{a3}}$.

Barros et al. (2006) compute each counterfactual simulation in a nested fashion (box 2). They identify the contribution that interactions between variables have in poverty reduction by first computing the joint impact of a subset of variables, and then subtracting the marginal impact of each variable, one at a time. For instance, in step 2 in table 1, they first compute the joint impact of inserting both the share of adults and the income per adult from the first period into the distribution of the second period. They then compute the impact of changing only the share of adults, and take the difference of these two simulations to approximate the marginal impact that changing the share of adults had on the distribution. However, in step 4, instead of computing the

impact of income per adult on its own, they compute the impact of changing both the labor and nonlabor income per adult. This is done because, in principle, the sum of labor and nonlabor income should be equivalent to changing total income per adult. The results of these two simulations are different, however, and the simulation of labor income is not done explicitly, but rather ends up being a "residual" in step 8 to ensure that the cumulative effect adds up to the total distributional change.

We modify the procedure in three ways: (1) we focus on consumption as a measure of welfare; (2) we compute a cumulative counterfactual distribution by adding one variable at a time; and (3) we compute Shapley-Shorrocks estimates of each component. First, the focus on consumption is because most developing countries use a consumption aggregate to measure poverty. Second, in contrast to the Barros et al. (2006) approach, this method does not separately identify the contribution of the interaction between variables in the observed distributional changes; doing so is partial at best, given that changing any variable can potentially affect all other variables. Instead, the impact of changes in each variable and its interactions with all other variables is calculated as the difference between the cumulative counterfactuals. Box 3 shows an example for one possible path, taking into account the fact that nonlabor income is made up of pensions, transfers, capital income, and other income.

The third methodological change is to address the fact that this methodology suffers from path-dependence, as much of the micro-decomposition literature does. In other words, the order in which the cumulative effects are calculated matters.[6] One of the major contributions of this paper is that we apply the best known remedy for path-dependence, which is to calculate the decomposition across all possible paths, and then take the average between them following the method proposed by Azevedo, Nguyen, and Sanfelice (2012).[7] This involves calculating the cumulative decomposition in every possible order, and then averaging the results for each component. Because we have eight variables, this adds up to 40,320 potential decomposition paths (the result of 8!). The average effect for each variable is also known as the Shapley-Shorrocks estimate of each component.[8]

There is one remaining caveat to this approach: The counterfactual income distributions on which these decompositions rely suffer from equilibrium-inconsistency. Because we are modifying only one element at a time, the counterfactuals are not the result of an economic equilibrium, but rather a fictitious exercise in which we assume that we can in fact modify one factor at a time and keep everything else constant.

[6] Path-dependence is common in the micro-decomposition literature. See Essama-Nssah 2012, Fortin et al. 2011, and Ferreira 2010 for recent reviews of the literature.
[7] A Stata ado file by Azevedo, Sanfelice, and Nguyen implements this approach. To download it, within Stata type: "ssc install adecomp"
[8] See Shapley 1953 and Shorrocks 1999.

Box 3. Proposed Methodology along One Possible Path

1.	$\vartheta_0 = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{n_A}{n}, \frac{n_o}{n_A}, y_{PO}^{L}, y_{PA}^{NL}\right)\right)\right)$	Initial inequality rate
2.	$\widehat{\vartheta_1} = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{\widehat{n_A}}{n}, \frac{n_o}{n_A}, y_{PO}^{L}, y_{PA}^{NL}\right)\right)\right)$	Contribution of share of household adults is $\widehat{\vartheta_1} - \vartheta_0$
3.	$\hat{\vartheta}_2 = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{\widehat{n_A}}{n}, \frac{\widehat{n_o}}{n_A}, y_{PO}^{L}, y_{PA}^{NL}\right)\right)\right)$	Contribution of the share of occupied adults is $\widehat{\vartheta_2} - \widehat{\vartheta_1}$
4.	$\hat{\vartheta}_3 = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{\widehat{n_A}}{n}, \frac{\widehat{n_o}}{n_A}, y_{PO}^{L}, \widehat{y_{PA}^{Pens}}, y_{PA}^{Trans}, y_{PA}^{Cap}, y_{PA}^{Oth\,NL}\right)\right)\right)$	Contribution of pensions is $\widehat{\vartheta_3} - \widehat{\vartheta_2}$
5.	$\hat{\vartheta}_4 = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{\widehat{n_A}}{n}, \frac{\widehat{n_o}}{n_A}, y_{PO}^{L}, \widehat{y_{PA}^{Pens}}, \widehat{y_{PA}^{Trans}}, y_{PA}^{Cap}, y_{PA}^{Oth\,NL}\right)\right)\right)$	Contribution of transfers is $\widehat{\vartheta_4} - \widehat{\vartheta_3}$
6.	$\hat{\vartheta}_5 = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{\widehat{n_A}}{n}, \frac{\widehat{n_o}}{n_A}, y_{PO}^{L}, \widehat{y_{PA}^{Pens}}, \widehat{y_{PA}^{Trans}}, \widehat{y_{PA}^{Cap}}, y_{PA}^{Oth\,NL}\right)\right)\right)$	Contribution of capital income is $\widehat{\vartheta_5} - \widehat{\vartheta_4}$
7.	$\hat{\vartheta}_6 = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{\widehat{n_A}}{n}, \frac{\widehat{n_o}}{n_A}, y_{PO}^{L}, \widehat{y_{PA}^{Pens}}, \widehat{y_{PA}^{Trans}}, \widehat{y_{PA}^{Cap}}, \widehat{y_{PA}^{Oth\,NL}}\right)\right)\right)$	Contribution of other nonlabor income is $\widehat{\vartheta_6} - \widehat{\vartheta_5}$
8.	$\vartheta_F = \Phi\left(F\left(C_{pc}\left(\theta_h, \frac{n_A}{n}, \frac{n_o}{n_A}, y_{PO}^{L}, y_{PA}^{NL}\right)\right)\right)$	Final inequality rate. Contribution of labor income is $\widehat{\vartheta_F} - \widehat{\vartheta_3}$

4. Data

We analyze poverty spells in 18 countries throughout the world, roughly corresponding to changes in the decade from 2000 to 2010. Most Latin American countries in the sample use income-based measures of poverty and data is taken from a harmonized database of household surveys from Latin American countries compiled in the Socio-Economic Database for Latin America and the Caribbean (SEDLAC)[9]. For countries that use consumption-based measures of poverty, data are taken from household surveys in the case of Bangladesh, Peru, and Thailand. For Moldova and Romania, household surveys were standardized by the World Bank. For Ghana and Nepal, we use the Rural Income Generating Activities (RIGA) datasets, a harmonized database of household surveys compiled in a joint effort by the United Nations Food and Agriculture Organization FAO and the World Bank. Table A1 in the Annex provides more detail of the countries, exact years, and surveys included in this study.

5. Results

Demographics, labor income, public transfers, remittances: Which factor contributes the most to observed reductions in poverty? The key result that emerges is that the most important contributor to the reduction in poverty has been the growth in labor income per adult. In 10 of the 16 countries with substantial declines in moderate poverty, changes in labor income and employment explain more than half of the change in moderate poverty, and in another 4 countries, they account for more than 40 percent of the reduction in poverty (figure 10 and table 7).[10] This is true regardless of the decomposition path that is taken, as these results come out of the Shapley-Shorrocks estimates. Interestingly, in most cases, it was the growth in labor income throughout the decade that contributed the most, rather than an increase in the share of occupied adults.

Although changes in labor income are the main contributors to changes in poverty in most countries, demographics also matter. In particular, a higher share of working-age adults in the household made the largest contribution to poverty reduction in the case of Paraguay and Costa Rica, but was also important for Bangladesh, Chile, and Honduras. Changes in the share of adults per household were also relatively important in explaining declines in moderate poverty in Bangladesh, Chile, Ecuador, and Honduras (table 7). In general, changes in the percentage of adults working had a positive contribution to poverty reduction, but the magnitude of this effect is comparatively smaller. Overall, it is possible to say that the share of working-age adults increased, and that a larger proportion of this larger workforce was able to engage in the labor

[9] SEDLAC is a joint effort of the *Centro de Estudios Distributivos Laborales y Sociales* of the Universidad Nacional de La Plata and the World Bank's Latin American Poverty and Gender Group

[10] Annex figure A1 shows a similar result when decomposing changes in poverty measured by the US$2.50-a-day poverty rate in all countries, including Mexico and El Salvador, both of which do not meet the requirement of having had a substantial reduction in poverty, defined as instances where there was an average decline in moderate poverty of 1 percentage point per year or more.

market and generate income. However, the increase in earnings of workers was relatively more important in reducing poverty than the increase in the number of workers or in the number of jobs. Moreover, we are not able to disentangle whether the increase in earnings was due to improvements in the quality of jobs, changes in productivity, or simply due to longer hours.

While public and private transfers were important, they played a relatively smaller role in explaining declines in moderate poverty for most countries in the sample. The exceptions were Romania and Moldova, where transfers contributed relatively more to changes in poverty. In the case of Romania, this was related to changes in transfers and capital income, while in the case of Moldova it was mostly related to the increase in international remittances.

Finally, in cases where poverty is measured by consumption, these decompositions suggest that changes in the consumption-to-income ratio generally helped to reduce poverty in Ghana and Romania, where the consumption-income ratio increased at the bottom of the distribution. However, in all other instances, the reduction in the consumption-to-income ratio during the last decade implied that poverty did not fall as much as it would have had consumption remained a constant share of income.[11]

When looking at changes in extreme poverty (measured either by a US$2.50-a-day poverty line in middle-income countries or by US$1.25-a-day poverty line in low income countries) nonlabor incomes are relatively more important in accounting for changes in poverty (Tables 8 and 9), as transfers play a larger role in poverty reduction.[12]

Moreover, note that regardless of which poverty line is used, transfers play a more important role for those farthest from the poverty line, the extreme poor. Transfers account for a greater share of the decline in the poverty gap, the distance of the incomes of the poor to the poverty line (FGT1), as well as in the decline of the severity of poverty, a measure that gives higher weight to those farthest away from the poverty line (FGT2) (tables 8, 9, and 10).[13] In particular, in Argentina, Brazil, Chile, Costa Rica, Colombia, Ecuador, Panama, Romania, and Thailand, increases in cash transfers and pensions jointly account for a larger share of the decline in extreme poverty than changes in labor income. This finding is consistent with improvements those countries have made in the social protection systems, which are typically targeted to the bottom of the distribution, and which have increased in performance over the last decade.[14]

[11] Note that this ratio is the ratio of measured consumption to measured income. To the extent that there is measurement error in both of these, interpretations about changes in this ratio must be treated with caution.
[12] We do not report decompositions for Chile and Thailand, because in those countries only 1 percent or less of the population experiences poverty rates at the US$1.25-a-day poverty line
[13] FGT0 and FGT1 refer to the Foster, Greer, and Thorbecke (1984) measures of the headcount and poverty gap.
[14] See World Bank, 2013. Also, see Fiszbein et al. 2009 for a review of conditional cash transfer programs.

