



## Measurement of Poverty, Deprivation, and Economic Mobility

Factors Associated with Poverty and Indigence Mobility in Five Latin American Countries

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# FACTORS ASSOCIATED WITH POVERTY AND INDIGENCE MOBILITY IN FIVE LATIN AMERICAN COUNTRIES

Luis Beccaria, Roxana Maurizio, Gustavo Vázquez  
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## ABSTRACT

*Latin America experienced a long period of sustained growth since 2003 that positively impacted social and labor market indicators, including poverty. This paper contributes to the understanding of this process as it carries out a comparative study of poverty and indigence dynamics in five Latin American countries during 2003–2012. Specifically, it extends the analysis of a previously published study by broadening the time coverage and examining indigence mobility. It analyzes the extent to which countries with different levels of poverty (extreme poverty) incidence diverge in terms of exit and entry rates, and identifies the relative importance of the frequency and impact of events associated with poverty transitions. For this, a dynamic analysis of panel data is carried out using regular household surveys. Sizeable rates of poverty and indigence movements were observed in all five countries and it was found that a large*

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*proportion of poor or indigent households experienced positive events, mainly related to the labor market; however, only a small fraction of them actually exited poverty and indigence. It appeared, therefore, that even when the economy behaved reasonably well, high levels of labor turnover and income mobility (even of a negative nature) still prevail, mainly associated with the high level of precariousness and the undeveloped system of social protection that characterize the studied countries.*

**Keywords:** Labor market; Latin America; poverty dynamics; public cash transfers

**JEL classifications:** I32; I38; J68; O54

## INTRODUCTION

Latin America experienced a period of relative high economic growth since 2003 as per capita GDP increased at an average annual rate of 2.9% between 2003 and 2012,<sup>1</sup> an unprecedented pace for such a long period in the region. This performance has contributed to the improvement of social and labor market indicators as well as of income distribution. Less inequality and higher incomes resulted in lower rates of poverty and extreme poverty and a decrease in the number of poor and indigent people. These improvements are in contrast to the situation in the eighties and nineties. However, despite the progress achieved during this period of economic expansion, 28% of Latin American people still lived in poverty in 2013, and 12% lived in extreme poverty according to ECLAC (2013).

The factors associated with the level and evolution of poverty in individual countries have been the subject of an extensive amount of research. A number of studies have also been carried out to compare levels and changes of employment, inequality and poverty among Latin American countries. However, few studies have been conducted on poverty dynamics in individual countries in the region. In particular, the factors related to poverty and indigence transitions have received a limited amount of attention

An analysis of the nature and intensity of poverty dynamics is important for policy design because even when the overall level of poverty and/or extreme poverty is low or remains unchanged, a large number of households may be exiting and entering poverty. Furthermore, analyzing poverty transitions contributes to an understanding of the ways in which events

that trigger entry into or exit from poverty and indigence are exclusively related to the labor market, to changes in household composition or to specific public policies.

The objectives of this paper are (1) to estimate the role of the labor market, non-labor incomes and changes in household size in transitions into and out of poverty and extreme poverty<sup>2</sup> and (2) to evaluate whether the observed disparities in household poverty flows are mostly related to differences in the probability of certain types of events or to the variable impacts of these events.

A previous analysis exclusively on poverty dynamics for five Latin American countries was carried out in [Beccaria, Maurizio, Fernandez, Monsalvo, and Álvarez \(2013\)](#) that covered the initial years of the 2000s.<sup>3</sup> The contribution of the present paper is twofold; on the one hand, to extend the time coverage in order to include the second half of that decade; on the other hand, to analyze indigence mobility for the same countries and period.

The relevance of extending the period derives from the changes in the macroeconomic context, labor market conditions and social policies occurred in most of Latin American countries during the second part of the 2000s that could have modified some of our previous results. In addition, analyzing extreme poverty dynamics is, in itself, an important aspect in Latin America. But, at the same time, it appeared as relevant to evaluate to what extent poverty mobility patterns hold when considering indigence transitions.

Data used in this paper come from household surveys with rotating samples that allows for constructing short panels of households that are interviewed in at least two successive periods. Therefore, data do not come from specific longitudinal surveys similar to those found in developed countries.

Five countries, Argentina, Brazil, Costa Rica, Ecuador and Peru, were selected for the analysis on the basis of the availability of this type of data. This selection of countries also offers a varied picture of poverty incidence in the region. At the same time, this group of countries showed the same positive economic behavior that Latin America as a whole but grew faster: their average per capita GDP increased 4.1% per year between 2003 and 2012 which compares with 3.4% for the average of Latin America. Similarly, and according to ECLAC figures, average poverty incidence rate in the urban areas for the five countries fell at a faster pace: from 38% in 2002 to 16% in 2012, while for Latin America the figures are 38% and 26%, respectively.<sup>4</sup> If Argentina is excluded from the five countries, the intensity of the improvements of the selected cases come somewhat closer to the Latin America average (3.9% regarding GDP growth, and the

poverty incidence rates fell from 36% to 19%).<sup>5</sup> A similar situation arises when considering indigence, the five countries showed a reduction in its incidence from 13.1% in 2002 to 4.5% in 2012 (11.2% and 5.2% if Argentina is excluded) while the figures for the average of Latin America are 13.8% and 8.6%. Such behavior during the first decade of this century has resulted in a situation in which poverty and indigence rates in Latin America have been lower in recent years than in the beginning of the nineties.

The next section describes the data sources used. Section 3 presents the approach and methodology and the following section focuses on the dynamics of poverty and indigence. Section 5 examines the factors directly associated with poverty mobility. It comprises two headings; in the first one the main results from Beccaria et al. (2013) for the first half of the 2000s are summarized, while the second one discusses how those results change when the whole decade is considered. Section 6 studies extreme poverty mobility for the entire period. A sensitivity analysis to changes in the value of the normative budgets is carried out in the following section. The last section presents final remarks.

## DATA SOURCES

The data used in this paper came from regular household surveys carried out by the national statistical institutes of the selected countries. The data focus on labor market variables, but they also include information on other social and demographic household characteristics. To identify possible factors associated with shifts into and out of poverty, databases must identify the poverty status of each household, as well as other relevant socio-economic and demographic information of its members measured at different points in time.

Given the lack of longitudinal surveys for most of the countries, dynamic data for this were constructed using the rotating sample scheme of household surveys. This kind of scheme implies that the total sample is divided into a certain number of household groups, with each group remaining in the sample for a given number of observation periods or waves. Therefore, for each wave of the survey, one of these groups enters the sample while another one leaves. Consequently, it is possible to compare a given proportion of the sample between two or more waves. With these data, the households that stayed in poverty/indigence and those that left it during the “*n*”

periods in which the households remained in the sample can be determined. The only case with a longitudinal survey is Peru<sup>6</sup> although, as will be indicated below, the panel covers a few years.

The Argentinean data were taken from the *Encuesta Permanente de Hogares* (EPH), which is conducted by the *Instituto Nacional de Estadística y Censos* (INDEC). For Brazil, micro-data from two surveys, the *Pesquisa Mensal de Emprego* (PME) and the *Pesquisa Nacional por Amostra de Domicílios* (PNAD), both of which are conducted by the *Instituto Brasileiro de Geografia e Estatística* (IBGE), were used. Given that the PME only collects information about labor income, non-labor income was imputed to estimate total family income and the poverty status of households. For this, Machado and Perez Rivas' (2010) methodology<sup>7</sup> was used with microdata from the PNAD.<sup>8</sup> For Costa Rica, the *Encuesta de Hogares de Propósitos Múltiples* (EHPM), conducted by the *Instituto Nacional de Estadística y Censos* (INEC), was used; for Ecuador, we resort to the *Encuesta Nacional de Empleo, Desempleo y Subempleo* (ENEMDU), conducted by the *Instituto Nacional de Estadística y Censos* (INEC). For Peru, data from a panel built from a sub – sample of the *Encuesta Nacional de Hogares* (ENAHO), the regular household survey conducted by the *Instituto Nacional de Estadística e Informática* (INEI), were used.

To obtain a comparable dataset for each country, transitions were defined for a one-year interval between observations. In Beccaria et al. (2013) data covered mainly the first half of the 2000s. In this present paper, we extend the period including the following years: 2003–2012 for Argentina and Brazil, 2006–2011 for Costa Rica, 2004–2012 for Ecuador and 2002–2010 for Peru.<sup>9</sup> Because not all the surveys are nationally representative and given that poverty and labor markets in rural areas and urban centers can behave differently, the analysis was restricted to urban areas.

