**MAURICIO CÁRDENAS**
Finance Minister, Colombia

**RAFAEL DE HOYOS**
World Bank

**MIGUEL SZÉKELY**
Center for Education and
Social Studies, Mexico City

# Out-of-School and Out-of-Work Youth in Latin America: A Persistent Problem in a Decade of Prosperity

**ABSTRACT**    This paper explores the persistent shares of youth that are out of school and out of work in Latin America, with special attention to those in the fifteen-to-eighteen age range. According to our calculations, 18.5 percent of Latin American youth in this age group (9.4 million individuals) are currently neither in school nor working. We present the patterns of the evolution of this group in eighteen countries across the region, identifying the set of microeconomic and aggregate variables that are correlated with their dynamics. We explore the relationship with the household's socioeconomic characteristics and with the structure and evolution of labor markets. We identify the links with the schooling system and school dropout patterns; and we verify whether the group responds to changes in the environment, including overall GDP growth, or to economic shocks. We also explore the possibility that they are simply a transient demographic phenomenon.

*JEL Classification:*  J10, J21, I24.

*Keywords:*  Education, employment, youth

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**T**he widely studied demographic window of opportunity seems to be reaping some of its benefits during the first years of the twenty-first century in Latin America.[1] As predicted, a historic sharp decline in economic dependency rates started in the 1990s—and in some countries a decade earlier—with the acceleration in the growth rate of youth aged fifteen to twenty-four years, relative to those under fifteen and over sixty-five. This means that the share of the working-age population (and the potential for increasing productivity) is close to maximum levels. Furthermore, the patterns imply that the situation will prevail for about twenty years, until the sixty-five-and-over age group begins to grow faster, which will bring new challenges to the region.

Since the window opened, the 2000s have witnessed the highest real growth rates of gross domestic product (GDP) since the 1970s, reaching levels of over 4 percent, on average, in 2008. At the same time, there have been important reductions in poverty, from almost 40 percent in 2000 to 30 percent in 2009. The previously persistent high income inequality levels also seem to be registering a decline.[2]

1. An example of the large literature on this issue is Behrman, Duryea, and Székely (2002).
2. This is shown in López Calva and Lustig (2010). According to the most recent data, the Gini income inequality index declined in the 2000s in twelve out of seventeen countries in the region.

This more prosperous environment has not been free of problems, however. If the region is not able to invest in generating enough educational and employment opportunities for the fast-growing fifteen-to-twenty-four age group, then the window will not be fully capitalized, and the possibilities of producing enough resources to support those over sixty-five in the future will be considerably hindered. Moreover, having a growing youth population divorced from productive activities such as accumulating human capital or actively participating in the labor market not only undermines the future potential of this cohort, but could also raise challenges to society as a whole by contributing to crime, addictions, disruptive behavior, and lower social cohesion, among other risks.

This is especially sensitive for those in the fifteen-to-twenty-four age range who are neither in school nor in the labor market. If this situation is not addressed soon, Latin America will not be able to seize the demographic opportunity, which would have significant development consequences. This group of individuals, which we refer to as out of school and out of work (OSOW) for the purposes of this paper, is subject to increasing vulnerability and lack of opportunities, which represents a source of potential risk for society at large in areas such as crime, addiction, and insecurity.

Within this group, those between fifteen and eighteen years of age are particularly worrisome. At this stage of the life cycle, as compared with those aged nineteen to twenty-four, there is little ambiguity that being in the formal education system is the most desirable and socially productive activity.[3] In most countries, those eighteen and under are still considered school age and are supposed to be attending high school or its equivalent; furthermore, those under the age of fifteen have generally not reached the legal working age and their physical, mental, and emotional development process is still under way.[4]

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3. The nineteen-to-twenty-four age group has its own specificity. One important difference is that at these older ages, the decision for continuing in the education system and participating in the labor market might be complementary (that is, individuals that cannot work have to give up educational possibilities as well). Furthermore, especially in the case of women, cultural patterns in Latin America may influence the voluntary decision of neither participating in the labor market nor enrolling in school and instead choosing, for instance, household activities as an alternative. The problem of OSOW youth refers to the lack of educational and labor opportunities and, therefore, should not include these other situations, in which the status is not due to exclusion but rather is chosen voluntarily.