6. Summary and conclusions

This paper has sought to account for the contribution of demographics, labor and nonlabor income to the observed changes in poverty that occurred in 16 countries with substantial reductions in poverty across the world during the last decade. In contrast to methods that focus on aggregate summary statistics, the method adopted in this paper generates entire counterfactual distributions, allowing us to identify the contributions of these factors to observed distributional changes. Another contribution of this paper is that we apply the most well-known remedy for path-dependence, which is to calculate the decomposition across all possible paths and then take the average among them.

We find that the most important contributor to changes in moderate poverty has been the growth in labor income for most countries in our sample. In particular, in 10 of the 16 countries analyzed, labor income explains more than half of the change in moderate poverty, and in another four countries, it accounts for more than 40 percent of the reduction in poverty. The number of occupied adults per household increased, stemming mainly from increases in the number of working-age adults, pointing to poverty reduction due to increased employment. But it was increases in earnings per occupied adult that made the largest contribution to poverty reduction. Although we cannot distinguish whether this is due to higher earnings per hour, better-quality jobs, higher productivity, or greater number of hours worked, the point is that higher labor incomes appear to be the key factor behind reductions in poverty observed in the last decade.

Declining dependency ratios were important contributors to poverty reduction in Bangladesh, Costa Rica, Chile, Paraguay, and Honduras, pointing to the importance of demographic changes in contributing to the alleviation of poverty. In most cases, however, these effects were smaller than the effect of labor-income growth.

Finally, there was a significant contribution to moderate poverty reduction from both public and private transfers, although the contribution of public and private transfers is relatively less important when compared to labor-income growth. However, when accounting for changes in the extreme poverty headcount, the poverty gap, and the severity of poverty, we find that transfers and pensions contributed a relatively higher share.

While the decomposition method applied here is quite useful to distinguish the main contributors to poverty reduction, its main limitation is the fact that it cannot shed light on whether the decline in poverty was due to changes in the endowments of the population (such as higher educational levels or increases in other productive assets), or due to changes in returns to those endowments. For this, one must turn to alternative decomposition techniques that impose an underlying labor model and greater structure compared to the nonparametric approach adopted

here.[15] Looking forward, this should be possible, particularly if those models can be enhanced by computing the Shapley-Shorrocks estimates adopted here to address path-dependence.

[15] See, for example, Juhn, Murphy, and Pierce 1993; Bourguignon et al. 2005; and Bourguignon et al. 2008.

References

Azevedo, Joao Pedro, Minh Cong Nguyen, and Viviane Sanfelice. 2012. “Shapley Decomposition by Components of a Welfare Aggregate.” Washington, DC: World Bank. Mimeo.

Azevedo, Joao Pedro, Minh Cong Nguyen, and Viviane Sanfelice. 2012. "Adecomp: Stata module to estimate Shapley Decomposition by Components of a Welfare Measure," *Statistical Software Components* S457562, Boston College Department of Economics.

Barros, Ricardo Paes, Mirela de Carvalho, Samuel Franco, and Rosane Mendoça. 2006. “Uma Análise das Principais Causas da Queda Recente na Desigualdade de Renda Brasileira.” In: Revista Econômica 8 (1): 117–147. Rio de Janeiro: Universidade Federal Fluminense. http://www.uff.br/revistaeconomica/V8N1/RICARDO.PDF

Bourguignon, François, Francisco H.G. Ferreira, and Nora Lustig. 2005. *The Microeconomics of Income Distribution Dynamics in East Asia and Latin America*. Washington, DC: World Bank.

Bourguignon François, Francisco H. G Ferreira., and Phillippe G. Leite 2008. Beyond Oaxaca-Blinder: Accounting for Differences in Households Income Distributions. *Journal of Economic Inequality* 6 (2): 117–148

Bruno, Michael, Martin Ravallion, and Lyn Squire. 1998. "Equity and Growth in Developing Countries: Old and New Perspectives on the Policy Issues." Ed. Vito Tanzi and Ke-young Chu, *Income Distribution and High-quality Growth*. Cambridge: MIT Press.

Chen and Ravallion. 2008. “The Developing World is Poorer Than We Thought, But No Less Successful in the Fight Against Poverty” World Bank Policy Research Working Paper 4703.

Datt, Gaurav, and Martin Ravallion. 1992. Growth and Redistribution Components of Changes in Poverty Measures: A Decomposition with Applications to Brazil and India in the 1980s. *Journal of Development Economics*, 38: 275–296.

Dollar, David, and Aart Kraay. 2002. “Growth is good for the poor” *Journal of Economic Growth* 7: 195–225.

Essama-Nssah, B. 2012. “Identification of Sources of Variation in Poverty Outcomes.” World Bank Policy Research Working Paper 5954.

Ferreira, Francisco H.G. 2010. “Distributions in Motion: Economic Growth, Inequality and Poverty Dynamics”. World Bank Policy Research Working Paper No. 5424.

Fiszbein, A., N. Schady, Ferreira, F., P. Olinto, and E. Skouffias. 2009. "Conditional Cash Transfers: Reducing Present and Future Poverty." World Bank Policy Research Report 47603.

Fortin, Nicole, Thomas Lemieux and Sergio Firpo. 2011. Decomposition Methods in Economics. In: Ashenfelter Orley and Card David (eds) Handbook of Labor Economics, Vol. 4A , pp. 1-102. Northolland, Amsterdam.

Foster, James, J. Greer, and Eric Thorbecke. 1984. "A Class of Decomposable Poverty Measures." *Econometrica* 52 (3): 761–65.

Juhn, Chinhui, Kevin Murphy, and Brooks Pierce. 1993. "Wage Inequality and the Rise of Returns to Skill." *Journal of Political Economy* 101 (3): 410–442.

Kolenikov, Stanislav, and Anthony Shorrocks. 2005. "A Decomposition Analysis of Regional Poverty in Russia." *Review of Development Economics* 9 (1):25–46.

Kuznets, Simon.1955. "Economic growth and income inequality." *American Economic Review* 65 (1): 1–29.

Ravallion, Martin. 2001. Growth, Inequality and Poverty: Looking Beyond Averages. *World Development* 29 (11): 1803–1815.

Ravallion, Martin, and Shaohua Chen. 1997. "What can new survey data tell us about recent changes in distribution and poverty?" *World Bank Economic Review* 11 (2): 357–382.

Ravallion, Martin, and Shaohua Chen. 2003. Measuring Pro-Poor Growth. *Economic Letters* 78: 93–99.

Ravallion, Martin, and Shaohua Chen. 2007. "China's (Uneven) Progress Against Poverty." *Journal of Development Economics*, 82 (1): 1–42.

Ravallion, Martin, and Monika Huppi. 1991. Measuring Changes in Poverty: A Methodological Case Study of Indonesia during an Adjustment Period. *The World Bank Economic Review* 5 (5): 57–82.

Rural Income Generating Activities (RIGA) data. http://www.fao.org/economic/riga/en/

Shapley, L. 1953. "A value for n-person games." In,*Contributions to the Theory of Games*, ed. H. W. Kuhn and A. W. Tucker 2. Princeton, N.J.: Princeton University Press.

Shorrocks A.F. 1999. Decomposition Procedures for Distributional Analysis: A Unified Framework Based on Shapley Value. University of Essex and Institute for Fiscal Studies. Mimeo.

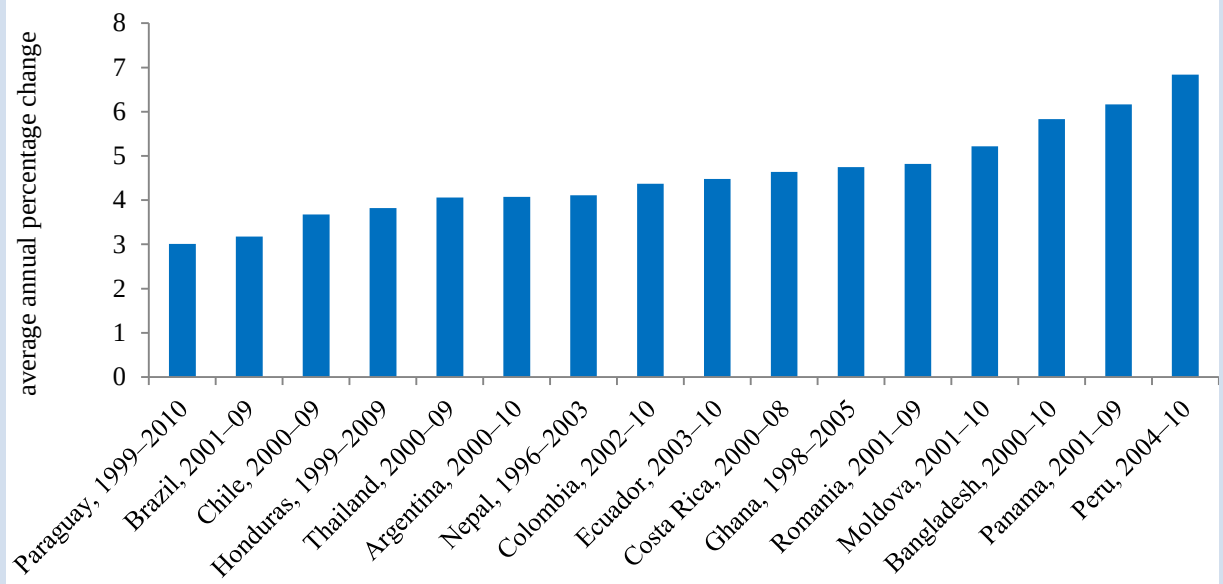
World Bank. 2006. *World Development Report 2006: Equity and Development*. Washington, DC: World Bank and Oxford University Press.