A limitation of panel data is that the proportion of households actually interviewed in two successive periods may be less than expected according to the sample rotation scheme due to attrition, which can introduce sample bias if attrition is not random. However, no information was available in the microdata bases in order to identify the loss of data due to sample attrition and differentiate it from the loss of observations associated with the survey rotation scheme. Therefore, we could not apply an attrition bias correction for all countries. However, a comparison between cross-section and dynamic panel data regarding the evolution of poverty and indigence incidence will be presented below in order to assess possible biases.<sup>10</sup>

## APPROACH AND METHODOLOGY

The absolute criterion for identifying poverty and indigence seems to be more appropriate than a relative criterion for Latin America, as there is plenty of evidence that a substantial proportion of people in the region still lack the resources needed to satisfy basic needs. Thus, the “absolute income approach” was employed; households were identified as poor if their total income was below some poverty line.<sup>11</sup> This line is the value of a normative basket of goods and services that allows the satisfaction of basic needs.<sup>12</sup> Similarly, the extreme poverty, or indigence, line is the value of a normative food basket required to satisfy nutritional needs.

At least the following alternatives of specific poverty (indigence) lines are available for the five selected countries: those calculated by ECLAC,<sup>13</sup> lines estimated by national agencies (usually employed for official estimates of poverty incidence) and those computed by the World Bank (US\$1.25 for extreme poverty – and the double for poverty – at 2005 Purchasing Power Parity); however, only the first and the third explicitly contemplate the issue of international comparability. In this paper we considered the normative budgets employed by ECLAC to regularly estimate the incidence of poverty and indigence in Latin American countries.<sup>14</sup> ECLAC’s methodology is consistent with the theoretical underpinnings of the absolute poverty line approach. Each poverty line accounts for specific consumption patterns and reflects the amount of local currency needed to buy a basket of goods and services that satisfies the same set of basic needs in each country.<sup>15</sup> According to Sen’s conceptualization, although different goods and services may be consumed in each country, the different poverty lines should be nearly equal in terms of capabilities.<sup>16</sup> There have been controversies on the most adequate approach to compare poverty measures at the international level: those methodologies such as that used by ECLAC that take into account specific national aspects or the norm established by the World Bank, as each of them presents advantages and shortcomings.<sup>17</sup>

In any case, the exercise to be developed here also considers an upper and a lower bound centered in the value of the poverty line. Specifically, a sensitivity analysis of poverty dynamics to changes in the poverty and indigence line was performed by computing transitions with poverty and indigence lines that resulted from reducing and increasing by 10% the original normative budgets.

The dynamics of poverty in developed countries have received a considerable amount of research attention.<sup>18</sup> Previous studies have focused on

long spells of poverty, poverty traps, or the difference between chronic and transient poverty. A number of studies have also attempted to identify the factors that drive the process whereby a household becomes poor, exits poverty, or remains in poverty for a long period of time, while others have used structural models that relate economic and household demographic decisions to poverty dynamics.

This paper aims at estimating poverty and indigence entry and exit rates associated with different events. Given the lack of longitudinal surveys in most of the studied countries, it is not possible to use duration models, since no information is available on how long households stay in poverty or out of poverty. For this reason, the main methodological approach will be based on [Jenkins and Schluter \(2003\)](#), which allows a decomposition of poverty exit and entry rates associated with different kinds of events. Two points should be stressed here. Part of the literature that analyzes poverty dynamics is based on a structural model that relates different economic and demographic decisions.<sup>19</sup> In this paper, following Bane and Ellwood's approach, we only consider the observed episodes directly associated with poverty/indigence entries and exits, while no attempt is made to analyze the family arrangements and/or strategies that could have led to such episodes (about which no information can be drawn from the household surveys of the selected countries). Also, there is the possibility that some of the identified events could have ultimately been the result of some other event associated with the observed transition.<sup>20</sup> Consequently, as events may be endogenous, they are not interpreted as the causes of transitions—exogenous events—but only as events associated with transitions.<sup>21</sup>

However, because a household becomes poor or indigent when its income per adult equivalent (ipae), defined as the total household income divided by the number of equivalent adults in the household, falls below the poverty—or indigence—line per adult equivalent, either the numerator or the denominator must change for a household to enter or exit poverty or extreme poverty. This transition occurs when a household experiences at least one of the types of events identified in this study.

Identifying which of the situations experienced by households were associated with poverty and extreme poverty transitions is difficult because an individual can experience multiple events simultaneously. In this study, an exhaustive list of mutually exclusive events was built. However, categories that combine two or more events were also considered to cover all (i.e., 100% of) possible cases. In order to illustrate the classification of events, we can consider the situation of a household leaving poverty or indigence. Such transition occurs if its total nominal income rises, if the



households' size falls, or due to a combination of both episodes leading to an increase in the ipae. These changes are the consequence of different events experienced by the members of the households. The rise in a household's total nominal income can be the result of one member getting a job or facing a wage increase while, for example, the death of one of them leads to a smaller household size.

Therefore, we first distinguish between the latter type of events—of demographic character—and the others. Among non-demographic events, we consider in the first place those exclusively related to labor market episodes (e.g., changes in the number of employed members, changes in the number of working hours, changes in hourly earnings) or to non-labor income events (e.g., changes in income from pensions or in transfers, especially those related to social policies). We also take into account those episodes affecting simultaneously labor and non-labor incomes. However, some events lead to an exit from poverty or indigence by affecting both, the nominal income and the size of the household – for example, the arrival of an employed person to the household that could increase the nominal ipae; hence, this type of events are considered as demographic events leading to labor or non-labor income changes. The procedure is similar for entries to poverty or extreme poverty.

Table 1 lists the events that could trigger exits (entries) from (to) poverty/indigence according to this definition and provides an example of each.

By constructing mutually exclusive events, the distribution of poverty/indigence transitions associated with particular events could be estimated. The entry ( $S_1$ ) and exit ( $S_2$ ) rates were defined as the probabilities of moving from state  $i/j$  in period “ $t$ ” to state  $j/i$  in “ $t+1$ ”, and the states were “poor” and “non-poor” (alternatively, “extreme poor” and “non-extreme poor”). Assuming that the sample space was partitioned among  $R$  mutually exclusive events, the probability of moving from state “ $i$ ” to state “ $j$ ,”  $S_{ij}$ , was equal to the sum of the probabilities of transition associated with each event:

$$P(S_{ij}) = \sum_{r=1}^R P(S_{ij}, E_r) \quad (1)$$

where  $S_{ij}$  indicates a transition from state “ $i$ ” in period “ $t$ ” to state “ $j$ ” in period “ $t+1$ ”;  $i \neq j$ ;  $E_r$  indicates the occurrence of event “ $r$ ”; and  $R$ : 1, 2, ...,  $R$ .

**Table 1.** List of Events Considered.

Event	Description	Example
Nondemographic events (the number of members in the household does not change)		
<i>I</i>	<i>Exclusively labor income events</i>	
1	Growth (reduction) in the number of employed persons not linked to an entry (exit) of labor income earners to (from) the household, maintaining the total number of household members.	A member of the household that was unemployed or out of the labor force (employed) starts working (becomes unemployed or leaves the labor force).
1.1	Growth (reduction) in the number of members who are registered wage earners.	A member of the household that was unemployed or out of the labor force (employed as a registered wage earner) finds a job as registered wage earner (becomes unemployed or leaves the labor force).
1.2	Growth (reduction) in the number of members who are nonregistered wage earners.	A member of the household that was unemployed or out of the labor force (employed as a non-registered wage earner) finds a job as non-registered wage earner (becomes unemployed or leaves the labor force).
1.3	Growth (reduction) in the number of members who are nonwage earners.	A member of the household that was unemployed or out of the labor force (employed as independent worker) finds a job as independent worker (becomes unemployed or leaves the labor force).
2	Growth (reduction) in total hourly wage of members employed in both observations, maintaining the total number of household members and worked hours.	A member of the household receives a wage increase (reduction): she/he earns more (less) working the same amount of hours.
3	Growth (reduction) in the number of working hours of members employed in both observations, maintaining the total number of household members and hourly wage.	A member of the household earns more (less) because she/he works more (less) hours.
4	Growth (reduction) in the number of working hours and in the total hourly wage of members employed in both observations, maintaining the total number of household members.	One or more employed members of the household receive an hourly wage increase (reduction) and work more (less) hours.
5	Growth (reduction) in the total monthly wage of members employed in both observations and in the number of employed members, not linked to an entry (exit) of labor income earners to	A member of the household that was unemployed or out of the labor force (employed) starts working (becomes unemployed or leaves the labor force) and one member who already worked