4. Our analysis focuses on the population aged fifteen and older, since the International Labor Organization (ILO) 1973 Minimum Age Convention—to which all Latin American countries subscribe—sets the minimum age for admission to employment or work at age fifteen

At this age, being in school in a protected and constructive environment is determinant for developing individual personality and a capacity for decision-making, constructing behavioral patterns, accumulating human capital, acquiring capabilities for social interaction, conforming one's personal identity and relationship toward peers, and developing civic values.[5] These are also critical years for integration into the community, for acquiring social values, and for building trust in institutions and the rule of law. Without adequate protection, support, and integration mechanisms, OSOW youth are exposed to situations that may negatively affect their future development prospects and threaten others in their societies.[6]

This paper explores the situation of OSOW youth in Latin America, with special attention on those in the fifteen-to-eighteen age range, in order to identify adequate policies for supporting them and reintegrating them into society. According to our calculations with the most recent data available, 18.5 percent of Latin American youth in this age group (9.4 million individuals) are currently out of school and out of work. Over the last twenty years, their share of the population has been reduced by just under 6 percentage points, but the absolute number of individuals in this group has remained practically unchanged due to demographic growth.

Apart from characterizing OSOW youth, we analyze their patterns of evolution in eighteen countries across the region, identifying the set of micro-economic and aggregate variables that are correlated with their dynamics. We explore the relationship with the household's socioeconomic characteristics

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(www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/child-labour/lang--en/index.htm). Currently, according to the ILO 1999 Worst Forms of Child Labor Convention, which has been approved across Latin America, childhood comprises the zero to eighteen age range and requires states to ensure access to free basic education and vocational training for all individuals belonging to this category to prevent them from working prematurely. Along the same lines, the 1989 Convention of the Rights of the Child, which is a legally binding international instrument, specifies universally agreed standards and obligations of governments toward individuals under eighteen years of age, including access to education as a preponderant right.

5. As shown by Spinks (2003), important improvements in the neurological development of the human brain take place in the adolescent years. The frontal cortex, which determines memory, planning capacity, organizational skills, and even temper, is under fast evolution during this stage, and the cerebellum area, which regulates decisionmaking capabilities, is still under development.

6. The World Bank (2007a, 2007b) measures the economic costs of not offering employment opportunities to groups of unemployed youth in several countries. Just considering forgone taxes and potential wages earned, the estimated costs are on the order of 10 percent of GDP.

(including income) and with the structure and evolution of the labor market. We identify the links with the schooling system and school dropout patterns and verify whether the group responds to changes in the environment, including overall GDP growth and economic shocks. We also explore the possibility that OSOW youth are simply a transient demographic phenomenon. We perform our analysis for the fifteen-to-eighteen and nineteen-to-twenty-four age groups separately to capture the possibility that school dropouts and labor market participation decisions are of a different nature in each of the subgroups.

To perform our analysis, we process microdata in 216 household surveys for eighteen Latin American countries spanning the period from the early 1980s to 2010 and build a panel of 216 observations on the proportion of OSOW youth, which we later relate to aggregate variables for the same countries and years. The countries included represent 96 percent of the total population in the region. The characterization of the phenomenon is of interest in itself as it leaves little doubt of the urgency of institutionalizing policies for supporting and re-engaging OSOW youth with society. Ignoring the issue is likely to generate future risks and the need for more costly and elaborate public interventions in the future.

The paper is organized in four sections. First, we present the data, together with a characterization of OSOW youth across Latin America. Second, we explore the importance of microeconomic factors by estimating the probability of being in the OSOW youth group and a series of household characteristics. We explore the differences across countries as well as variations in the probabilities over time. The third section presents our econometric analysis using the panel constructed from the household surveys, which is linked to data on aggregate indicators from various sources. The final section concludes.

## The Prevalence of OSOW Youth in Latin America

There is an abundance of literature on the more general issue of at-risk youth in Latin America. The age range specified in the variety of studies spans from twelve to twenty-nine years of age, depending on the source and approach of each investigation. The range of scope and focus is also wide, including issues such as school dropout, teenage pregnancy, addiction, labor market participation, and crime rates.[7] However, there is much less analysis of OSOW

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7. Relevant related studies include Cunningham and others (2008), Rodríguez (2010), Duryea, Cox Edwards, and Ureta (2003), and Hopenhayn (2008).

youth in the particular age range of fifteen to eighteen years. The following subsections present the database constructed for the purposes of this study, as well as the main features of the evolution of this group.