World Bank, 2012. *World Development Indicators*. Available at: http://data.worldbank.org/data-catalog/world-development-indicators

World Bank, 2013. *World Development Indicators*. Available at: http://data.worldbank.org/data-catalog/world-development-indicators

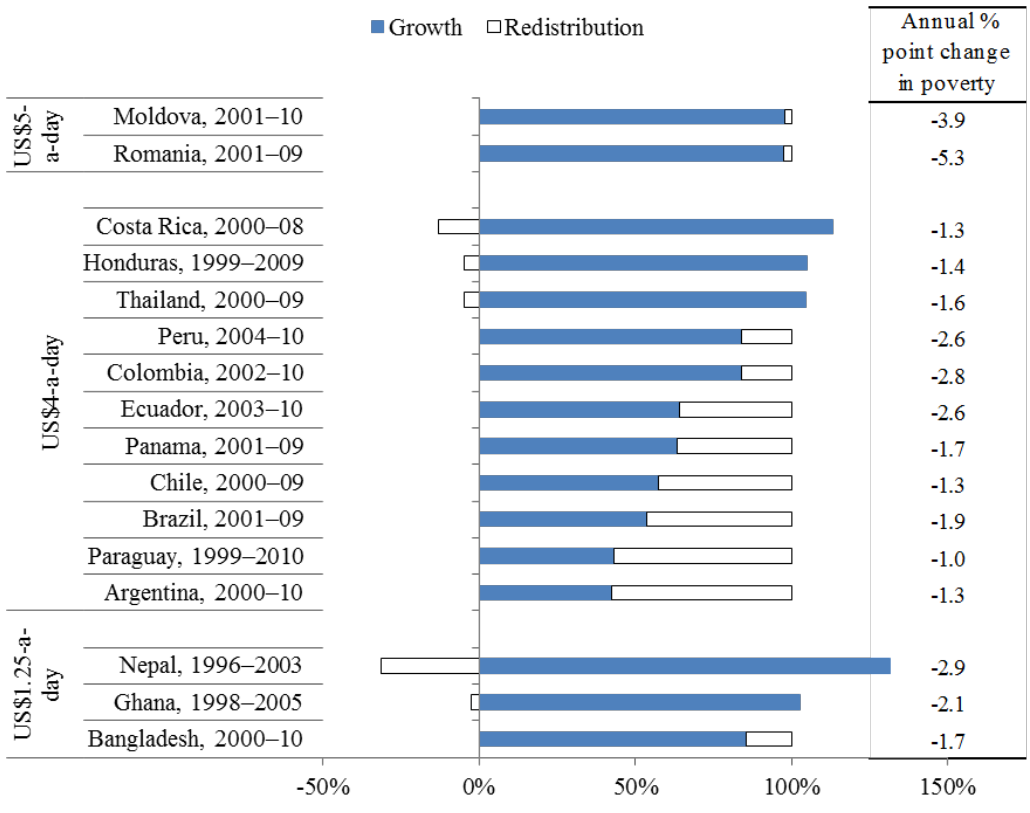
World Bank, 2013. *ASPIRE. The 2011 Atlas of Social Protection: Indicators of Resilience and Equity*, Available at http://go.worldbank.org/PG2N7P0Z80.

Figure 1. Average Real GDP Growth



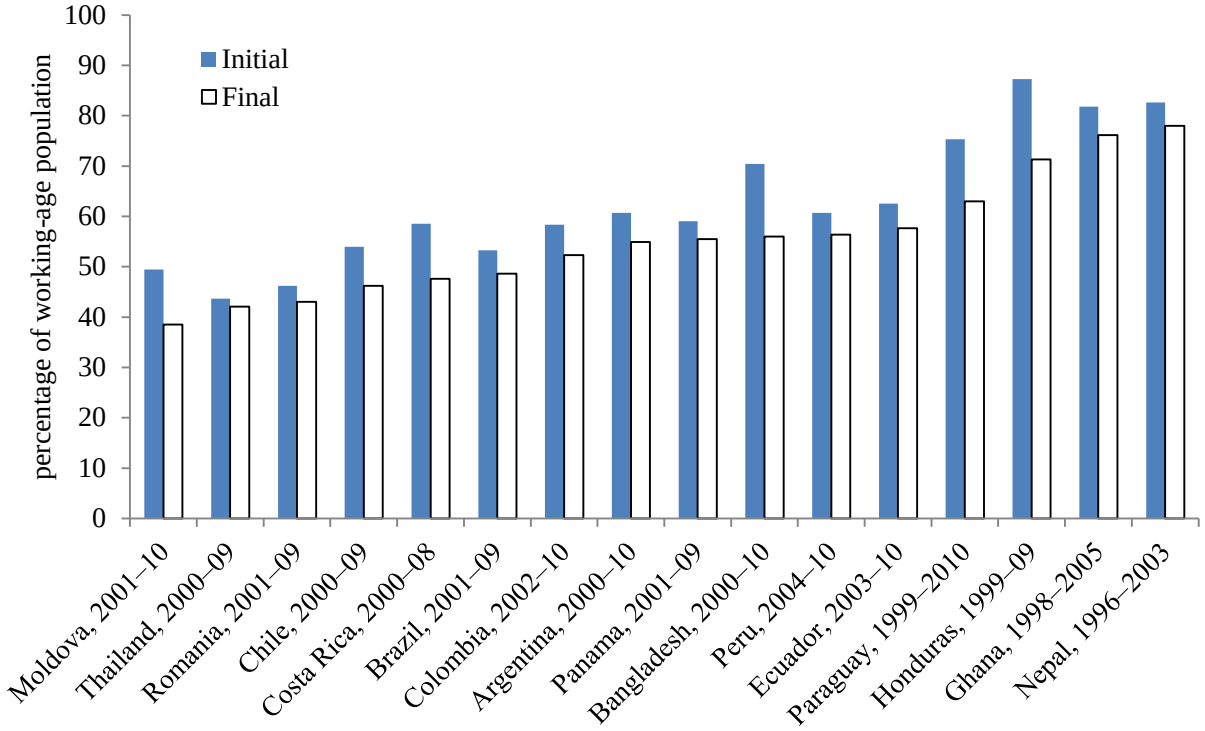
Source: World Development Indicators, 2012.

Figure 2. Growth-Redistribution Decompositions



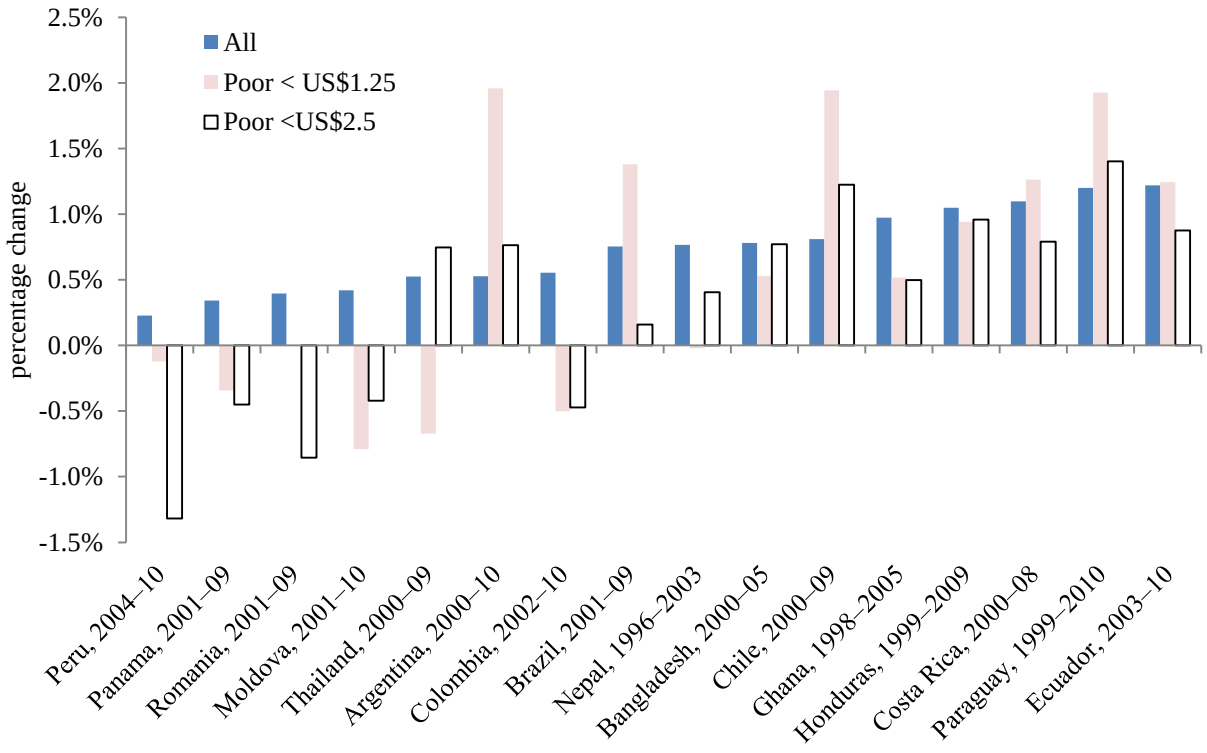
Source: Authors' calculations with data from SEDLAC, RIGA, and National Household Surveys.

Figure 3. Age-Dependency Ratio



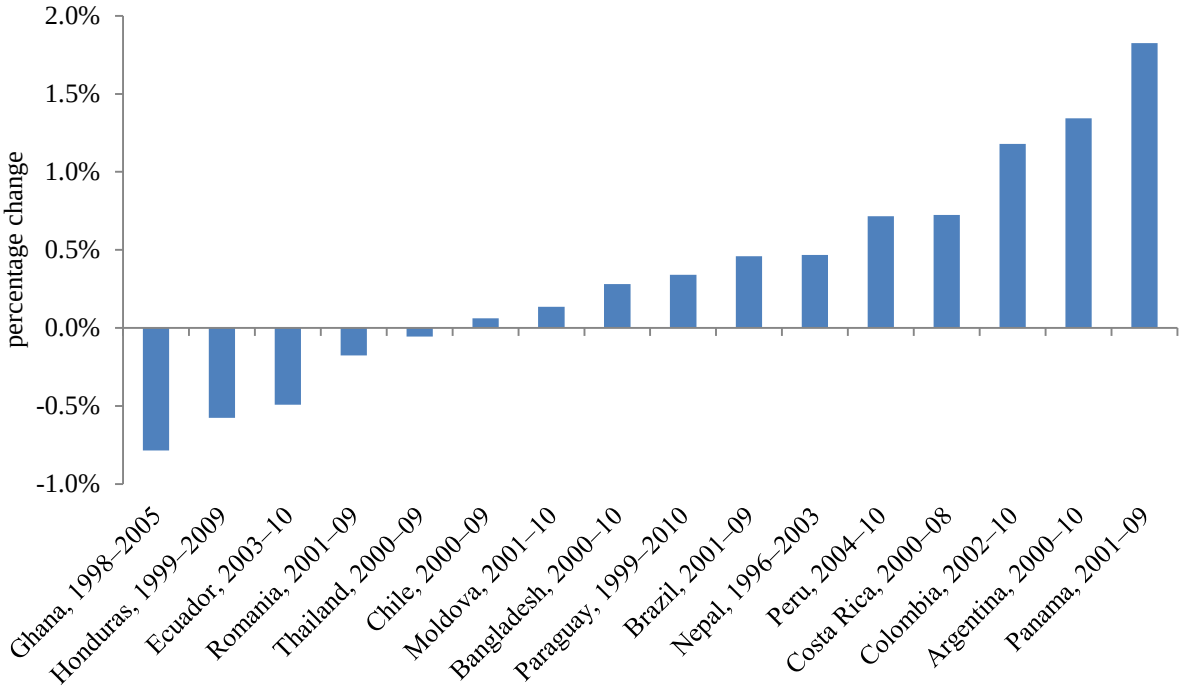
Source: Health, Nutrition, and Population Statistics, World Bank 2012.