**Table 1.** (Continued)

Event	Description	Example
	(from) the household, maintaining the total number of household members.	received an increase (reduction) in her/his wage.
<i>II</i>	<i>Exclusively non-labor income events</i>	
6	Growth (reduction) in the income from pensions not linked to the entry (exit) of pension recipients to (from) the household. The total number of household members remains constant.	A member of the household receives an increase (reduction) in her/his pension.
7	Growth (reduction) in public monetary transfers (social policy) not linked to the entry (exit) of recipients to (from) the household. The total number of household members remains constant.	A member of the household receives an increase (reduction) in her/his from a cash transfer program.
8	Growth (reduction) in other nonlabor incomes not linked to the entry (exit) of nonlabor income earners to (from) the household. The total number of household members remains constant.	A member of the household receives more (less) money from remittances from abroad.
<i>III</i>	<i>Labor and nonlabor income events</i>	
9	Growth (reduction) in labor and nonlabor incomes not linked to an entry (exit) of labor or nonlabor income earners to (from) the household, maintaining the total number of household members.	An employed member of the household receives a wage increase (reduction) and a retired member of the household receives an increase (reduction) in her/his pension.
Demographic or combination events (the number of members in the household changes)		
<i>IV</i>	<i>Exclusively demographic events</i>	
10	Reduction (growth) in the total number of household members; the total nominal income remains constant.	A member of the household who has no income marries and leaves. (A baby is born to the family.)
<i>V</i>	<i>Demographic events leading to income changes</i>	
11	Growth (reduction) in the number of labor or non-labor income earners due to the fact that some members enter (exit) the household.	A (new) member who works and has an income arrives to (leaves) the household.
<i>VI</i>	<i>Combination of demographic and income events</i>	
12	Growth (reduction) in total nominal income (irrespective of the source of income change) and reduction (growth) in the number of household members.	A member of the household receives a wage reduction (increase) and a baby is born to the household (a member of the household dies).
<i>VII</i>	<i>Events not classified</i>	

Following Jenkins and Schluter (2003), this distribution can be decomposed into two factors: the probability that the at-risk population (in the case of exits from poverty/indigence, poor/indigent households) experiences such an event and the probability that the event triggers poverty entries or exits, conditional on the previous occurrence of the event (conditional probability). This probability can be written as

$$P(S_{ij}) = \sum_{r=1}^R P(S_{ij}|E_r)P(E_r) \quad (2)$$

## POVERTY AND EXTREME POVERTY DYNAMICS IN FIVE LATIN AMERICAN COUNTRIES. A GENERAL OVERVIEW

### *Evolution of Poverty and Indigence Incidence*

As indicated, this section analyses poverty and indigence dynamics and the events associated with the identified movements. Before that, and in order to place that discussion into a broad perspective, it is worth briefly mentioning how the selected countries behaved in terms of poverty and extreme poverty incidence. In the Introduction, it was indicated that the average of the five cases here studied followed the general trend experienced by Latin America in terms of both indicators although the improvement among them was larger.<sup>22</sup> Data on Table 2 shows that all countries reduced their figures of relative incidences, being Argentina and Brazil the cases with the larger fall and Costa Rica that with the less intensive reduction (although the available series is shorter than those for other countries). Except in Costa Rica, the fall in indigence incidence was larger than in poverty.

No important differences arise when comparing poverty and indigence rates coming from cross-section and panel data. The proportion of poor households, or persons, in the initial period is somewhat larger in the cross-section than in the panel data (except for Peru). The evolution is also similar although the reduction is slightly less intense in the panel data series (except in Peru, in the case of poverty). Therefore, dynamic information seems to adequately replicate trends in poverty and indigence evolution.

**Table 2.** Evolution of Poverty and Extreme Poverty Rates (%).

	Poverty				Extreme Poverty			
	Panel data		Cross-section data		Panel data		Cross-section data	
	Households	Population	Households	Population	Households	Population	Households	Population
<b>Argentina</b>								
2003	35.0	46.9	39.0	50.6	12.1	17.2	14.6	19.3
2004	26.5	36.4	31.2	41.8	8.0	11.3	10.1	14.3
2005	23.7	33.1	25.9	35.7	6.6	10.1	7.4	10.7
2006	17.1	23.8	20.5	29.0	5.3	7.5	5.9	8.4
2007	18.7	26.7	21.0	29.4	5.3	7.3	5.6	7.5
2008	14.2	21.3	17.0	24.3	4.3	6.2	4.7	7.0
2009	15.2	22.7	16.8	24.1	3.3	5.1	4.4	6.1
2010	14.0	21.4	15.8	22.9	3.3	4.7	3.8	5.3
2011	13.2	20.5	13.8	20.1	2.5	3.5	2.8	3.4
2012			12.3	18.4			2.7	3.5
<b>Brazil</b>								
2003	30.2	35.7	34.4	40.8	10.1	11.9	11.7	13.7
2004	28.2	33.8	32.2	38.3	9.1	10.0	10.5	12.0
2005	28.1	32.5	31.7	37.6	8.8	9.0	9.7	10.7
2006	25.2	30.4	29.0	34.8	7.5	7.7	8.4	9.3
2007	25.4	30.4	26.3	31.5	7.4	7.7	7.9	8.5
2008	19.7	23.2	23.0	27.3	6.4	6.1	7.5	7.7
2009			21.6	26.1			7.0	7.2
2011	15.4	20.7	16.8	20.0	5.4	4.8	5.9	5.3
2012			14.7	17.2			5.4	4.8
<b>Costa Rica</b>								
2006	22.7	25.3	24.5	27.5	6.7	6.3	7.0	7.2
2007	19.0	20.9	19.9	22.1	4.4	4.0	4.6	4.7
2008	17.1	19.0	18.2	20.5	5.0	5.4	4.5	5.2
2009			19.2	21.6			6.1	6.5
2010	18.6	21.7	19.3	22.0	6.6	7.2	6.1	6.6
2011			19.9	22.8			6.6	7.4
<b>Ecuador</b>								
2004	41.7	47.3	46.5	52.8	16.8	19.9	18.3	21.6
2005	35.4	41.2	41.9	48.4	11.2	12.9	15.2	17.9
2006	36.2	42.1	39.2	45.4	12.7	14.7	12.2	14.5
2007	31.6	37.5	37.2	43.0	9.2	11.2	11.3	13.4
2008	30.3	36.9	36.2	42.6	9.5	11.9	11.6	14.5
2009	33.7	39.6	38.2	44.2	9.7	11.8	12.2	15.0
2010	30.5	37.2	35.8	41.6	10.8	14.2	11.1	13.9
2011	28.5	35.2	33.0	38.7	9.5	11.0	9.9	11.8
2012			28.2	33.6			7.9	9.8
<b>Peru</b>								
2002	52.2	55.2	50.1	52.7	19.4	21.4	21.1	22.5
2003	51.5	53.1	49.7	51.5	18.9	19	22.0	23.5
2004	52.5	59	52.6	58.1	20.7	24.5	24.0	26.8
2005	53.0	57.2	54.2	60.5	20.8	21.1	27.3	31.0
2006			48.5	53.4			21.6	24.0
2007	42.0	44.8	41.5	45.8	13.5	13.8	16.4	18.0
2008	35.9	37.8	38.8	42.5	11.2	10.3	15.8	16.9
2009	30.0	30.9	34.5	37.7	13.3	12.1	13.7	14.5
2010			31.8	34.7			12.1	12.6

Source: Author's elaboration bases on data from ECLAC and National Statistical Institute.

## Transition Matrices

The entry rates were computed as the share of non-poor (non-indigent) households in year “ $t$ ” that became poor (indigent) in year “ $t + 1$ .” The exit rates were then the share of poor (indigent) households in year “ $t$ ” that became non-poor (non-indigent) in year “ $t + 1$ ”. The entry and exit rate averages for the respective periods under consideration, shown in Table 3, indicate the importance of flows, even in low incidence countries such as Costa Rica.

As expected, the probability of being poor (indigent) in a given period was strongly conditioned by the situation during the previous observation; poverty (extreme poverty) in the current period was more likely for households that were poor (indigent) in the previous period. However, more information is necessary to make conclusive statements about true dependence on the initial state.

There is a reasonable positive relationship between the incidence and entry rates and a negative correlation between incidence and exit rates. In particular, Argentina, Costa Rica and Brazil are those countries with the

Table 3. Transition Matrices.

	Argentina	Brazil	Costa Rica	Ecuador	Peru
Remain nonpoor	0.934*** [0.00234]	0.888*** [0.00185]	0.905*** [0.00579]	0.834*** [0.00528]	0.796*** [0.0107]
Nonpoor to poor	0.0659*** [0.00234]	0.112*** [0.00185]	0.0946*** [0.00579]	0.166*** [0.00528]	0.204*** [0.0107]
Poor to nonpoor	0.395*** [0.00962]	0.432*** [0.00507]	0.424*** [0.0196]	0.304*** [0.00812]	0.299*** [0.0122]
Remain poor	0.605*** [0.00962]	0.568*** [0.00507]	0.576*** [0.0196]	0.696*** [0.00812]	0.701*** [0.0122]
Observations	31,309	48,381	3,905	27,040	5,339
Remain nonindigent	0.971*** [0.00151]	0.951*** [0.00114]	0.962*** [0.00349]	0.924*** [0.00307]	0.903*** [0.00576]
Nonindigent to indigent	0.0285*** [0.00151]	0.0488*** [0.00114]	0.0377*** [0.00349]	0.0758*** [0.00307]	0.0968*** [0.00576]
Indigent to nonindigent	0.627*** [0.0175]	0.679*** [0.00838]	0.685*** [0.0329]	0.576*** [0.0148]	0.501*** [0.0215]
Remain indigent	0.373*** [0.0175]	0.321*** [0.00838]	0.315*** [0.0329]	0.424*** [0.0148]	0.499*** [0.0215]
Observations	31,309	48,381	3,905	27,040	5,339

Standard errors in brackets.