### Construction of the Household Survey Database for OSOW Youth

One important restriction for analyzing the OSOW youth group in Latin America is the lack of systematic information on its magnitude and evolution over time. To provide a first complete characterization of this phenomenon, we gathered, processed, and standardized 216 household surveys for eighteen countries in the region spanning the years 1980 to 2010. We homogenize a series of variables including household structure, economic activity, socioeconomic characteristics, education, and income to produce a data set of comparable statistics on OSOW youth.

The present study defines OSOW as those individuals in the fifteen-to-eighteen age range and the nineteen-to-twenty-four age range who are neither enrolled in formal schooling (whether public or private) nor working at the time of being surveyed. Working youth are defined as individuals who worked at least one hour in the reference period of the given survey (typically the past week), as well as those who are employed but did not work during the reference period due to extraordinary circumstances (illness, strike, vacation, and so on) Our definition of OSOW thus includes housewives, unemployed individuals actively looking for jobs, and youth that decided to take a gap year. There is no official academic or political consensus on what constitutes "work" in this context. This is particularly problematic given that we are defining a segment of the population not by what they do, but by what they do not do. Incorrectly categorizing individuals' activities—for example, by labeling female homemakers or job seekers as idle—may lead us to jump to the perhaps misleading conclusion that all OSOW are unproductive or even irrational. Finally, in most household surveys, the employment or schooling status are self-reported.

Table A1 in the appendix specifies the surveys processed for each country. Not all countries are equally represented in the data. Twenty-one surveys each are available for Paraguay and Venezuela, sixteen for Brazil and Peru, fifteen for Costa Rica, fourteen for El Salvador, thirteen for Argentina and Mexico, twelve for Honduras, eleven for Colombia and Panama, ten for Uruguay, nine for Chile and the Dominican Republic, eight for Bolivia, seven for Ecuador, six for Guatemala, and four for Nicaragua. We have fourteen surveys for 1980–85, twenty-one for 1986–90, thirty-three for 1991–95, fifty-nine for 1996–2000, sixty-one for 2001–05, and twenty-eight for 2006–10. The

**FIGURE 1.** Average Share of OSOW Youth in Eighteen Latin American and Caribbean Countries, 1989–2009
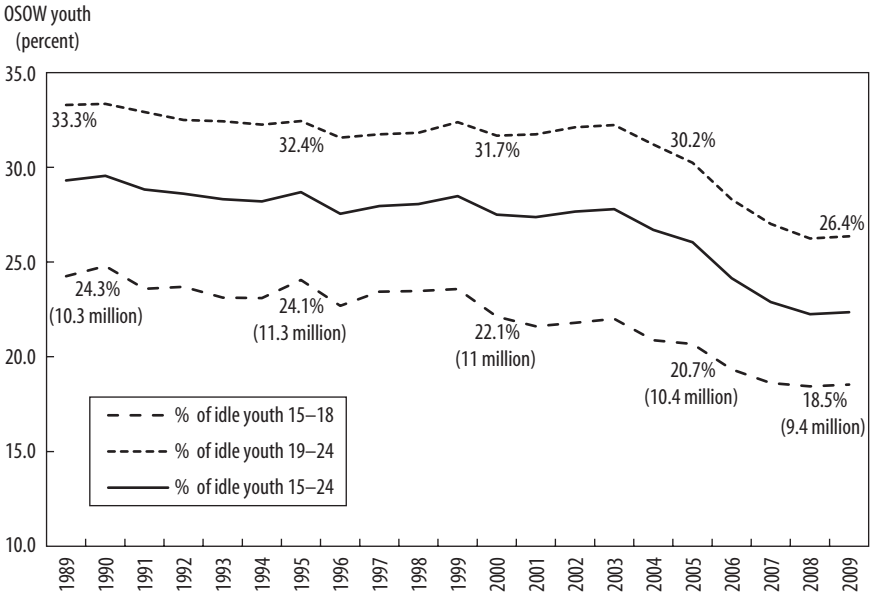
OSOW youth
 (percent)



Source: Authors' calculations, based on microdata from 216 household surveys; see table A1 in the appendix for details.

surveys are representative of the total population of each country, with the exception of Argentina before the 2000s and Uruguay in all years, where the sample is only for urban areas. All in all, the data expanded with population weights include information for 554 million individuals (at 2010 population statistics), encompassing 96 percent of the population in Latin America.