Figure 4. Growth in the Share of Adults per Household



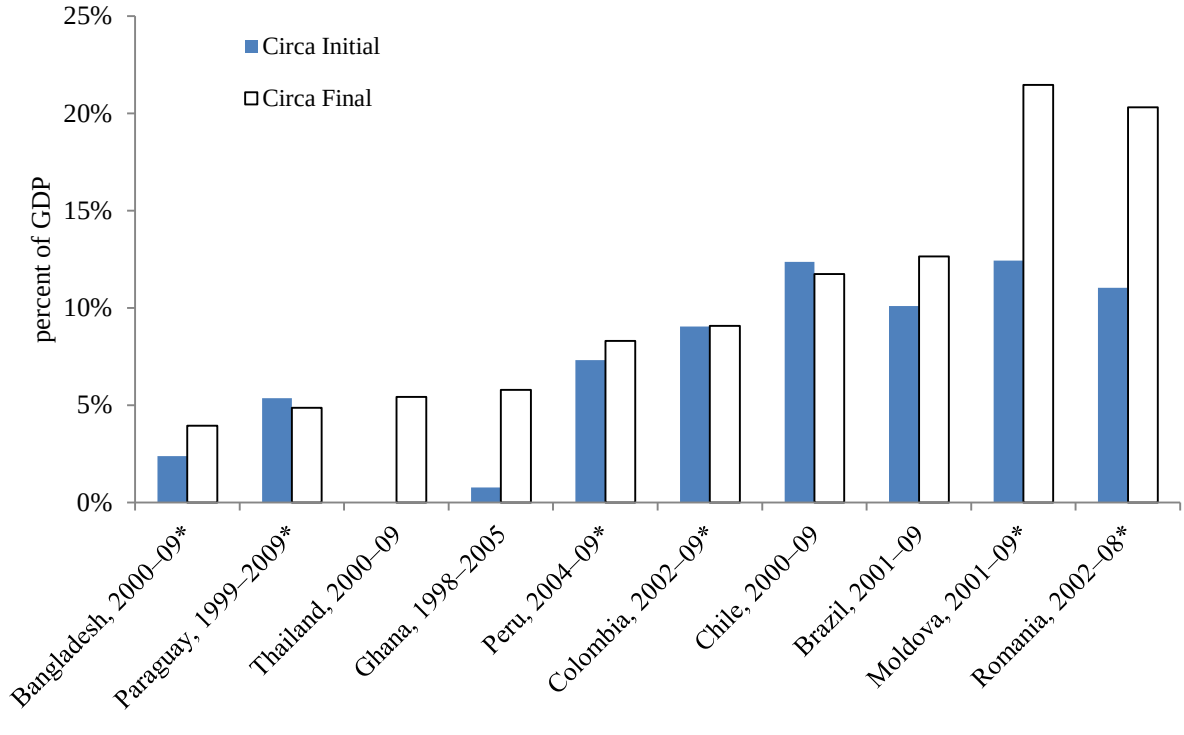
Source: Authors' calculations with data from SEDLAC, RIGA, and National Household Surveys.

Figure 5. Change in the Share of Occupied Adults per Household



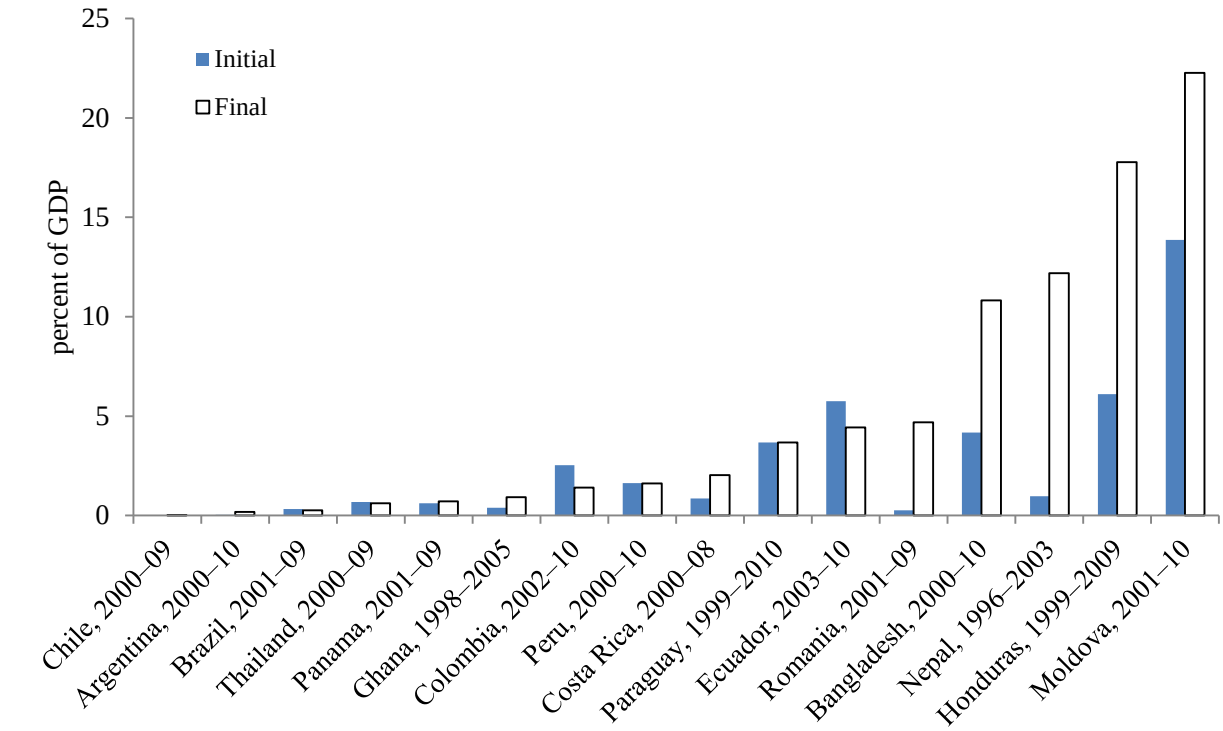
Source: Authors' calculations with data from SEDLAC, RIGA, and National Household Surveys.

Figure 6. Subsidies and Other Social Transfers



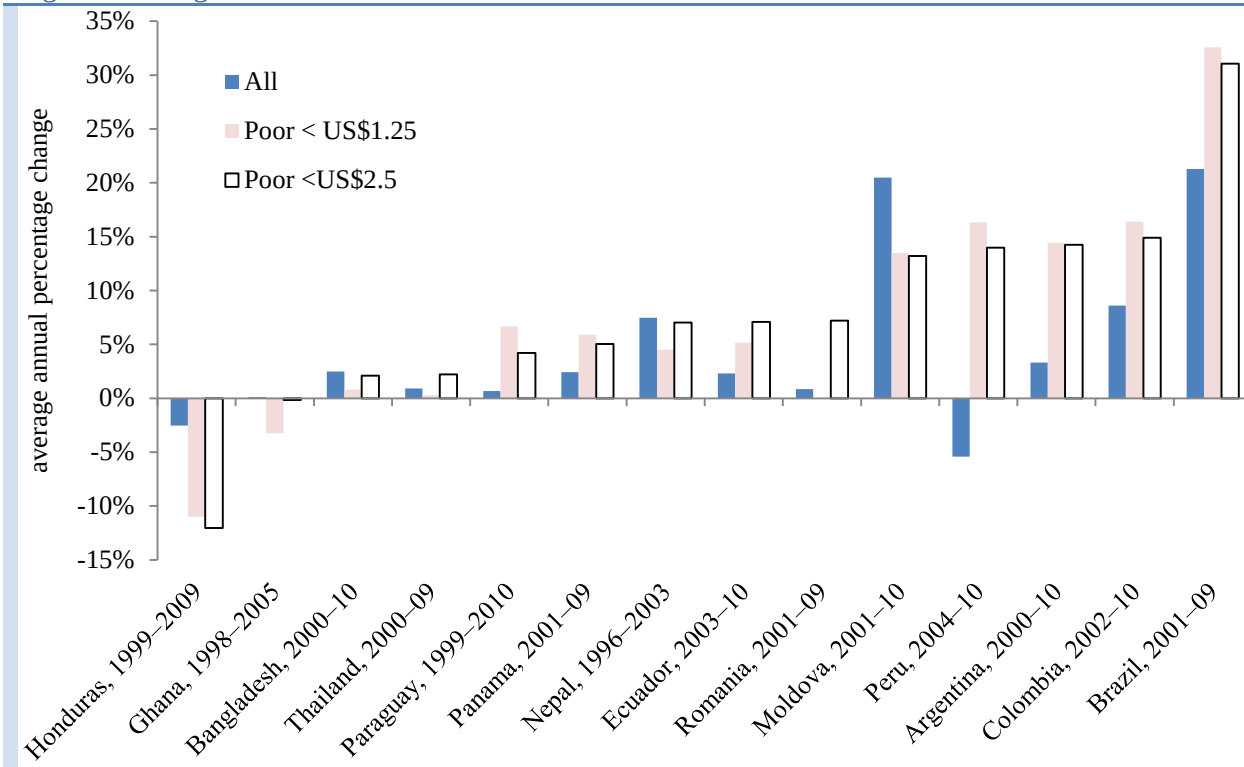
Source: World Development Indicators, 2012.
* The reported subsidy and transfer data are for a year that is one year earlier than the household survey.