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

lowest poverty and indigence incidence and exhibit both the lowest entry rates and the highest exit rates.

## FACTORS DIRECTLY ASSOCIATED WITH POVERTY EXITS AND ENTRIES

This section focuses on an analysis of events associated with poverty exit and entries, using the decomposition stated in Eq. (2). It includes two headings, in the first one, the main findings of Beccaria et al. (2013) regarding poverty mobility for the first half of the 2000s are summarized. The second section highlights the new results for the extended period (covering the whole decade).

### *Previous Results*

#### *Exit from Poverty*

An important finding emphasized in Beccaria et al. (2013) was that, in all countries, a high proportion of the initially poor households experienced a positive event that had the potential to lift them out of poverty. This positive finding is at least partly linked to specific characteristics of the analyzed period, during which economic growth and poverty reduction prevailed. However, of the households that experienced a positive event, no more than approximately 50% of them actually exited poverty.

The events exclusively related to the labor market were the most relevant among those associated with poverty exits. The second most important group of events was related to the combined growth of nonlabor and labor incomes. Together, these account for 50–70% of the exit rates in the countries during the period of study. Depending on the country, these events were followed in importance by exclusively non-labor income events, as was the case for Brazil and Argentina, or by combined demographic and income events, as in Costa Rica, Ecuador and Peru. Exclusively demographic events, that is, a reduction in the number of household members, had a low effect on changes in poverty in all of these countries.

Among labor events, the most important single episode in Argentina and Ecuador was wage growth, while in Brazil and Costa Rica exits from poverty were more associated with a rise in the number of employed household members. In Peru both types of events had similar relative

importance. In all cases, the conditional probability of moving out of poverty due to wage growth is lower than the same probability related to the increase in the number of employed members. It is important to highlight that additional employed members most commonly acquired wage earning jobs not registered in the social security system.

A rise in income from pensions was the most important non-labor event in Argentina, Brazil and Costa Rica, while an increase in other non-labor income was more relevant in Ecuador and Peru. The second type mostly includes donations from one household to another. In Ecuador, in particular, these were generally remittances from migrants working in foreign countries, an expected result given the importance of this type of income flow in this country.

Finally, public transfers played almost no role in explaining exits from poverty.

#### *Entries to Poverty*

Previous results show that a high share of non-poor households experienced negative events that led to a fall into poverty in approximately one third of cases. Hence, a non-negligible group of households moved into poverty even when poverty incidence was declining, as in recent years in the analyzed countries. This result also stresses the importance of analyzing poverty flows that underlie static indicators of poverty incidence.

Unlike the case for exit rates, the most important differences between the countries were related to the frequency of events, while the conditional probabilities were broadly similar.

Again, exclusively labor events were the most common source of poverty entries; the only exception was Brazil, where most entries were related to declines in nonlabor income. Reductions of both labor and non-labor income were significant in some of the countries.

Exclusively demographic events were also relatively unimportant for poverty entries, but they appeared to play a larger role than for exits, especially in Peru and Ecuador. As was the case for exits, changes in income from cash transfer policies – reductions in this case – played no role for entries into poverty.

The loss of a job by a household member was the most important labor event for most countries. That follow from the significantly higher conditional probability of entering poverty as a consequence of a job loss than the one associated with a reduction of labor income. Occupation type must also be considered when analyzing entry rates as it was the case with exits. Specifically, the high frequency at which non-registered jobs were lost by



members of non-poor households reflects that this type of employment was both common and more unstable than formal jobs. Moreover, in Argentina and Costa Rica, the conditional probability that a job loss would lead to poverty was, as expected, higher for registered workers than for non-registered workers.

### *New Results*

#### *Exit from Poverty*

Table 4 presents poverty exit rates for the whole of the 2000s disaggregated by the types of event experienced by households. These results, shown in column 3, are the product of the frequency of each of these events (column 1) and the conditional probability of exiting poverty when the event occurs (column 2).

The new results for the extended period confirm, in general terms, the main findings of Beccaria et al. (2013). However, when the second half of the 2000s is included in the analysis a reduction in exit from poverty is observed in Costa Rica, Ecuador, and Peru, while the opposite is verified in Argentina (column 3). Exit rates for the whole period range from 30% to 43%. The fall in the proportion of poor household escaping poverty in the former three countries derives mainly from changes in the conditional probability of transiting out of this state. In Ecuador and Peru the decrease in the probability could reflect the increasing difficulties of leaving poverty as income of those remaining in such state should increasingly differ from the poverty line. In Costa Rica, this reduction could be associated with the impact of the international crisis that even led to an increase in poverty incidence in 2009.

It is worth stressing that the new findings confirm that the high rates of poverty appear to be unrelated to the occurrence of too few positive events; rather, these high levels of incidence occur because these events are not strong enough to allow families to escape poverty.

As in the first half of the 2000s, the labor market has clearly played an important role in the improvement of household living conditions through both exclusively labor market events and those accompanied by increases in nonlabor income. Exclusively demographic events continued to have a low effect on changes in poverty in all of the countries. This result is not surprising because the yearly observation window is likely too short to observe household demographic changes and such events are typically less frequent.

**Table 4.** Decomposition of the Exit Rates from Poverty.<sup>a</sup>

Events	No.		Argentina			Brazil <sup>b</sup>			Costa Rica			Ecuador			Peru				
			<i>P(event)</i> (1)	<i>P(S/E)</i> (2)	Exit (3)	<i>P(event)</i> (1)	<i>P(S/E)</i> (2)	Exit (3)	<i>P(event)</i> (1)	<i>P(S/E)</i> (2)	Exit (3)	<i>P(event)</i> (1)	<i>P(S/E)</i> (2)	Exit (3)	<i>P(event)</i> (1)	<i>P(S/E)</i> (2)	Exit (3)		
Non-demographic	I – Exclusively labor income events	<i>Total labor events</i>	33.2	47.8	15.8	30.7	39.2	12.0	32.7	56.4	18.5	36.0	38.4	13.8	31.8	37.2	11.8		
		1 Growth in the number of employed members	4.2	43.7	1.8	6.7	46.3	3.1	5.4	43.3	2.4	3.1	34.8	1.1	5.0	32.4	1.6		
		1.1 Growth in the number of registered wage earners	0.7	88.1	0.6	2.8	59.3	1.7	1.2	74.2	0.9	0.5	57.7	0.3	0.9	60.8	0.5		
		1.2 Growth in the number of non-registered wage earners	2.3	30.7	0.7	2.3	34.3	0.8	1.8	25.0	0.4	1.5	29.7	0.4	2.3	33.0	0.8		
		1.3 Growth in the number of non-wage earners	1.2	42.3	0.5	1.6	41.0	0.7	2.5	41.2	1.0	1.1	30.2	0.3	1.8	18.5	0.3		
		2 Growth in total hourly wage of members employed in both observations	11.9	42.8	5.1	11.7	24.1	2.8	10.8	47.7	5.2	11.7	35.7	4.2	9.5	30.5	2.9		
		3 Growth in the number of working hours of members employed in both observations	3.1	31.7	1.0	2.1	15.0	0.3	2.6	16.6	0.4	3.0	18.5	0.6	4.5	22.5	1.0		
		4 Growth in the number of working hours and in the total hourly wage of members employed in both observations	7.7	46.1	3.6	4.4	42.7	1.9	6.4	63.1	4.0	8.5	40.5	3.5	6.9	54.7	3.8		
		5 Growth in the total monthly wage of members employed in both observations and in the number of employed members	6.2	70.4	4.3	5.8	67.4	3.9	7.5	87.0	6.5	9.6	47.2	4.5	5.9	42.4	2.5		
		II – Exclusively non-labor income events	6	<i>Total non-labor events</i>	10.7	44.8	4.8	15.5	69.3	10.8	12.9	27.8	3.6	6.8	39.8	2.7	4.3	19.7	0.9
				Growth in the income from pensions	6.1	59.9	3.7	12.8	78.1	10.0	4.1	35.7	1.5	1.1	63.4	0.7	0.2	15.0	0.0
				Growth in public monetary transfers	2.0	2.0	0.0				5.0	17.0	0.8	0.9	19.0	0.2	0.0	0.0	0.0

Table 4. (Continued)