### Stylized Facts: OSOW Youth in Latin America over Two Decades

Figure 1 presents the evolution of the average share of OSOW youth in Latin America between 1989 and 2009. The trend starts in 1989 since observations prior to 1990 are not available in seven countries—the Dominican Republic, Ecuador, Guatemala, Nicaragua, Panama, Peru, and Uruguay.[8] To construct

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8. All surveys dated before 1990 are used for the econometric estimates presented in the following sections. Argentina, Mexico, and Peru are the only countries for which data for the year 2010 are available, so the descriptive statistics presented in this section only cover through 2009. However, the information for 2010 is included in the econometric analysis.

the averages, we take the data closest to 1990 for each country and perform linear interpolation between each of the subsequent years for which information is available. According to our estimates, the nonweighted average share of OSOW youth in the fifteen-to-eighteen age group in 1989 was 24.3 percent, representing 10.3 million individuals. The proportion of OSOW youth declined only modestly over the next two decades, dropping less than 6 percentage points to 18.5 percent in 2009, or 9.4 million youth. So, over the course of twenty years, the number of OSOW youth in this age group remained practically constant.

Our figures show that the 1990s registered an increase in the number of OSOW youth in the fifteen-to-eighteen age group from 10.3 million to 11.0 million despite a decline from 24.3 percent to 22.1 percent of the total population in the same age group.[9] The trend is driven by the fact that these were years of high population growth for this age range as a result of the demographic transition triggered decades ago. For the period 1999–2009, both the share and number of OSOW youth declined at a faster pace, resulting in a reduction from 11.0 million to 9.4 million during these years.[10]

The central result that emerges from the picture is that OSOW youth have been a persistent phenomenon in absolute and relative terms for the last twenty years in Latin America. The modest reduction during this period contrasts with the evolution of other economic indicators, including GDP per capita, which increased by more than 50 percent in real terms during the same period; and regional poverty estimates, which show a decline in the proportion of poor individuals from 27.9 percent in 1992 to 19.3 percent in 2009, a reduction in the total number of poor individuals in the region from 119.3 million to 89.0 million, and a contraction in the traditionally high income-inequality levels of 0.5 points of the Gini index in the 2000s, or around 10 percent of the value of the index.[11] Thus, having a significant share of youth classified as OSOW seems to have become a structural phenomenon even under the relatively prosperous environment of the first decade of the twenty-first century.

Figure 1 also presents the data for the nineteen-to-twenty-four age range. This group has two important differences with the younger youth bracket. On the one hand, labor market participation has legal status and is therefore

9. Averages weighted by country populations are very similar, and we do not report them.

10. The most recent figures in the graph, covering up to 2008 and 2009 for most countries, are different from those presented in Székely (2011), where the latest estimates are for 2005–07.

11. For GDP per capita statistics, see the ECLAC website (http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp?idAplicacion=6&idTema=131&idioma=).

much more prevalent, which should reduce the share of OSOW youth. On the other hand, school attendance rates are much lower than at younger ages, which would tend to fuel the OSOW trend. School attendance rates decline from an average of 50 percent at ages fifteen to eighteen in Latin America to around 25 percent for those over nineteen years of age.[12] Our estimates reveal that the presence of OSOW youth in the nineteen-to-twenty-four age bracket is considerably higher than in the fifteen-to-eighteen age range, suggesting that the higher propensity to participate in the labor market is not able to counterbalance the lower incidence of school attendance. In 1989, the ratio of OSOW youth in the nineteen-to-twenty-four age group versus the ratio in the fifteen-to-eighteen group was equivalent to 37 percent, but this ratio increased to 42 percent in 2009. Thus, relatively speaking, there was an even more modest reduction in the prevalence of OSOW youth at older ages. The figure also includes the evolution of the full fifteen-to-twenty-four age group, which shows similar behavior to the nineteen-to-twenty-four bracket.