Figure 7. International Remittances



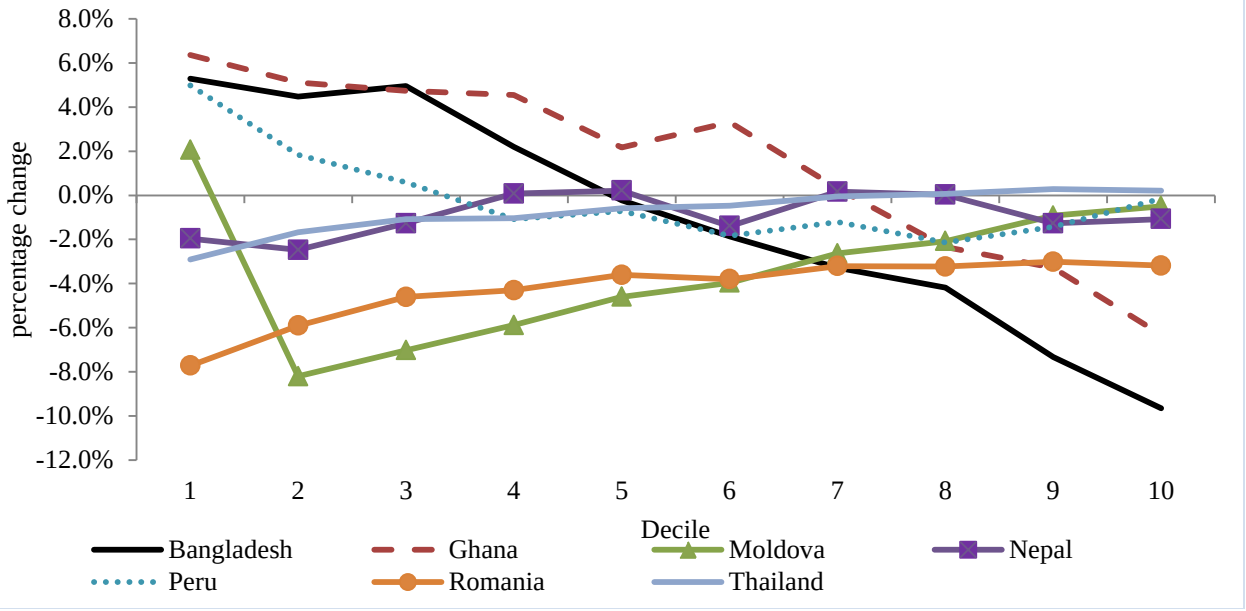
Source: World Development Indicators, 2012

Figure 8. Change in the Share of Transfers in Total Household Income



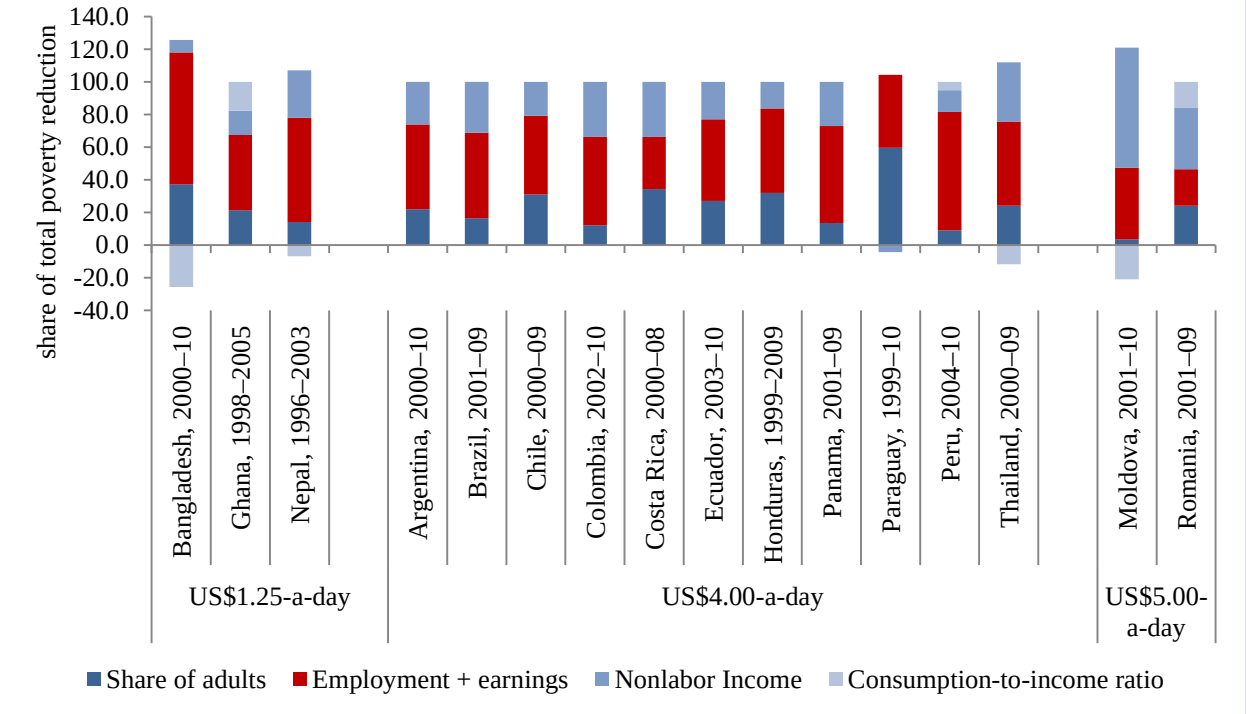
Source: Authors' calculations with data from SEDLAC, RIGA, and National Household Surveys.

Figure 9. Change in Household Consumption-to-Income Ratio



Source: Authors' calculations with data from RIGA, and National Household Surveys.

Figure 10. Decomposition of Changes in Moderate Poverty



Source: Authors' calculations with data from SEDLAC, RIGA, and National Household Surveys.
Notes: "Labor income" refers to the change in employment and earnings per adult; "nonlabor income" refers to transfers, pensions, capital, and other income not from labor. Consumption-based measures of poverty are used in the case of Bangladesh, Ghana, Nepal, Peru, Thailand, Moldova, and Romania. Income-based measures of poverty are used in the case of Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Honduras, Panama, and Paraguay.

Table 1. Poverty Headcount Rates

A. Income-Based Poverty Headcount Rate

	US$4-a-day PPP				US$2.50-a-day PPP				US$1.25-a-day PPP			
	Initial period	Final period	Total reduction	Annual change	Initial period	Final period	Total reduction	Annual change	Initial period	Final period	Total reduction	Annual change
Argentina, 2000–2010	27.5	14.6	-13.0	-6.2%	14.2	6.4	-7.8	-7.7%	5.1	1.8	-3.3	-9.8%
Brazil, 2001–2009	43.1	27.6	-15.5	-5.4%	27.4	15.1	-12.3	-7.2%	11.8	6.1	-5.7	-7.9%
Chile, 2000–2009	23.2	11.8	-11.4	-7.2%	9.0	4.3	-4.7	-7.9%	2.3	1.3	-0.9	-5.6%
Colombia, 2002–2010	61.6	39.5	-22.1	-5.4%	42.3	22.0	-20.3	-7.8%	20.7	8.2	-12.6	-11.0%
Costa Rica, 2000–2008	29.2	18.9	-10.2	-5.3%	14.7	7.6	-7.1	-7.9%	5.5	2.4	-3.1	-9.8%
Ecuador, 2003–2010	51.5	33.4	-18.1	-6.0%	31.5	15.9	-15.6	-9.3%	12.2	4.6	-7.6	-13.0%
Honduras, 1999–2009	66.1	52.1	-14.1	-2.4%	47.9	36.2	-11.6	-2.7%	24.9	17.8	-7.1	-3.3%
Panama, 2001–2009	43.4	29.9	-13.5	-4.6%	28.7	16.1	-12.6	-6.9%	15.4	4.6	-10.8	-14.0%
Paraguay, 1999–2010	43.3	32.8	-10.6	-2.5%	26.7	18.4	-8.3	-3.3%	14.0	7.2	-6.8	-5.9%

B. Consumption-Based Poverty Headcount Rate

	US$4/US$5-a-day PPP *a/*				US$2.50-a-day PPP				US$1.25-a-day PPP			
	Initial period	Final period	Total reduction	Annual change	Initial period	Final period	Total reduction	Annual change	Initial period	Final period	Total reduction	Annual change
Bangladesh, 2000–2010	…	…	…	…	89.2	84.0	-5.2	-0.6%	57.7	40.3	-17.4	-3.5%
Ghana, 1998–2005	…	…	…	…	71.8	58.3	-13.5	-2.9%	38.2	23.5	-14.7	-6.7%
Moldova, 2001–2010	93.8	58.7	-35.1	-5.1%	71.4	12.9	-58.5	-17.3%	27.5	0.5	-27.0	-35.4%
Nepal, 1996–2003	…	…	…	…	94.3	84.9	-9.5	-1.5%	54.0	25.9	-28.2	-10.0%
Romania, 2001–2009	75.3	33.2	-42.1	-9.7%	23.7	4.2	-19.5	-19.6%	2.6	0.0	-2.6	-100.0%
Peru, 2004–2010	45.8	30	-15.8	-6.8%	22.9	11.7	-11.2	-10.6%	3.5	0.8	-2.6	-21.1%
Thailand, 2000–2009	31.3	16.6	-14.7	-6.8%	7.9	2.5	-5.3	-11.8%	3.7	1.4	-2.3	-10.3%

a/ Moldova and Romania measure moderate poverty at rates close to US$5-a-day, while Peru and Thailand measure at rates close to US$4-a-day.

Source: Author's calculations with data from RIGA for Ghana and Nepal, and from household surveys for Bangladesh, Moldova, Romania, Peru, and Thailand.

Table 2. Datt-Ravallion Decompositions

		Growth	Redistribution
US$1.25-a-day	Bangladesh, 2000–10	85%	15%
	Ghana, 1998–2005	103%	-3%
	Nepal, 1996–2003	132%	-32%
US$4-a-day	Argentina, 2000–10	43%	57%
	Brazil, 2001–09	54%	46%
	Chile, 2000–09	57%	43%
	Colombia, 2002–10	84%	16%
	Costa Rica, 2000–08	113%	-13%
	Ecuador, 2003–10	64%	36%
	Honduras, 1999–2009	105%	-5%
	Panama, 2001–09	63%	37%
	Paraguay, 1999–2010	43%	57%
	Peru, 2004–10	84%	16%
	Thailand, 2000–09	105%	-5%
US$5-a-day	Moldova, 2001–10	98%	2%
	Romania, 2001–09	98%	2%

Source: Authors' calculations with data from SEDLAC (CEDLAS and the World Bank), RIGA for Ghana and Nepal, and from household surveys for Bangladesh, Moldova, Romania, Peru, and Thailand.

Consumption-based measures of poverty are used in the case of Bangladesh, Ghana, Nepal, Peru, Thailand, Moldova, and Romania. Income-based measures of poverty are used in the case of Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Honduras, Panama, and Paraguay.

Table 3. Share of Adults per Household

	Average of sample			Poor (under US$1.25 a day)			Poor (under US$2.5 a day)		
	Initial period	Final period	Annual change	Initial period	Final period	Annual change	Initial period	Final period	Annual change
B. Income-Based Poverty									
Argentina, 2000–10	72.3	76.2	0.5%	51.5	62.5	2.0%	53.5	57.7	0.8%
Brazil, 2001–09	71.3	75.7	0.8%	50.9	56.8	1.4%	55.0	55.7	0.2%
Chile, 2000–09	72.6	78.0	0.8%	57.5	68.4	1.9%	58.8	65.6	1.2%
Colombia, 2002–10	68.0	71.1	0.6%	62.1	59.6	-0.5%	61.4	59.1	-0.5%
Costa Rica, 2000–08	67.1	73.3	1.1%	58.1	64.3	1.3%	56.3	60.0	0.8%
Ecuador, 2003–10	66.2	72.1	1.2%	56.4	61.5	1.2%	56.8	60.4	0.9%
Honduras, 1999–2009	57.2	63.5	1.1%	48.7	53.5	0.9%	50.3	55.3	1.0%
Panama, 2001–09	68.1	70.0	0.3%	53.7	52.2	-0.3%	56.0	54.0	-0.5%
Paraguay, 1999–2010	59.8	68.2	1.2%	46.3	57.2	1.9%	48.6	56.6	1.4%
B. Consumption-Based Poverty									
Bangladesh, 2000–05	60.4	65.3	0.8%	55.4	58.4	0.5%	58.9	63.6	0.8%
Ghana, 1998–2005	56.1	60.1	1.0%	49.5	51.3	0.5%	52.3	54.2	0.5%
Moldova, 2001–10	78.8	81.8	0.4%	73.1	68.1	-0.8%	76.4	73.5	-0.4%
Nepal, 1996–2003	57.9	61.1	0.8%	55.1	55.0	0.0%	57.0	58.6	0.4%
Peru, 2004–10	68.3	69.2	0.2%	51.5	51.2	-0.1%	55.0	50.8	-1.3%
Romania, 2001–09	82.2	84.8	0.4%	60.9			71.9	67.1	-0.9%
Thailand, 2000–09	74.2	77.8	0.5%	56.9	53.6	-0.7%	61.4	65.6	0.7%

Source: Author's calculations with data from SEDLAC (CEDLAS and the World Bank), RIGA, and National Household Surveys.