Events	No.		Argentina			Brazil <sup>b</sup>			Costa Rica			Ecuador			Peru			
			<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	
Demographic & combined events	8	Growth in other <i>non-labor incomes</i>	2.6	41.4	1.1	2.8	29.0	0.8	3.8	33.1	1.3	4.9	38.5	1.9	4.2	19.9	0.8	
	III – Labor and non-labor income events	9	Growth in labor and non-labor incomes	17.6	59.2	10.4	14.6	72.0	10.5	14.7	63.9	9.4	15.8	41.5	6.6	15.5	56.6	8.7
	IV – Exclusively demographic events	10	Reduction in the total number of household members; the total nominal income remains constant	4.9	13.3	0.6	3.4	27.9	0.9	3.9	36.4	1.4	3.7	27.1	1.0	9.3	12.7	1.2
	V – Demographic events leading to income changes	11	Growth in the number of labor or non-labor income earners due to the entrance of members to the household	1.4	41.5	0.6	1.9	48.6	0.9	1.0	56.6	0.6	0.5	24.6	0.1	0.3	35.6	0.1
	VI – Combination of demographic and income events	12	Growth in the total nominal income and reduction in the number of household members	6.3	59.9	3.8	4.4	79.5	3.5	4.6	80.1	3.7	4.6	64.6	2.9	7.9	62.5	4.9
	VII – Events not classified			7.4	47.0	3.5	6.5	70.6	4.6	9.6	54.7	5.3	5.5	33.8	1.9	3.7	53.9	2.0
	Total households with events			81.3	48.6	39.5	76.9	56.2	43.2	79.5	53.3	42.4	72.8	39.8	30.4	72.8	40.7	29.9
	Total households without events			18.7			23.1			20.5			27.2			27.2		
	Total households			100.0		39.5	100.0		43.2	100.0		42.4	100.0		30.4	100.0		29.9
	Total number of households with events			1,951,506			4,363,983			92,976			2,259,462			4,229,096		
Total number of households without events			448,669			1,309,712			24,043			844,749			1,578,657			
Total number of households			2,400,175			5,673,695			117,019			3,104,211			5,807,753			

Source: Author's elaboration based on data from national household survey.

Note: All estimations are significant at 1%.

<sup>a</sup>Decomposition based on Eq. (2).

<sup>b</sup>Metropolitan areas of Recife, Salvador, Belo Horizonte, Rio de Janeiro and Porto Alegre.

The relative importance of the different labor events had suffered some changes in the whole period in comparison with the previous results. In particular, wage growth became now as the most relevant single event except in the case of Brazil where the exits from poverty are more associated with a rise in the number of employed household members (Table 4, column 3). When decomposing these results according to Eq. (2), it appears to mainly derive from the combination of a higher frequency of wage raise events and the decreasing probability of getting a new job. In Costa Rica, Ecuador, and Peru, the lower conditional probability associated with the latter event also contributed to this result.

This finding could be indicating the weakening of the employment generation process in the second part of the decade.<sup>23</sup> This is even more worrying considering that informal jobs (non-registered wage earning and nonwage positions) are those most commonly acquired by additional employed members in poor household (Table 4, column 1). This result is extremely important because getting a registered job is associated with a higher probability of exiting poverty than other types of employment in every country studied (column 2), given higher average wages for registered jobs. For example, a member of a poor household in Argentina who finds a registered job is nearly three times more likely to bring a household out of poverty than one who finds a non-registered job. This occurrence clearly shows that labor informality still strongly reduce opportunities to escape poverty in Latin America.

Among nonlabor events, figures for the extended period regarding the importance of income from pensions were larger than in Beccaria et al. (2013) in Argentina in Brazil. In the former country, it is associated with both a raise in the conditional probability and in the frequency, while only the first channel holds in the case of Brazil. In turn, it could be reflecting the increase in the coverage of the pension system (including noncontributory schema)<sup>24</sup> while the larger conditional probability in Argentina could be associated with the continuing improvement in the real value of pensions.<sup>25</sup>

Finally, as highlighted for the first part of the decade, public transfers played almost no role in explaining exits from poverty. This finding may be unexpected given the presence and extension of conditional cash transfers (CCTs) such as *Bolsa Familia* in Brazil, *Programa Jefes* and *Asignación Universal por Hijo* in Argentina, *Plan Juntos* in Peru, *Bono de Desarrollo Humano* in Ecuador, and *Avancemos* in Costa Rica in recent years. The scarce relevance of this type of event derives from its relatively low

frequency and because of its reduced conditional probability. The exception seems to be Costa Rica.

This result should not be interpreted, however, as an indicator of the low impact of cash transfers on poverty reduction considering that different factors could explain its measured scarce role in exits from poverty.<sup>26</sup>

First of all, this type of income flow could be underreported in surveys. Furthermore, as mentioned earlier, non-labor income in Brazil was imputed with information from PNAD; thus, the households that actually received cash transfers were not identified. Thus, the impact of this type of income on poverty transitions may have been underestimated. Second, as indicated in previous studies these transfers more effectively reduce extreme poverty than poverty as the amount of the transfer is rather small,<sup>27</sup> this seems to be corroborated but only for one country in the analysis of indigence transitions in the next section of this paper. At the same time, in some cases, the cash transfer programs are of limited coverage.

Third, our analysis only considered urban areas, while some programs are focused in rural areas. Fourth, households that benefited from these programs saw their incomes increase when they entered these programs but not necessarily during the period under study. Fifth, we only analyzed the association between these transfers and aggregate exit rates, but CCTs in the region generally focus on households with children. Finally, one aspect of the methodology could also explain these findings. The analysis was based on an exhaustive list of mutually exclusive events. Thus, the identified role of CCTs resulted from the frequency and conditional probability of experiencing only an increase in the amount of this type of income. If another source of income had also changed between observations, income variation was attributed to a combined event, reducing the visibility of these public transfers.

### *Entries to Poverty*

A high share of non-poor households experienced negative events that reduced their income (Table 5) thus explaining the large flows into poverty previously mentioned. Hence, a non-negligible group of households moved into poverty even when poverty incidence was declining, as in the 2000s in the selected countries.

Exclusively labor events were the most common source of poverty entries, except in Brazil, where most of them were related to declines in

**Table 5.** Decomposition of the Entry Rates to Poverty.<sup>a</sup>

Events		No.	Argentina			Brazil <sup>b</sup>			Costa Rica			Ecuador			Peru		
			<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)
Non demographic	1 – Exclusively labor income events	<i>Total labor events</i>	13.6	18.3	2.5	11.7	20.3	2.4	20.8	20.9	4.3	22.3	27.9	6.2	0.4	34.5	7.8
		1 Reduction in the number of employed members	2.9	28.6	0.8	2.5	38.6	1.0	3.6	33.3	1.2	2.8	30.1	0.9	2.9	43.4	1.3
		1.1 Reduction in the number of registered wage earners	0.9	22.2	0.2	1.2	41.1	0.5	1.3	29.0	0.4	0.8	27.4	0.2	0.8	49.7	0.4
		1.2 Reduction in the number of non-registered wage earners	1.2	28.6	0.4	0.7	34.2	0.2	1.2	36.8	0.4	1.1	36.0	0.4	1.1	39.4	0.4
		1.3 Reduction in the number of non-wage earners	0.8	35.8	0.3	0.6	38.3	0.2	1.1	34.5	0.4	1.0	26.0	0.3	1.1	42.9	0.5
		2 Reduction in total hourly wage of members employed in both observations	5.0	10.9	0.5	4.7	10.6	0.5	8.7	15.4	1.3	8.5	24.4	2.1	7.4	36.4	2.7
		3 Growth in the number of working hours of members employed in both observations	2.1	15.3	0.3	1.2	9.8	0.1	2.4	19.0	0.5	2.7	20.3	0.5	3.8	13.1	0.5
		4 Reduction in the number of working hours and in the total hourly wage of member employed in both observations	2.4	17.8	0.4	2.1	16.0	0.3	3.8	17.9	0.7	5.0	25.6	1.3	5.8	35.6	2.1
		5 Reduction in the total monthly wage of members employed in both observations and in the number of employed members	1.1	30.9	0.4	1.2	38.2	0.5	2.3	29.1	0.7	3.2	45.2	1.4	2.7	47.2	1.3

**Table 5. (Continued)**

Events	No.		Argentina			Brazil <sup>b</sup>			Costa Rica			Ecuador			Peru		
			<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)
		II – Exclusively non-labor income events															
	6	Total non-labor events Reduction in the income from pensions	6.3 3.8	11.1 10.0	0.7 0.4	17.7 15.2	22.4 23.0	3.9 3.5	5.4 1.2	14.9 7.3	0.8 0.1	6.4 1.5	25.1 7.2	1.6 0.1	6.6 0.8	18.3 7.0	1.2 0.1
	7	Reduction in public monetary transfers	0.4	27.8	0.1				0.1	10.6	0.0	0.1	44.0	0.1	0.0	0.0	0.0
	8	Reduction in other non-labor incomes	2.2	9.7	0.2	2.4	18.1	0.4	4.1	17.3	0.7	4.9	30.0	1.5	5.8	19.9	1.1
	9	III – Labor and non-labor income events Reduction in labor and non-labor incomes	2.2	31.8	0.7	5.2	29.5	1.5	5.7	24.9	1.4	7.9	31.7	2.5	11.7	43.8	5.1
Demographic & combined events	10	IV – Exclusively demographic events Growth in the total number of household members; the total nominal income remains constant	5.7	6.6	0.4	4.8	7.4	0.4	6.7	2.9	0.2	8.7	14.3	1.3	2.6	19.9	0.5
	11	V – Demographic events leading to income changes Reduction in the number of labor or non-labor income earners due to the exit of members from the household	3.1	14.2	0.4	2.4	14.1	0.3	3.3	14.6	0.5	1.5	13.9	0.2	4.3	27.6	1.2
	12	VI – Combination of demographic and income events Reduction in the total nominal income and growth in the number of household members.	1.5	46.5	0.7	2.3	41.5	0.9	3.0	37.3	1.1	3.7	46.5	1.7	1.7	67.7	1.2