Panels A and B of figure 2 present a breakdown by gender (for the fifteen-to-eighteen and nineteen-to-twenty-four age groups, respectively) by including the weighted shares of male and female OSOW in each year—the total number of OSOW in figure 1 is obtained by adding the weighted shares for each gender in each year in figure 2. Our results reveal that the reduction of OSOW youth among women was the driving force behind the (small) reduction observed throughout the 1989–2009 period for both age groups. In the case of those aged nineteen to twenty-four, the difference was larger. In fact, the share of OSOW youth males remained practically constant throughout, while the share of OSOW youth females declined by around 5 percentage points. For those aged fifteen to eighteen, the trends are similar, although the reductions are more modest in the case of women, at only 2.7 points. In both cases, the gender composition of the OSOW youth group has shifted to increase the presence of males. This shift in the gender composition is the outcome of a general increase in women's education levels and labor participation rates in the region over the last twenty years. The OSOW youth phenomenon would actually be less prevalent had the dynamics among men followed similar patterns.

Table 1 decomposes the OSOW youth in the fifteen-to-eighteen age range by gender and type of activity and reveals that throughout the period under analysis, around two-thirds of OSOW are women—most of whom are living with their parents and looking for work—although there is a declining trend. Male OSOW increased their share, especially between the early and the

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12. Alfonso and others (2011).

**F I G U R E  2 .  Weighted Shares of OSOW Youth in Eighteen Latin American and Caribbean Countries by Gender, 1989–2009**
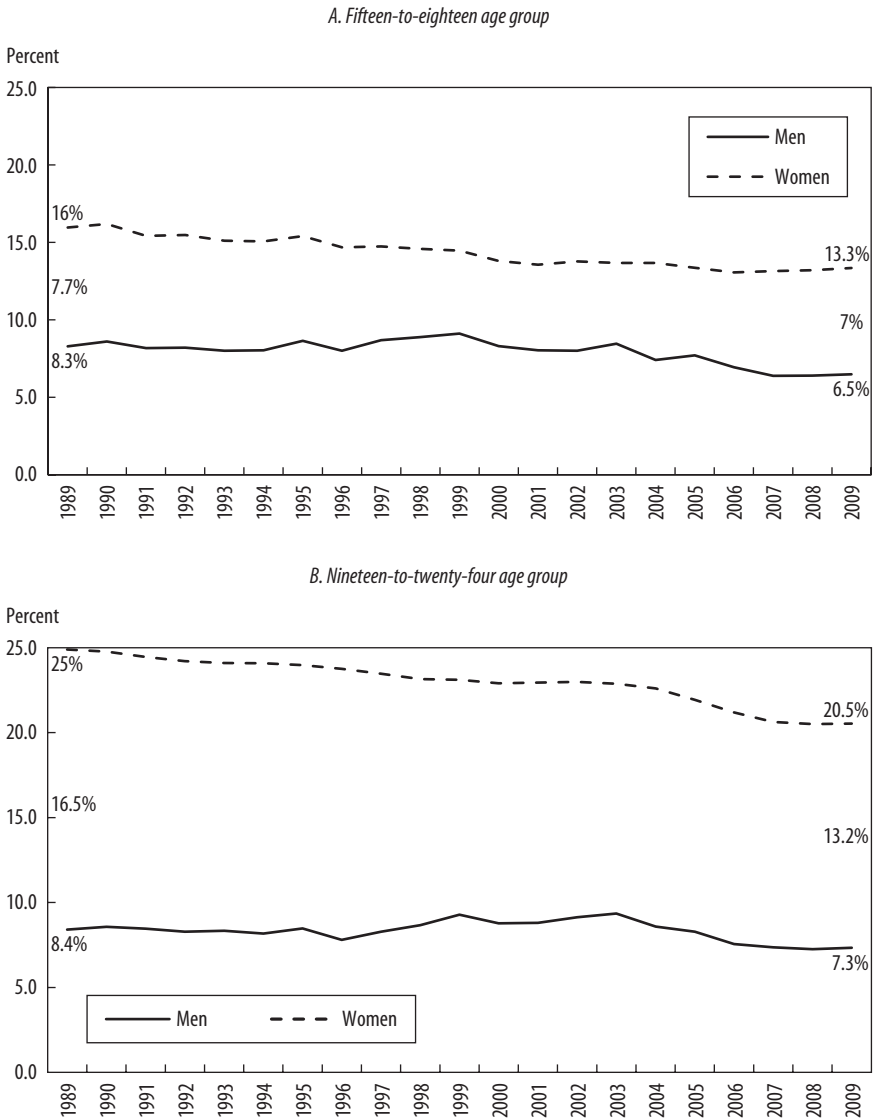
*A. Fifteen-to-eighteen age group*

Percent



*B. Nineteen-to-twenty-four age group*

Percent



Source:   Authors' calculations, based on microdata from 216 household surveys; see table A1 in the appendix for details.