Table 4. Share of Occupied Adults per Household

	Average of sample			Poor (under US$1.25 a day)			Poor (under US$2.5 a day)		
	Initial period	Final period	Annual change	Initial period	Final period	Annual change	Initial period	Final period	Annual change
Argentina, 2000–10	48.8	55.7	1.3%	26.3	27.0	0.3%	32.8	34.7	0.6%
Brazil, 2001–09	60.4	62.7	0.5%	42.8	34.8	-2.6%	50.9	46.7	-1.1%
Chile, 2000–09	49.4	49.6	0.1%	14.9	6.9	-8.3%	27.4	15.7	-6.0%
Colombia, 2002–10	55.1	60.5	1.2%	40.2	39.1	-0.3%	46.0	46.2	0.1%
Costa Rica, 2000–08	53.7	56.9	0.7%	22.5	16.5	-3.8%	31.4	26.3	-2.2%
Ecuador, 2003–10	61.5	59.4	-0.5%	49.4	50.7	0.4%	53.7	51.7	-0.5%
Honduras, 1999–2009	63.2	59.6	-0.6%	55.1	41.3	-2.8%	57.7	50.3	-1.4%
Panama, 2001–09	51.7	59.7	1.8%	45.7	50.3	1.2%	44.6	51.8	1.9%
Paraguay, 1999–10	61.7	64.1	0.3%	51.2	49.1	-0.4%	53.6	53.8	0.0%
Bangladesh, 2000–10	46.9	48.2	0.3%	49.7	50.5	0.2%	47.8	49.1	0.3%
Ghana, 1998–2005	41.4	39.2	-0.8%	38.1	32.0	-2.5%	39.3	35.6	-1.4%
Moldova, 2001–10	65.3	66.1	0.1%	64.7	76.0	1.8%	64.1	71.0	1.1%
Nepal, 1996–2003	32.7	33.8	0.5%	32.7	34.0	0.6%	32.7	34.2	0.6%
Peru, 2004–10	69.4	72.5	0.7%	82.5	78.3	-0.9%	79.1	80.1	0.2%
Romania, 2001–09	83.2	82.1	-0.2%	79.5			83.6	74.1	-1.5%
Thailand, 2000–09	74.7	74.4	-0.1%	60.6	72.0	1.9%	78.2	71.3	-1.0%

Source: Author's calculations with data from SEDLAC (CEDLAS and the World Bank), RIGA, and National Household Surveys.

Table 5. Share of Transfers in Total Household Income

	Full sample			Poor (under US$1.25 a day)			Poor (under US$2.50 a day)		
	Initial period	Final period	Annual change	Initial period	Final period	Annual change	Initial period	Final period	Annual change
Argentina, 2000–10	4.7	6.5	3%	12.7	48.9	14%	8.7	32.9	14%
Brazil, 2001–09	1.2	5.8	21%	4.9	47.0	33%	2.8	24.8	31%
Chile, 2000–09		6.4			42.3			27.7	
Colombia, 2002–10	4.7	9.2	9%	9.2	30.8	16%	6.8	20.7	15%
Costa Rica, 2000–08		4.5			28.6			19.8	
Ecuador, 2003–10	9.0	10.6	2%	24.8	35.3	5%	15.1	24.4	7%
Honduras, 1999–2009	9.1	7.1	-3%	11.9	3.7	-11%	10.1	2.8	-12%
Panama, 2001–09	10.1	12.3	2%	26.1	41.2	6%	21.8	32.3	5%
Paraguay, 1999–2010	8.4	9.0	1%	8.3	16.9	7%	10.4	16.3	4%
Bangladesh, 2000–10	2.7	3.5	2%	1.8	2.0	1%	2.5	3.1	2%
Ghana, 1998–2005	5.1	5.1	0%	3.6	2.8	-3%	3.8	3.8	0%
Moldova, 2001–10	4.5	24.0	20%	7.2	22.5	14%	6.2	19.0	13%
Nepal, 1996–2003	3.0	4.9	7%	2.7	3.7	4%	2.9	4.7	7%
Peru, 2004–10	7.6	5.4	-5%	4.2	10.4	16%	3.9	8.5	14%
Romania, 2001–09	8.1	8.7	1%	29.7			19.4	33.8	7%
Thailand, 2000–09	9.9	10.7	1%	18.6	19.1	0%	11.7	14.3	2%

Source: Authors' calculations with data from SEDLAC (CEDLAS and the World Bank), RIGA, and National Household Surveys.

Table 6. Change in the Consumption-to-Income Ratio

	Bangladesh, 2000-2010			Ghana, 1998-2005			Moldova, 2001-2010			Nepal, 1996-2003			Peru, 2005-2009			Romania, 2001-2009			Thailand, 2000-2009		
Income deciles	Initial period	Final period	Annual change	Initial period	Final period	Annual change	Initial period	Final period	Annual change	Initial period	Final period	Annual change	Initial period	Final period	Annual change	Initial period	Final period	Annual change	Initial period	Final period	Annual change
Decile	1.8	2.3	3%	22.6	34.8	6%	15.3	18.4	2%	3.3	2.9	-2%	1.6	1.9	5%	4.51	2.37	-8%	1.5	1.2	-3%
2	1.2	1.5	2%	5.9	8.3	5%	4.0	1.9	-8%	1.9	1.6	-2%	1.3	1.4	2%	1.89	1.16	-6%	1.1	1.0	-2%
3	1.0	1.3	2%	3.3	4.6	5%	2.9	1.5	-7%	1.5	1.4	-1%	1.2	1.2	1%	1.44	0.99	-5%	1.0	0.9	-1%
4	1.0	1.1	1%	2.5	3.4	5%	2.2	1.3	-6%	1.2	1.2	0%	1.2	1.1	-1%	1.26	0.88	-4%	0.9	0.9	-1%
5	1.0	1.0	0%	2.2	2.5	2%	1.8	1.2	-5%	1.1	1.1	0%	1.1	1.0	-1%	1.10	0.82	-4%	0.9	0.8	-1%
6	1.0	0.9	-1%	1.7	2.2	3%	1.6	1.1	-4%	1.0	0.9	-1%	1.1	1.0	-2%	1.01	0.74	-4%	0.8	0.8	0%
7	1.0	0.8	-2%	1.5	1.6	0%	1.3	1.0	-3%	1.0	1.0	0%	1.0	0.9	-1%	0.92	0.71	-3%	0.8	0.8	0%
8	0.9	0.7	-2%	1.5	1.2	-2%	1.1	0.9	-2%	0.9	0.9	0%	0.9	0.9	-2%	0.85	0.65	-3%	0.7	0.7	0%
9	0.9	0.6	-4%	1.3	1.0	-3%	0.9	0.9	-1%	0.9	0.8	-1%	0.8	0.8	-1%	0.77	0.60	-3%	0.6	0.6	0%
10	0.8	0.5	-5%	0.8	0.5	-6%	0.7	0.7	0%	0.8	0.8	-1%	0.7	0.7	0%	0.64	0.49	-3%	0.5	0.5	0%

Source: Author's calculations with data from RIGA, and National Household Surveys.

Table 7. Contributions to the Decline in Moderate Poverty

	US$1.25 a day			US$4 a day											US$5 a day	
	Bangladesh	Ghana	Nepal	Argentina	Brazil	Chile	Colombia	Costa Rica	Ecuador	Honduras	Panama	Paraguay	Peru	Thailand	Moldova	Romania
Poverty rate																
Initial period	57.7	38.2	73.7	27.5	43.1	23.2	61.6	29.2	51.5	66.1	43.4	50.3	45.8	31.4	93.8	75.3
Final period	40.3	23.5	53.1	14.6	27.6	11.8	39.5	18.9	33.4	52.1	29.9	33.0	30.0	16.6	58.7	33.2
Total change	-17.4	-14.7	-20.6	-13.0	-15.5	-11.4	-22.1	-10.2	-18.1	-14.1	-13.5	-17.3	-15.8	-14.8	-35.1	-42.2
Full Decomposition																
Consumption-to-income ratio	-25.6	17.7	-6.9										5.1	-11.8	-20.9	15.8
Adult population	37.2	21.4	14.2	22.0	16.4	31.0	12.1	34.4	27.1	32.0	13.5	59.5	9.0	24.2	3.5	24.1
Occupation share	20.5	-3.6	13.4	16.7	10.9	-0.1	15.8	14.2	-3.3	-4.1	29.1	11.6	10.0	4.0	6.5	20.4
Labor income	60.2	49.6	50.4	35.2	41.6	48.2	38.3	17.7	53.3	55.8	30.2	33.2	62.5	47.5	37.3	1.9
Capital	7.8	5.0	5.9	-5.4	-0.7	-4.2	4.3	3.9	-0.7	3.8	-0.2	0.0	2.1	2.8	0.6	21.0
Pension				14.9	17.9	15.8	4.6	23.6	6.2	3.2	10.4	-3.0	0.6		25.1	-2.8
Transfers	15.7	10.0	23.0	7.3	9.1	41.8	15.6	22.4	13.6	3.4	16.4	-1.0	10.0	33.1	37.2	8.7
Other nonlabor income	-15.9			9.3	4.8	-32.5	9.4	-16.1	3.8	6.0	0.5	-0.3	0.7	0.3	10.6	11.0
Total change	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculations with data from SEDLAC (CEDLAS and the World Bank), RIGA for Ghana and Nepal, and from household surveys for Bangladesh, Moldova, Romania, Peru, and Thailand.
Consumption-based measures of poverty are used in the case of Bangladesh, Ghana, Nepal, Peru, Thailand, Moldova, and Romania. Income-based measures of poverty are used in the case of Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Honduras, Panama, and Paraguay.