VII – Events not classified	3.2	23.3	0.7	5.1	27.1	1.4	4.3	19.7	0.8	5.4	29.1	1.6	10.3	28.5	2.9
Total households with events	35.6	17.3	6.6	49.2	22.1	11.2	49.1	18.7	9.5	56.0	26.9	16.6	59.8	33.3	20.4
Total households without events	64.4			50.8			50.9			44.0			40.2		
Total households	100		6.6	100		11.2	100.0		9.5	100.0		16.6	100.0		20.4
Total number of households with events	3,475,427			8,720,335			239,930			2,815,042			4,413,794		
Total number of households without events	6,295,460			9,000,372			248,323			2,213,441			2,968,955		
Total number of households	9,770,887			17,700,000			488,253			5,028,483			7,382,749		

*Source:* Author's elaboration based on data from national household survey.

*Note:* All estimations are significant at 1%.

<sup>a</sup>Decomposition based on Eq. (2).

<sup>b</sup>Metropolitan areas of Recife, Salvador, Belo Horizonte, Rio de Janeiro and Porto Alegre.



non-labor income. Reductions of both labor and non-labor income were also particularly significant Peru.

Figures for the whole period show, with respect to those for the first part of the 2000s, an increase in entries due to incomes reductions associated with diminishing remittances, an expected result given the difficulties faced by Latin American migrants in USA and Europe from 2009 onwards.

Exclusively demographic events were also relatively unimportant for poverty entries, but they appeared to play a larger role than for exits. In this context, this type of episodes seemed to be somewhat more significant in Ecuador.

The reduction in hourly wages is the most important event among exclusively labor events in Costa Rica, Ecuador, and Peru while the loss of employment is that with the greater relevance in the other two countries. However, in all cases the conditional probability of entering poverty following a job loss was, as expected, higher than the conditional probability associated with a reduction of hourly wages.

Again, occupation type must also be considered when analyzing entry rates. Specifically, the high frequency at which non-registered and self-employed jobs were lost by members of nonpoor households suggests that this type of employment was both more common and more unstable than registered occupations. An unexpected result is the relatively low conditional probability associated with the loss of a registered job relative to losing an informal one (except in the case of Brazil) considering the higher wages of formal employments. One possible explanation is that the average distance between the initial income and the poverty line is larger among those households experiencing a loss of a formal job relative to those leaving an informal employment.

## **FACTORS DIRECTLY ASSOCIATED WITH EXTREME POVERTY EXITS AND ENTRIES**

Another contribution of the present paper is the analysis of those events associated with extreme poverty mobility. As mentioned before, a relatively important share of households in many Latin American countries still remains in a state of indigence and it is expected that the previous identified episodes could influence extreme poverty exits and entries in a different way than regarding poverty mobility.

*Exit from Extreme Poverty*

Table 6 presents exits from indigence disaggregated by events. Results appear to be similar to those discussed for exit from poverty; in particular, the proportion of households experiencing a positive event is also sizable. However, in this case, the conditional probabilities are substantially higher than in the case of poverty, an expected result given the lower value of the indigence normative budget. As a consequence, a substantial proportion of initially indigent households leave this state (50–70%).

The greater part of exits from indigence coincides with exclusively labor market events, (Table 6, column 3) as it was the case with poverty transitions. However, exclusively non – labor income events are associated with a share of exits from indigence larger than in the case of poverty, except in Ecuador; in Brazil this type of events are, in fact, the most important. Combined labor and non – labor episodes are also the second most important group related to indigence exits, except in the just mentioned case of Brazil, and in Costa Rica.

Taking together, single or combined labor events have a lower contribution to indigence exit rates in comparison to poverty exit rates except in Ecuador and Peru; only in the case of Argentina this appears to be related to less frequency of the events. Exclusively demographic events are, again, of low relevance.

In the three countries with the lowest indigence incidence, exits coincides with a rise in the number of employed household members while in Ecuador and Peru, leaving extreme poverty is mainly connected to an increase in hourly wages. That result is not generally due to a larger frequency of the former type of episode but the conditional probability of exiting indigence when a household member obtains a new job.

Like in the case of poverty exits, labor precariousness is also a feature when analyzing movements out of indigence as the frequency of non – formal employment explains most part of the new jobs among extreme poor households.

A rise in income from pensions is the most important non-labor event in Argentina and Brazil while other nonlabor income takes this place in Ecuador and Peru. In Costa Rica, public cash transfers becomes the episode of that type more associated with indigent exits; it even turns out to be the most relevant among all the individual events. The importance of public transfers in the Central American country arises both from the relatively high proportion of initially indigent household exposed to that event and also from its sizable conditional probability. In fact, the latter is

**Table 6.** Decomposition of the Exit Rates from Indigence.<sup>a</sup>

Events	No.	Argentina			Brazil <sup>b</sup>			Costa Rica			Ecuador			Peru					
		<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Exit (3)			
Non demographic	I – Exclusively labor income events	<i>Total Labor Events</i>			29.4	73.8	21.7	24.1	74.5	18.0	30.8	79.2	24.4	37.7	68.6	25.9	34.9	64.1	22.4
	1	Growth in the number of employed members			7.8	75.4	5.9	13.0	81.8	10.7	11.8	79.7	9.4	3.3	69.5	2.3	6.8	62.8	4.3
	1.1	Growth in the number of registered wage earners			0.8	100.0	0.8	5.5	90.7	5.0	2.9	100.0	2.9	0.3	68.7	0.2	0.9	94.7	0.8
	1.2	Growth in the number of non-registered wage earners			4.7	70.4	3.3	4.0	70.7	2.8	2.7	59.1	1.6	1.6	70.1	1.1	3.3	58.7	1.9
	1.3	Growth in the number of non-wage earners			2.3	77.0	1.8	3.5	80.5	2.8	6.3	79.3	5.0	1.4	69.0	1.0	2.6	57.1	1.5
	2	Growth in total hourly wage of members employed in both observations			8.3	67.4	5.6	4.8	50.9	2.5	5.0	63.9	3.2	9.6	59.3	5.7	9.4	61.3	5.8
	3	Growth in the number of working hours of members employed in both observations			1.7	40.1	0.7	0.9	31.3	0.3	2.7	66.5	1.8	3.0	43.0	1.3	5.0	48.5	2.4
	4	Growth in the number of working hours and in the total hourly wage of members employed in both observations			7.1	73.9	5.2	2.2	72.2	1.6	7.0	92.9	6.5	10.1	74.5	7.5	7.6	74.5	5.6
	5	Growth in the total monthly wage of members employed in both observations and in the number of employed members			4.5	95.7	4.3	3.1	93.8	3.0	4.2	81.5	3.4	11.8	77.3	9.1	6.2	69.3	4.3
		<i>Total non-labor events</i>			13.9	65.6	9.1	23.6	86.8	20.5	19.1	65.6	12.5	7.9	57.2	4.5	6.3	46.8	3.0

Demographic & combined events	II – Exclusively non-labor income events	6	Growth in the income from <i>pensions</i>	6.0	86.8	5.2	19.2	95.2	18.3	2.6	57.9	1.5	1.2	66.0	0.8	0.2	100.0	0.2
		7	Growth in public <i>monetary transfers</i>	2.5	29.8	0.7				9.0	75.3	6.8	1.4	25.7	0.4	0.0	0.0	0.0
		8	Growth in other <i>non-labor incomes</i>	5.5	58.6	3.2	4.4	50.8	2.3	7.5	56.5	4.3	5.3	63.7	3.4	6.1	44.9	2.7
	III – Labor and non-labor income events	9	Growth in labor and non-labor incomes	17.0	88.6	15.1	14.5	93.8	13.6	14.5	89.4	12.9	19.1	68.0	13.0	16.8	73.6	12.3
	IV – Exclusively demographic events	10	Reduction in the total <i>number of household members</i> ; the total nominal income remains constant	4.6	22.2	1.0	1.7	21.8	0.4	1.9	43.7	0.8	3.1	46.6	1.5	7.5	17.7	1.3
	V – Demographic events leading to income changes	11	Growth in the number of labor or non-labor income earners due to the entrance of members to the household	1.7	73.6	1.3	3.3	83.5	2.7	0.7	100.0	0.7	0.2	91.1	0.2	0.1	100.0	0.1
	VI – Combination of demographic and income events	12	Growth in the <i>total nominal income</i> and reduction in the <i>number of household members</i>	8.1	80.9	6.6	4.6	89.1	4.1	6.8	100.0	6.8	4.7	81.5	3.8	9.4	80.7	7.6
	VII – Events not classified			9.8	81.6	8.0	9.4	91.3	8.6	13.0	79.2	10.3	6.7	67.2	4.5	3.7	71.2	2.6
	Total households with events			84.5	74.2	62.7	81.3	83.5	67.9	86.8	78.9	68.5	79.4	67.1	57.6	78.7	62.6	50.1
	Total households without events			15.5			18.7			13.2			20.6			21.3		
	Total households			100		62.7	100		67.9	100		68.5	100.0		57.6	100		50.1
	Total number of households with events			577,342			1,461,048			30,344			920,156			1,690,819		
Total number of households without events			105,726			336,778			4,631			238,227			457,802			
Total number of households			683,068			1,797,826			34,975			1,158,383			2,148,621			

Source: Author's elaboration based on data from national household survey.