**TABLE 1.** Disaggregation of the OSOW Population by Gender and Type of Activity
Percent

| Gender and type of activity | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|
| Female | 70.0 | 68.2 | 65.5 | 62.2 |
| Remain in the household | 60.2 | 54.9 | 52.9 | 47.9 |
| Looking for a job | 53.7 | 45.7 | 44.3 | 38.5 |
| Not looking for a job | 6.5 | 9.2 | 8.6 | 9.4 |
| Start a new household without children | 2.9 | 3.7 | 3.5 | 4.6 |
| Looking for a job | 0.2 | 0.3 | 0.2 | 0.3 |
| Not looking for a job | 2.6 | 3.4 | 3.3 | 4.2 |
| Start a new household with children | 6.9 | 9.6 | 9.1 | 9.8 |
| Looking for a job | 0.4 | 0.5 | 0.6 | 0.4 |
| Not looking for a job | 6.5 | 9.2 | 8.6 | 9.4 |
| Male | 32.1 | 32.0 | 36.0 | 37.8 |
| Remain in the household | 31.8 | 31.6 | 35.4 | 37.0 |
| Looking for a job | 31.7 | 31.6 | 35.3 | 36.9 |
| Not looking for a job | 0.1 | 0.1 | 0.1 | 0.1 |
| Start a new household without children | 0.2 | 0.2 | 0.3 | 0.4 |
| Looking for a job | 0.1 | 0.1 | 0.1 | 0.2 |
| Not looking for a job | 0.1 | 0.1 | 0.1 | 0.2 |
| Start a new household with children | 0.2 | 0.2 | 0.4 | 0.4 |
| Looking for a job | 0.1 | 0.1 | 0.3 | 0.2 |
| Not looking for a job | 0.1 | 0.1 | 0.1 | 0.1 |

Source:   Authors' calculations, based on household survey data.

mid-2000s. Between 1995 and 2010, the proportion of OSOW women that started a new household (with or without children) increased somewhat, while the proportion remaining in the parental household declined. By 2010, almost 10 percent of total OSOW youth in Latin America were female adolescents who started a new household and had children, and a majority of these women were not looking for a job. In contrast, among male OSOW, the majority was living in the parental household, and most were actively searching for work. This suggests that while the OSOW condition among males is more closely related to labor market access and opportunities, for females the classification in this group is largely associated with other types of phenomena, such as teen pregnancy or early marriage.[13]

OSOW magnitudes by country for the fifteen-to-eighteen age range are presented in table 2. The country with the highest share of OSOW youth in 2009 was Honduras with 28 percent, while the lowest was Bolivia with only 7 percent. Eight other countries have shares above the Latin America average of 18.5 percent, including Peru (26.2 percent), Guatemala (25.3 percent),