Table 8. Contributions to the Decline in the US$1.25-a-Day Poverty Headcount

	Consumption-based measure of welfare					Income-based measure of welfare							
	Bangladesh	Ghana	Nepal	Peru	Moldova	Argentina	Brazil	Colombia	Costa Rica	Ecuador	Honduras	Panama	Paraguay
Poverty Headcount Rate (FGT0)													
Initial period	57.7	38.2	73.7	3.5	27.5	5.1	11.8	20.7	5.5	12.2	24.9	15.4	14.0
Final period	40.3	23.5	53.1	0.8	0.5	1.8	6.1	8.2	2.4	4.6	17.8	4.6	7.2
Total change	-17.4	-14.7	-20.6	-2.6	-27.0	-3.3	-5.7	-12.6	-3.1	-7.6	-7.1	-10.8	-9.3
Decomposition of FGT0 ***a/***													
Consumption-to-income ratio	-25.6	17.7	-6.9	-9.3	-20.2								
Adult population	37.2	21.4	14.2	-14.9	5.7	20.0	11.2	5.2	7.1	19.0	41.4	4.0	34.7
Occupation share	20.5	-3.6	13.4	-3.1	-1.9	-5.7	-3.7	8.7	-2.8	-15.3	3.5	14.1	6.4
Labor income	60.2	49.6	50.4	115.7	27.7	14.3	44.7	48.7	26.7	50.3	51.5	39.9	47.8
Capital	7.8	5.0	5.9	1.4	0.0	-19.7	-4.4	0.4	10.7	-1.7	7.7	0.5	-1.3
Pension				-4.7	35.8	29.2	6.2	-2.2	61.3	5.2	6.7	10.4	-1.4
Transfers	15.7	10.0	23.0	10.8	46.1	37.7	37.3	31.0	55.2	36.0	-20.8	31.8	9.8
Other nonlabor income	-15.9			4.1	6.7	24.2	8.8	8.2	-58.2	6.5	10.0	-0.7	3.9
Total change	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Decomposition in FGT1 ***b/***													
Consumption-to-income ratio	-60.6	0.8	-10.7	-44.0	--								
Adult population	47.2	28.0	12.4	-40.5	--	16.5	7.9	-1.5	-2.0	13.3	52.6	2.3	30.8
Occupation share	25.3	-20.9	17.0	-12.5	--	-7.9	-11.4	5.2	-23.2	-20.2	1.0	8.0	3.3
Labor income	99.1	70.9	54.0	176.4	--	8.4	28.1	51.0	6.6	41.6	41.9	42.4	43.9
Capital	4.9	6.5	4.8	2.4	--	-26.9	-9.0	-3.3	24.0	-4.4	15.9	-0.8	-0.8
Pension				-9.6	--	24.5	0.6	-6.7	130.3	5.0	16.6	10.9	-0.4
Transfers	16.7	14.6	22.5	23.8	--	54.5	68.1	45.6	114.4	55.0	-42.7	42.0	17.6
Other nonlabor income	-32.6			4.1	--	31.0	15.6	9.7	-150.1	9.7	14.7	-4.8	5.7
Total change	100.0	100.0	100.0	100.0	--	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Decomposition in FGT2 ***c/***													
Consumption-to-income ratio	-107.9	-20.7	-17.8	-86.2	--								
Adult population	59.8	36.6	10.3	-64.7	--	11.8	6.0	-4.4	-7.4	9.3	78.6	0.7	30.7
Occupation share	30.4	-40.2	17.9	-27.7	--	-7.2	-14.4	3.0	-39.8	-23.1	-9.6	3.8	-0.5
Labor income	151.8	98.4	60.2	234.1	--	6.5	14.2	49.5	-12.8	35.0	21.6	42.4	39.1
Capital	1.5	6.0	4.7	4.4	--	-30.4	-11.2	-5.1	35.5	-7.0	32.2	-1.4	0.3
Pension				-14.7	--	20.0	-2.3	-8.9	188.3	5.0	33.7	11.7	-0.3
Transfers	20.0	19.9	24.7	53.5	--	66.0	88.2	54.4	166.9	68.3	-78.7	50.4	23.7
Other nonlabor income	-55.7			1.2	--	33.2	19.5	11.4	-230.8	12.5	22.2	-7.7	7.0
Total change	100.0	100.0	100.0	100.0	--	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculations with data from RIGA for Ghana and Nepal, from household surveys for Bangladesh, Moldova, Romania, Peru, and Thailand, and from SEDLAC (CEDLAS and the World Bank) for countries with income-based measures of welfare.

a/ FGT0 refers to the Foster,Greer, and Thorbecke (1984) measure of the headcount index, which measures the proportion of the population that is counted as poor.

b/ FGT1 refers to the Foster,Greer, and Thorbecke (1984) measure of the poverty gap index, which adds up the extent to which individuals on average fall below the poverty line, and expresses it as a percentage of the poverty line.

c/ FGT2 refers to the Foster,Greer, and Thorbecke (1984) measure of poverty severity, calculated as the poverty gap index squared, which implicitly puts more weight on observations that fall well below the poverty line.

Table 9. Contributions to the Decline in the US$2.50-a-Day Poverty Headcount

	Consumption-based measure of welfare							Income-based measure of welfare								
	Bangladesh	Ghana	Nepal	Peru	Thailand	Moldova	Romania	Argentina	Brazil	Chile	Colombia	Costa Rica	Ecuador	Honduras	Panama	Paraguay
Poverty Headcount Rate (FGT0)																
Initial period	89.2	71.8	94.3	22.9	7.9	71.4	23.7	14.2	27.4	9.0	42.3	14.7	31.5	47.9	28.7	26.7
Final period	84.0	58.3	84.9	11.7	2.5	12.9	4.2	6.4	15.1	4.3	22.0	7.6	15.9	36.2	16.1	18.4
Total change	-5.2	-13.5	-9.5	-11.2	-5.3	-58.5	-19.5	-7.8	-12.3	-4.7	-20.3	-7.1	-15.6	-11.6	-12.6	-8.3
Decomposition of FGT0 *a/*																
Consumption-to-income ratio	-56.1	18.5	-30.9	4.8	-47.0	-2.9	15.3									
Adult population	46.4	21.1	18.7	7.4	35.8	7.2	48.4	20.6	16.5	31.9	10.5	25.3	24.5	37.4	9.2	56.8
Occupation share	23.3	-0.9	6.2	5.6	-10.1	6.6	24.8	10.4	6.9	-18.4	14.0	9.3	-6.0	-3.1	22.5	6.5
Labor income	85.6	52.2	62.3	70.1	61.0	26.2	-33.0	29.5	44.8	46.9	40.7	24.5	53.2	57.8	33.5	43.8
Capital	5.3	1.6	9.7	1.5	5.9	0.4	38.3	-9.1	-1.1	-11.3	3.0	4.7	-1.1	3.8	0.0	-2.4
Pension				-0.4		25.5	-20.2	19.9	10.7	31.9	2.7	31.5	4.7	3.7	9.8	-3.8
Transfers	24.8	7.3	34.0	10.0	57.8	30.1	16.2	16.1	16.7	87.4	20.1	28.3	20.2	-6.9	24.5	-0.5
Other nonlabor income	-29.3			1.0	-3.4	7.0	10.2	12.7	5.4	-68.4	9.0	-23.6	4.5	7.2	0.5	-0.4
Total change	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Decomposition in FGT1 *b/*																
Consumption-to-income ratio	-46.3	14.0	-14.0	0.3	-131.5	-15.9	51.3									
Adult population	43.9	22.7	14.9	-0.1	58.2	4.9	138.0	18.7	12.7	42.6	5.4	15.1	21.5	43.8	5.3	41.0
Occupation share	22.4	-6.1	13.5	1.8	-39.8	6.0	70.9	1.1	0.4	-50.2	9.5	-0.8	-12.2	-1.5	14.5	6.7
Labor income	81.4	55.1	53.8	85.8	67.8	22.9	-154.8	20.9	41.7	17.2	45.9	20.2	50.3	54.3	38.4	44.3
Capital	6.2	4.3	6.5	1.4	13.6	0.2	117.1	-15.6	-3.4	-32.2	0.4	10.1	-2.2	7.4	-0.2	-1.5
Pension				-2.0		29.5	-120.9	23.6	7.3	72.1	-1.4	61.5	4.7	7.4	10.3	-1.5
Transfers	17.9	10.0	25.3	10.9	126.7	46.8	14.8	31.4	32.8	191.6	31.2	53.0	32.0	-20.8	33.3	8.1
Other nonlabor income	-25.6			1.8	5.0	5.6	-16.4	19.8	8.5	-141.1	9.2	-59.1	6.0	9.3	-1.6	2.9
Total change	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Decomposition in FGT2 *c/*																
Consumption-to-income ratio	-54.5	8.2	-12.7	-7.4	-264.8	-31.2	148.6									
Adult population	45.8	25.0	13.4	-8.2	95.2	2.8	320.2	17.2	10.4	64.2	1.8	7.8	18.1	48.9	3.5	35.7
Occupation share	23.9	-12.1	15.3	-1.5	-95.6	5.3	175.7	-3.3	-4.5	-95.7	7.0	-10.5	-15.9	-0.9	10.7	5.0
Labor income	91.6	61.8	54.3	103.2	49.5	16.2	-387.5	15.0	35.9	-26.9	48.3	14.3	46.8	48.5	40.4	43.8
Capital	5.5	5.1	5.6	1.6	28.1	-0.2	280.8	-20.9	-5.7	-65.9	-1.5	16.0	-3.2	11.7	-0.5	-1.1
Pension				-3.4		32.7	-336.5	24.1	4.4	129.3	-4.2	91.3	4.8	11.8	10.7	-1.0
Transfers	17.4	12.0	24.0	13.3	253.4	70.1	-14.5	43.0	48.0	348.1	39.1	79.6	41.9	-31.7	38.7	13.1
Other nonlabor income	-29.6			2.4	34.3	4.3	-86.7	24.9	11.4	-253.2	9.6	-98.5	7.5	11.7	-3.5	4.4
Total change	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculations with data from RIGA for Ghana and Nepal, from household surveys for Bangladesh, Moldova, Romania, Peru, and Thailand, and from SEDLAC (CEDLAS and the World Bank) for countries with income-based measures of welfare.

a/ FGT0 refers to the Foster,Greer, and Thorbecke (1984) measure of the headcount index, which measures the proportion of the population that is counted as poor.

b/ FGT1 refers to the Foster,Greer, and Thorbecke (1984) measure of the poverty gap index, which adds up the extent to which individuals on average fall below the poverty line, and expresses it as a percentage of the poverty line.

c/ FGT2 refers to the Foster,Greer, and Thorbecke (1984) measure of poverty severity, calculated as the poverty gap index squared, which implicitly puts more weight on observations that fall

Table 10. Contributions to the Decline in the US$4-a-Day or US$5-a-Day Poverty Headcount