Note: All estimations are significant at 1%.

<sup>a</sup>Decomposition based on Eq. (2).

<sup>b</sup>Metropolitan areas of Recife, Salvador, Belo Horizonte, Rio de Janeiro and Porto Alegre.

approximately five times larger than the one estimated for the same event in the case of poverty transitions. However, the relevance of public transfers is not very important in the other countries as both the frequency and the conditional probability remain relatively low.

### *Entries to Extreme Poverty*

Figures from [Table 7](#) indicate that the general pattern of indigence entry rates is similar to those of poverty entries. The proportion of nonindigent households experiencing an income reduction event is not much different to the one above mentioned for nonpoor units although the probability that one of the former leaves such state is lower than for the latter. This appears as an expected result as the distance between incomes of nonindigent households and the indigent line is larger, on average, than the one between nonpoor households and the poverty line.

Labor market events are also those most frequently linked to entering extreme poverty although, among them, the reduction in the number of employed member becomes the individual most important episode, except in Ecuador. The combined labor and nonlabor episodes are relatively less important than in the case of poverty entries. Demographic event are also here of low relevance.

## **SENSITIVITY ANALYSIS**

An analysis of the sensitivity of poverty and indigence dynamics to changes in the poverty and extreme poverty lines was performed to assess the robustness of the results. In particular, the same decomposition shown in [Eq. \(2\)](#) but only considering those transitions that take the households to positions 10% below and 10% above the value of the poverty and extreme poverty lines was carried out. Results (not included in this paper)<sup>28</sup> indicate that the relative importance of the events do not change substantially, which indicates that the conclusions are robust to changes in the value of the poverty (indigence) line.

## **FINAL REMARKS**

This document analyzes poverty dynamics for five Latin American countries with two objectives: (1) to estimate the role of the labor market,

**Table 7.** Decomposition of the Entry Rates to Indigence.<sup>a</sup>

Events		No.		Argentina			Brazil <sup>b</sup>			Costa Rica			Ecuador		
				<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)
Non demographic	I – Exclusively labor income events	1	<i>Total labor events</i>	12.9	8.4	1.1	11.2	8.9	1.0	19.8	8.3	1.6	21.0	12.7	2.7
			Reduction in the number of employed members	2.9	15.6	0.5	2.7	26.5	0.7	3.5	14.1	0.5	2.8	15.6	0.4
		1.1	Reduction in the number of registered wage earners	0.8	14.3	0.1	1.3	28.8	0.4	1.1	4.4	0.0	0.6	4.3	0.0
		1.2	Reduction in the number of non-registered wage earners	1.3	13.4	0.2	0.8	25.2	0.2	1.3	25.1	0.3	1.2	24.0	0.3
		1.3	Reduction in the number of non-wage earners	0.8	20.4	0.2	0.6	23.2	0.1	1.1	11.2	0.1	0.9	12.1	0.1
		2	Reduction in total hourly wage of members employed in both observations	4.5	3.7	0.2	4.3	2.2	0.1	8.2	5.5	0.4	7.7	9.5	0.7
		3	Growth in the number of working hours of members employed in both observations	2.1	6.2	0.1	1.2	2.9	0.0	2.3	3.2	0.1	2.8	9.2	0.3
		4	Reduction in the number of working hours and in the total hourly wage of member employed in both observations	2.3	8.3	0.2	1.9	3.9	0.1	3.6	12.8	0.5	4.8	14.4	0.7
	5	Reduction in the total monthly wage of members employed in both observations and in the number of employed members	1.1	13.5	0.2	1.1	7.9	0.1	2.2	7.6	0.2	2.9	19.4	0.6	
	II – Exclusively non-labor income events	6	<i>Total non-labor events</i>	5.8	6.2	0.4	15.6	11.9	1.9	5.2	11.5	0.6	5.9	12.2	0.7
			Reduction in the income from pensions	3.3	4.9	0.2	13.2	12.3	1.6	1.1	0.0		1.2	6.2	0.1
		7	Reduction in public monetary transfers	0.5	10.4	0.1				0.2	0.0		0.2	25.6	0.1

Table 7. (Continued)

Events	No.		Argentina			Brazil <sup>b</sup>			Costa Rica			Ecuador		
			<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)	<i>P</i> (event) (1)	<i>P</i> ( <i>S</i> / <i>E</i> ) (2)	Entry (3)
	8	Reduction in other <i>non-labor incomes</i>	2.0	7.3	0.1	2.4	9.6	0.2	3.8	15.6	0.6	4.4	13.3	0.6
	9	III – Labor and non-labor income events	2.1	14.3	0.3	4.6	14.1	0.6	5.3	10.6	0.6	7.0	19.2	1.3
Demographic & combined events	10	IV – Exclusively demographic events	6.4	0.8	0.1	5.0	0.6	0.0	6.6	0.4	0.0	8.8	4.8	0.4
	11	V – Demographic events leading to income changes	2.9	7.0	0.2	2.3	9.7	0.2	2.9	5.3	0.2	1.4	9.8	0.1
	12	VI – Combination of demographic and income events	1.5	21.7	0.3	2.1	14.9	0.3	2.8	16.4	0.5	3.3	22.9	0.8
		VII – Events not classified	3.1	13.7	0.4	4.7	16.5	0.8	4.1	8.0	0.3	4.8	13.8	0.7
		Total households with events	34.8	7.9	2.9	45.4	10.6	4.9	46.6	8.1	3.8	52.1	12.9	7.6
		Total households without events	65.2			54.6			53.4			47.9		
		Total households	100		2.9	100		4.9	100.0		3.8	100		7.6
		Total number of households with events	3,994,054			9,808,628			265,932			3,636,402		
		Total number of households without events	7,493,940			11,800,000			304,365			3,337,909		
		Total number of households	11,487,994			21,608,628			570,297			6,974,311		

Source: Author's elaboration based on data from national household survey.

Note: All estimations are significant at 1%.

<sup>a</sup>Decomposition based on Eq. (2).

<sup>b</sup>Metropolitan areas of Recife, Salvador, Belo Horizonte, Rio de Janeiro and Porto Alegre.

non-labor incomes and household size in transitions into and out of poverty and extreme poverty, and (2) to determine if the observed differences in household poverty/indigence flows are mostly associated with differences in the probability of certain types of events or with the differing impacts of these events, that is, the conditional probability that their poverty or indigence status changes after a given event occurred.

In particular, the contribution of the present paper is to extend a previous analysis on this subject for the initial years of the 2000s (Beccaria et al., 2013) in two directions; on one hand, to broaden the time coverage in order to include the second half of that decade; on the other hand, to analyze indigence mobility for the same countries and period.

The new results on poverty mobility covering the whole of the 2000s provide a similar picture to that discussed in Beccaria et al. (2013) for the initial years of the decade, regarding the intensity of exits and entries and, also, the relative importance of the identified events. However, some interesting differences arise. A lower exit rate was found in some countries derived from a reduced conditional probability. It could reflect, on the one hand, the increasing difficulties of leaving poverty as income of those remaining in such state should increasingly differ from the poverty line. On the other, this reduction could be associated with the impact of the international crisis. For example, getting a new job reduced its importance as a way of leaving poverty when comparing the original and the new results, perhaps associated with the worsening of the economic situation during the last part of the period under analysis.

No change was identified in the relevance of non-labor incomes except for the case of Argentina where those coming from pensions played a larger role in the whole period. This derives, at least in part, from the implementation of reforms to the pension system that expand its coverage.

Figures for the whole period show an increase, with respect to those for the first part of the 2000s, in entries to poverty due to incomes reductions derived from diminishing remittances, an expected result given the difficulties faced by migrants in USA and Europe from 2009 onwards.