13. Azevedo and others (2012) discuss some of these issues in more detail.

**T A B L E 2 . OSOW Youth in Latin America, 1989–2009: Fifteen-to-Eighteen Age Group**

| Country | Share of total 15–18 age group (%) | | | | | | Absolute number | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1989 | 1995 | 2000 | 2005 | 2009 | Change 1989–2009 | 1989 | 2009 | Change 1989–2009 |
| Argentina | 16.7 | 17.3 | 15.6 | 16.5 | 15.8 | −0.9 | 457,000 | 566,000 | 109,000 |
| Bolivia | 10.2 | 11.5 | 12.7 | 8.1 | 7.0 | −3.2 | 72,000 | 74,000 | 2,000 |
| Brazil | 19.0 | 15.3 | 12.5 | 12.3 | 11.7 | −7.3 | 2,805,000 | 1,958,000 | −847,000 |
| Chile | 18.6 | 14.8 | 15.6 | 13.7 | 20.5 | 1.9 | 230,000 | 304,000 | 74,000 |
| Colombia | 15.8 | 17.4 | 23.1 | 20.0 | 20.0 | 4.2 | 546,000 | 865,000 | 319,000 |
| Costa Rica | 25.9 | 23.2 | 23.8 | 19.8 | 18.1 | −7.9 | 74,000 | 79,000 | 4,000 |
| Dominican Republic | 18.8 | 18.8 | 18.2 | 18.5 | 13.0 | −5.8 | 145,000 | 126,000 | −19,000 |
| Ecuador | 23.4 | 23.4 | 18.8 | 18.9 | 17.3 | −6.1 | 255,000 | 231,000 | −24,000 |
| El Salvador | 17.4 | 24.4 | 23.4 | 21.0 | 20.4 | 3.0 | 100,000 | 140,000 | 39,000 |
| Guatemala | 24.4 | 24.4 | 35.0 | 28.5 | 25.3 | 0.9 | 230,000 | 392,000 | 162,000 |
| Honduras | 33.3 | 35.6 | 37.4 | 39.1 | 28.0 | −5.3 | 172,000 | 237,000 | 65,000 |
| Mexico | 23.2 | 23.0 | 18.6 | 18.5 | 22.0 | −1.2 | 2,267,000 | 2,100,000 | −167,000 |
| Nicaragua | 32.7 | 32.2 | 28.4 | 25.7 | 24.4 | −8.3 | 146,000 | 160,000 | 14,000 |
| Panama | 25.2 | 22.6 | 21.6 | 18.5 | 20.7 | −4.6 | 66,000 | 63,000 | −2,000 |
| Paraguay | 22.6 | 44.8 | 19.0 | 16.1 | 11.9 | −10.7 | 94,000 | 79,000 | −15,000 |
| Peru | 30.8 | 26.8 | 21.3 | 31.8 | 26.2 | −4.6 | 709,000 | 754,000 | 45,000 |
| Uruguay | 27.2 | 32.8 | 28.1 | 23.4 | n.a. | −3.8 | 69,000 | 34,000 | −35,000 |
| Venezuela | 51.4 | 24.6 | 24.9 | 19.7 | 16.4 | −35.1 | 1,004,000 | 446,000 | −558,000 |
| Region average | 24.3 | 24.1 | 22.1 | 20.7 | 18.5 | −5.7 | 10,308,000 | 9,427,000 | −881,000 |

Source: Authors' calculations, based on microdata from 216 household surveys; see table A1 in the appendix for details.
n.a. Not available.

Nicaragua (24.4 percent), Mexico (22.0 percent) Panama (20.7 percent), Chile (20.5 percent), El Salvador (20.4 percent), and Colombia (20.0 percent). The remaining countries register levels below the Latin America average, with Brazil (11.7 percent), Paraguay (11.9 percent), and the Dominican Republic (13.0 percent) showing the lowest shares. In absolute terms, the largest numbers in 2009 were found in Brazil and Mexico, with around two million each, followed by 865,000 in Colombia, 754,000 in Peru, and 566,000 in Argentina.

According to our results, the countries that have recorded the largest reductions in the share of OSOW youth over the past two decades are Venezuela (−35.1 percentage points), Paraguay (−10.7 percentage points), Nicaragua (−8.3 percentage points), and Costa Rica (−7.9 percentage points), while at the other extreme are Colombia (+4.2 percentage points), El Salvador (+3.0 percentage points), Chile (+1.9 percentage points), and Guatemala (+0.9 percentage points). As shown in the last column of table 2, there are ten countries where the absolute number of OSOW youth increased during the course of the twenty years under analysis. The largest increases are found in Colombia (with the incorporation of 319,000 youth into this group), Argentina (109,000), and Guatemala (162,000). The largest declines occurred in Brazil (847,000 fewer) and Venezuela (558,000 fewer).[14]

Tables A2 and A3 in the appendix present similar results for the nineteen-to-twenty-four and the fifteen-to-twenty-four age ranges. When the older nineteen-to-twenty-four age group is considered, five countries show increases in the share of OSOW youth from 1989–2009: Colombia (+5.2 percentage points), Guatemala (+4.5 percentage points), Argentina (+3.8 percentage points), Paraguay (+1.9 percentage points), and El Salvador (+0.4 percentage points). The sharpest declines are found in Peru (−20.2 percentage points), Venezuela (−16.7 percentage points), Nicaragua (−15.4 percentage points), and Honduras (−11.1 percentage points).