	Consumption-based measure of welfare				Income-based measure of welfare								
	Poverty Line US$4		Poverty Line US$5		Poverty Line US$4								
	Peru	Thailand	Moldova	Romania	Argentina	Brazil	Chile	Colombia	Costa Rica	Ecuador	Honduras	Panama	Paraguay
Poverty Headcount Rate (FGT0)													
Initial period	45.8	31.4	93.8	75.3	27.5	43.1	23.2	61.6	29.2	51.5	66.1	43.4	50.3
Final period	30.0	16.6	58.7	33.2	14.6	27.6	11.8	39.5	18.9	33.4	52.1	29.9	33.0
Total change	-15.8	-14.8	-35.1	-42.2	-13.0	-15.5	-11.4	-22.1	-10.2	-18.1	-14.1	-13.5	-17.3
Decomposition of FGT0 *a/*													
Consumption-to-income ratio	5.1	-11.8	-20.9	15.8									
Adult population	9.0	24.2	3.5	24.1	22.0	16.4	31.0	12.1	34.4	27.1	32.0	13.5	59.5
Occupation share	10.0	4.0	6.5	20.4	16.7	10.9	-0.1	15.8	14.2	-3.3	-4.1	29.1	11.6
Labor income	62.5	47.5	37.3	1.9	35.2	41.6	48.2	38.3	17.7	53.3	55.8	30.2	33.2
Capital	2.1	2.8	0.6	21.0	-5.4	-0.7	-4.2	4.3	3.9	-0.7	3.8	-0.2	0.0
Pension	0.6		25.1	-2.8	14.9	17.9	15.8	4.6	23.6	6.2	3.2	10.4	-3.0
Transfers	10.0	33.1	37.2	8.7	7.3	9.1	41.8	15.6	22.4	13.6	3.4	16.4	-1.0
Other nonlabor income	0.7	0.3	10.6	11.0	9.3	4.8	-32.5	9.4	-16.1	3.8	6.0	0.5	-0.3
Total change	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Decomposition in FGT1 *b/*													
Consumption-to-income ratio	3.4	-35.9	-10.8	20.0									
Adult population	5.9	31.8	5.6	44.0	20.5	14.8	33.9	8.7	25.8	24.2	38.0	8.0	49.8
Occupation share	6.0	-5.8	6.6	27.0	9.3	5.5	-15.8	12.3	7.9	-7.7	-2.1	19.9	8.1
Labor income	72.3	53.7	27.5	-25.6	28.3	42.4	41.7	42.2	19.2	52.1	55.6	35.2	41.2
Capital	1.7	4.9	0.3	36.5	-9.9	-2.0	-11.9	2.1	6.5	-1.5	5.2	-0.1	-1.3
Pension	-0.5		26.5	-20.7	19.2	11.7	31.6	1.4	40.1	5.1	5.1	10.3	-2.6
Transfers	10.1	51.5	36.9	11.7	18.4	20.9	85.7	24.0	35.6	22.9	-9.5	27.3	3.8
Other nonlabor income	1.2	-0.2	7.5	7.1	14.3	6.8	-65.1	9.3	-35.0	5.0	7.7	-0.7	1.1
Total change	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Decomposition in FGT2 *c/*													
Consumption-to-income ratio	0.9	-68.4	-13.0	30.5									
Adult population	2.1	41.1	5.4	72.8	19.1	13.2	39.5	5.9	18.6	22.0	42.3	5.8	43.3
Occupation share	3.6	-18.2	6.3	40.6	4.0	1.6	-34.3	10.0	1.5	-10.9	-1.6	15.4	6.6
Labor income	80.8	57.1	24.6	-64.3	23.1	40.9	28.2	44.9	18.6	50.4	53.7	37.8	43.1
Capital	1.6	8.1	0.2	61.1	-14.1	-3.3	-23.3	0.6	9.5	-2.1	7.3	-0.2	-1.3
Pension	-1.4		27.8	-51.5	21.7	8.5	53.2	-1.0	57.1	4.8	7.3	10.4	-1.9
Transfers	10.8	78.0	42.3	11.6	27.8	30.7	143.6	30.2	49.8	29.9	-18.1	32.7	7.6
Other nonlabor income	1.6	2.4	6.5	-0.8	18.3	8.3	-106.9	9.4	-55.2	5.9	9.1	-1.8	2.5
Total change	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculations with data from RIGA for Ghana and Nepal, from household surveys for Bangladesh, Moldova, Romania, Peru, and Thailand, and from SEDLAC (CEDLAS and the World Bank) for countries with income-based measures of welfare.

a/ FGT0 refers to the Foster,Greer, and Thorbecke (1984) measure of the headcount index, which measures the proportion of the population that is counted as poor.

b/ FGT1 refers to the Foster,Greer, and Thorbecke (1984) measure of the poverty gap index, which adds up the extent to which individuals on average fall below the poverty line, and expresses it as a percentage of the poverty line.

c/ FGT2 refers to the Foster,Greer, and Thorbecke (1984) measure of poverty severity, calculated as the poverty gap index squared, which implicitly puts more weight on observations that fall

Annex 1. Data sources

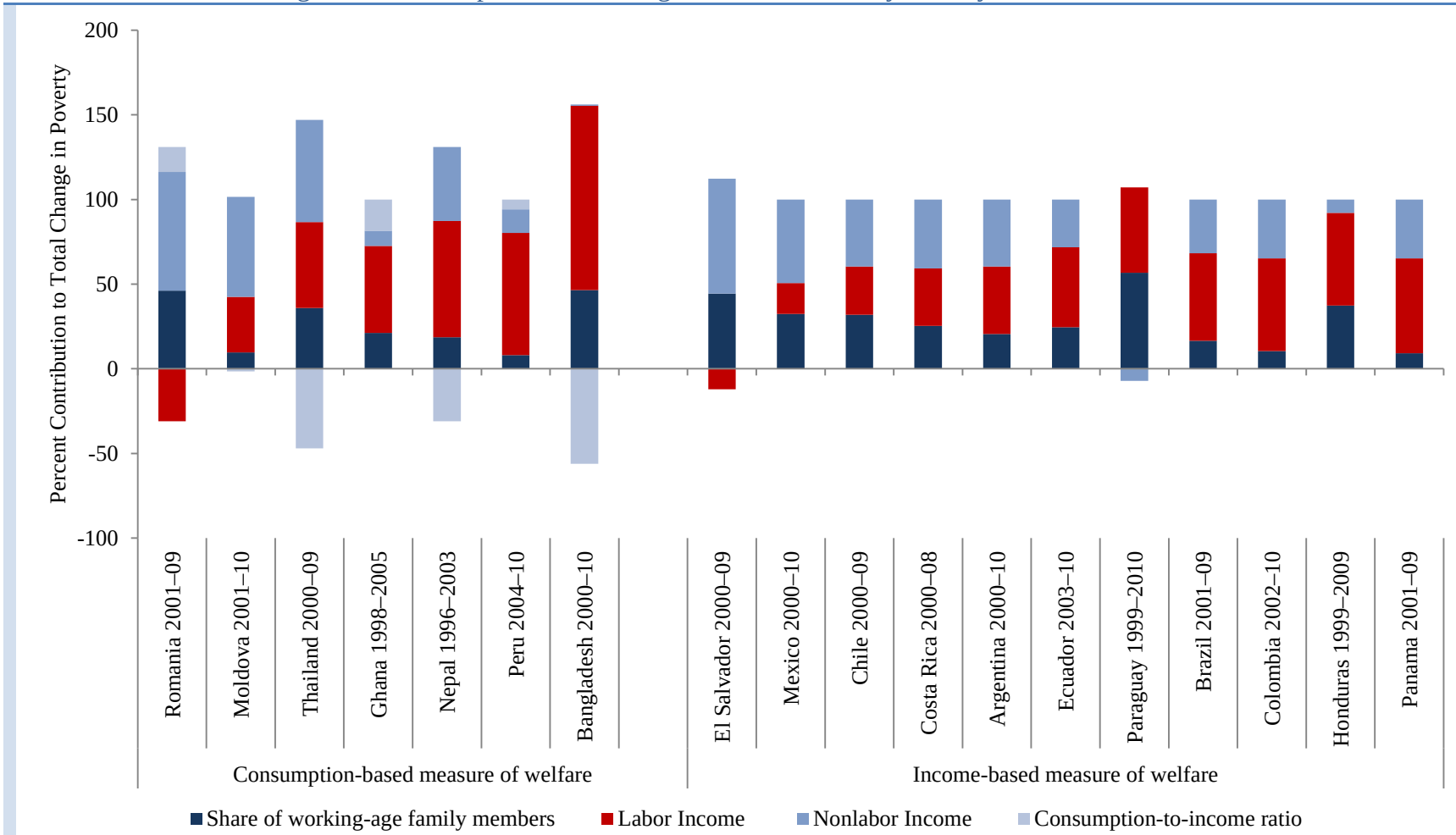
For Latin American Countries we use the SEDLAC dataset, which covers all countries in mainland Latin America and four of the largest countries in the Caribbean. Most household surveys included in the sample are nationally representative. For comparability purposes this dataset computes income using a common method across countries and years. In particular, it constructs a common household income variable that includes all the ordinary sources of income and estimates of the imputed rent from home ownership (see the Guide in the Web site of the SEDLAC for methodological details). Note that this is the only set of countries for which hours of work are available, allowing for further decomposition in the report.

For Bangladesh, Moldova, Romania, Peru, and Thailand, we use the Household Income and Expenditure Survey for each year. We make temporal and spatial adjustments for comparability reasons. For Ghana and Nepal we use the Rural Income Generating Activities (RIGA) data set, http://www.fao.org/economic/riga/en/.

Table A1. Data Sources

	Initial	Final	Initial Survey Name	Final Survey Name
Income-Based Poverty Measures				
Argentina	2000	2010	EPH	EPH-C
Brazil	2001	2009	ECH	ECH
Chile	2000	2009	PNAD	PNAD
Colombia	2002	2010	CASEN	CASEN
Costa Rica	2000	2008	ECH	GEIH
Ecuador	2003	2010	ENFT	ENFT
El Salvador	2000	2009	EHPM	EHPM
Honduras	1999	2009	EPHPM	EPHPM
Mexico	2000	2010	ENIGH	ENIGH
Panama	2001	2009	EH	EH
Paraguay	1999	2010	EIH	EPH
Consumption-Based Poverty Measures				
Bangladesh	2000	2010	HIES	HIES
Ghana	1998	2005	RIGA	RIGA
Moldova	2001	2010	HBS	HBS
Nepal	1996	2003	RIGA	RIGA
Peru	2005	2009	ENAHO	ENAHO
Romania	2001	2009	HBS	HBS
Thailand	2000	2009	SES	SES

Figure A1. Decomposition of Changes in US$2.50-a-Day Poverty Rate—All Countries



Source: Authors' calculations with data from SEDLAC (CEDLAS and the World Bank), RIGA for Ghana and Nepal, and from household surveys for Bangladesh, Moldova, Romania, Peru and Thailand.

Notes: "Labor income" refers to the change in employment and earnings per adult, "nonlabor income" refers to transfers, pensions, capital and other income not from labor.