Regarding extreme poverty mobility, the share of indigent household that face an income rise event was, as in the case of poverty, sizable. However, as expected, the proportion actually leaving the state among them was larger than in the case of poverty.

The greater part of exits from indigence coincides with exclusively labor market events as it was the case with poverty transitions. However, taking together, single or combined labor events have a lower contribution to indigence exit rates in comparison to poverty exit rates. The latter reflects that



indigent households' members face greater difficulties in the labor market than the poor in general.

To sum up, an important finding of this paper is that a high proportion of initially poor and extreme poor households in every country experienced a positive event that could help them exit poverty. However, only a small proportion of these households actually exited the initial state, while the others obtained increases in income that were not sufficient to change their status. This result suggests that the difficulty of exiting poverty or indigence is more related to the fact that the additional income is not sufficient to escape these situations than it is to the inability of household members to obtain new incomes, for example, by getting a new job.

Informal labor is a prevailing feature in the studied countries; therefore, it is not unexpected that jobs obtained by poor or indigent households were often of this type. Informal jobs imply low wages and are generally of short duration.<sup>29</sup>

Consequently, the high levels of poverty and indigence movements in the region appeared to be directly linked to high occupational and wage instability. Even when the economy behaved reasonably well at the aggregate level, the characteristics of the labor market still generated high levels of labor turnover, with negative consequence on well being given the undeveloped system of social protection.

Public transfers programs were not linked to major movements out of poverty and only appeared to coincide with a relative important flow out of indigence in the case of one country. However, it is important to point out that data (and to some extent, the methodology) employed in this paper may bias the results.

Findings coming from this study support an expansion and reshaping of antipoverty strategies, through labor market policies and other more universal approaches. Priority should be given to efforts that aim to prevent low and medium-low income workers from facing income-reducing events and mitigate their negative impacts. A central preoccupation of these strategies should be, on the one hand, a reduction in the share of highly unstable informal and precarious employment and, on the other hand, an extension of the unemployment assistance.

Increasing the probability of leaving poverty and indigence should also be another important part of antipoverty policies. This involves addressing both the demand and the supply sides of the labor market to improve job quality. Wage levels must also be considered an objective because getting a job is no guarantee of leaving poverty or extreme poverty, particularly when a large portion of jobs are informal. A higher minimum wage policy

can be an effective tool, especially if it also affects wages in the informal sector.

Finally, countries must increase both the coverage and the amount of the public cash transfers, which are generally very low, and combine them with other labor and social protection policies, at least until the labor market generates enough jobs with incomes sufficient to enable poverty exits.

## NOTES

1. This period includes 2009, when the effect of the international crisis led to a reduction of 2.4% in per capita GDP.

2. We follow the usual distinction employed in income-based poverty indicators: poverty is defined as a situation prevailing when household incomes are below a normative budget aimed at satisfying food and non-food requirements. A household is in extreme poverty or indigence (these terms will be used indistinctly) when its income is below the normative basket satisfying food requirements.

3. Studies of the poverty dynamics in individual Latin American countries include those by Beccaria and Maurizio (2009), Cruces and Wodon (2003), Herrera and Roubaud (2007), Machado and Perez Ribas (2010), Maurizio, Perrot, and Villafañe (2009), Paz (2005), Perez Ribas and Machado (2007), Baulch and Hoddinott (2000), Neilson, Contreras, Cooper, and Hermann (2008), and Slon and Zúñiga (2006). There are also several comparative studies of Latin American countries on income mobility, a subject related to that of poverty mobility. Fields, Hernandez, Freije, and Sanchez Puerta (2007) is one of them, and references are there made to at least two other comparative studies.

4. Nonweighted averages in all cases. For some countries, figures do not exactly correspond to 2002 or to 2012 but to years near to them.

5. At the beginning of the section “Poverty and Extreme Poverty Dynamics in Five Latin American Countries. A General Overview,” poverty and indigence rates for each country are included.

6. Apart from the case of Peru, the other exception is the *Encuesta de Caracterización Socioeconómica* (CASEN Panel) from Chile. This survey initially provided observations of households in five-year intervals (1996, 2001, and 2006). Thus, it is a highly valuable source of information for medium- and long-term occupational and welfare changes, but it is not quite adequate for the analysis presented in this paper because most of the analyzed events affect household poverty status in the short term. After 2006, the survey was carried out annually but the microdata are not available.

7. Adapted from Elbers, Lanjouw, and Lanjouw (2003). This procedure was possible because the survey questionnaires are similar and the size and representativeness of the sample are nearly identical for metropolitan areas.

8. PNAD was not carried out in 2010, therefore, transitions between 2009 and 2010, and also between 2010 and 2011, could not be estimated.

9. Data used result from pooling the 2002–2006 and the 2007–2010 panels.

10. In Beccaria and Maurizio (2009), a correction for attrition was made for Argentina for the nineties through a method based on re-weighting observations, following Cantó, del Río, and Gradín (2006). This was possible because information on loss of data due to sample attrition was available in the survey used for that period, which is different from the one employs in this paper. No significant differences in exit and entry rates between original and re-weighted data were found.

11. Given that household surveys do not inquire intra – household distribution of income (or expenditure), the household itself is the unit of analysis – that is, that to be identified as poor or nonpoor. When a household's total income is lower than the poverty (indigence) line corresponding to this household (i.e., given its size and composition), the household is classified as poor (indigent) and all of its members are also considered as such.

12. The extensive literature on poverty measurement methods has also pinpointed various theoretical and empirical difficulties. See, for example, Feres (1997), Ravallion (1994), and Rio Group (2006).

13. Estimates are usually disseminated through *Social Panorama*, an annual institutional publication.

14. The lines used for the official national estimates were employed in Argentina, as the level of ECLAC budgets appeared too high. Moreover, due to the clear underestimation of the variations of the official Price Consumer Index since 2007 (which is used by INDEC to update the value of the poverty line), the evolution of the average of the CPIs corresponding to nine provinces (and estimated by their statistical bureaus) was used to update the figures since January of that year. In the case of Peru, ECLAC employed, since 2003, poverty and indigence lines computed by the Peruvian Statistical Institute. In order to maintain the same criteria used in the rest of the country, we updated 2003 ECLAC's poverty and indigence lines with the variation of the official CPIs of Peru.

15. In Beccaria, Maurizio, Fernandez, Monsalvo, and Álvarez (2011) and Beccaria et al. (2013) further details of ECLAC's method are presented.

16. For a discussion of this topic, see Sen (1983, 1985).

17. See, for example, the discussion in the September issue of *In Focus*, a publication of UNDP's International Poverty Centre that includes articles by T.N Srinivasan, M. Ravallion, and N. Kakwani (among other authors). In some of these papers, and also elsewhere (ECLAC, 2006), it is also mentioned that the World Bank lines appear as too low for most Latin American countries; furthermore, the relationship between poverty incidence computed by using these lines and GDP is rather weak.

18. For example, Lillard and Willis (1978), Bane and Ellwood (1986), Jenkins and Schluter (2003), Cantó, del Río, and Gradín (2007), Ruggles and Williams (1987), McKernan and Ratcliffe (2002), Ballantyne, Chapple, Maré, and Timmins (2004), Stevens (1999), Jenkins and Rigg (2001), Devicienti (2001), Biewen (2006), Arranz and Cantó (2012), and Aassve, Burgess, Propper, and Dickson (2005).

19. For example, Aassve et al. (2005) and Burgess and Propper (1998).

20. For example, an event leading to a rise in the income per adult equivalent (ipae) could give rise to another episode that also causes the ipae to rise. In our analysis, both factors were assumed to occur simultaneously.

21. Moreover, the available information does not provide adequate instruments to address the problem of endogeneity.

22. It should be remembered that figures on poverty rates included in the section “Introduction” are those from ECLAC for 2003 and 2012, while in Table 1 authors’ estimates are included and they refer to different specific periods.

23. According to ILO (2013, Statistical Annex, Table 5), the occupation rate (the number of employed individuals divided by the working-age population) rose 4.7% between 2003 and 2008 but only 1.8% between 2008 and 2012.

24. Rofman, Apella, and Vezza (2013).

25. From 2006 to 2012, the real value of the minimum pension grew at an annual rate of almost 3% (data from the Ministry of Economy, <http://www.mecon.gov.ar/peconomica/basehome/infoeco.html>).

26. Several studies evaluate the impact of these programs on different variables, mainly on time allocation, but also on the type of employment and/or household incomes. For example, Maurizio and Vazquez (2014), Skoufias and di Maro (2008), Foguel and Paes de Barros (2010), and Villatoro (2008).

27. See, for example, Perez Ribas, Soares, and Hirata (2008), Villatoro (2008), ILO (2009), Perova and Vakis (2009), and Veras Soares, Soares, Medeiros, and Guerreiro Osório (2006).

28. But available upon request.

29. Larger exit rates from informal than formal jobs are found in several studies. See, for example, Beccaria and Maurizio (2004) or Ulyssea and Szerman (2007).

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