There are considerable differences across countries in terms of the activities of those that are *not* in the OSOW category. For instance, while Bolivia

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14. In the table, some specific shares appear to be out of scale, including, for instance, the data for Venezuela in 1989 or Paraguay in 1995. We verified in detail the accuracy of the calculations of these apparent outliers, but were not able to identify the reason for the deviation. One possibility is that for these specific years, undocumented changes in survey questionnaires or variable definition could be influencing the results. We do not believe, however, that considering these atypical values would change our conclusions significantly, since the conclusions derived from the figures remain when we compute regional averages excluding these specific data points. The only exception is Venezuela, where the sharp decrease in the proportion of OSOW youth, which is driven by the atypically high value in 1989, practically vanishes when this data point is excluded.

**T A B L E  3 .  Distribution of Youth Studying or Working in Latin America in the Early 1990s and Circa 2010[a]**

Percent

| Country | Early 1990s | | | Circa 2010 | | |
|---|---|---|---|---|---|---|
| | In school | Working | Working and in school | In school | Working | Working and in school |
| Argentina | 86.6 | 10.8 | 2.7 | 93.2 | 4.7 | 2.1 |
| Bolivia | 62.4 | 21.1 | 16.5 | 64.3 | 15.8 | 19.9 |
| Brazil | 46.0 | 29.3 | 24.7 | 70.8 | 6.9 | 22.3 |
| Chile | 88.2 | 10.0 | 1.7 | 95.6 | 1.7 | 2.7 |
| Colombia | 50.1 | 40.4 | 9.5 | 78.9 | 20.7 | 10.4 |
| Costa Rica | 54.4 | 39.5 | 6.0 | 90.7 | 5.9 | 3.4 |
| Ecuador | 47.4 | 33.9 | 18.7 | 87.8 | 5.9 | 6.2 |
| El Salvador | 72.1 | 18.4 | 9.6 | 72.5 | 15.7 | 11.8 |
| Guatemala | 38.4 | 51.0 | 10.6 | 57.8 | 27.9 | 14.3 |
| Honduras | 46.0 | 50.4 | 3.6 | 70.0 | 24.4 | 5.6 |
| Mexico | 65.0 | 35.0 | 0.0 | 70.9 | 19.8 | 9.2 |
| Nicaragua | 53.0 | 37.9 | 9.2 | 55.1 | 31.6 | 13.3 |
| Panama | 78.9 | 17.5 | 3.6 | 80.4 | 10.5 | 9.1 |
| Paraguay | 54.6 | 45.4 | 0.0 | 64.3 | 14.2 | 21.6 |
| Peru | 62.5 | 18.2 | 19.3 | 77.5 | 12.5 | 10.0 |
| Dominican Republic | 80.8 | 7.6 | 11.6 | 83.8 | 4.3 | 11.9 |
| Uruguay | 70.6 | 19.8 | 9.7 | 83.4 | 9.0 | 7.5 |
| Venezuela | 75.8 | 19.8 | 4.4 | 84.2 | 10.1 | 5.7 |
| Average | 62.9 | 28.1 | 8.9 | 76.7 | 13.4 | 10.4 |

Source:  Authors' calculations, based on household survey data.
a.  Studying and working are mutually exclusive categories.

has the lowest share of OSOW youth (see table 2), it also had one of the lowest shares of fifteen- to eighteen-year-olds attending school in 2010—one out of every three youth that avoid the OSOW category do so because they are either working or working and in school at the same time (see the last three columns of table 3).[15] However, in Chile, where the OSOW share is above the regional average, less than 5 percent of those that are not OSOW participate in the labor market—more than 95 percent are actually in school. In contrast, Brazil has a relatively low OSOW share, but a large fraction of those that are not OSOW are working (30 percent).

Table 3 also shows how the composition of those that are not OSOW has changed since the early 1990s and the years closest to 2010. On average, in 1990, 62.9 percent of the region's youth were in school, 28.1 percent were

15. The table includes the data for the observations closest to 1990 and to 2010 in each country.

**T A B L E   4 .   Distribution of OSOW Youth by Income Quintile**
Percent of total

| Country and year | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 |
|---|---|---|---|---|---|
| Argentina (2006) | 38.7 | 24.2 | 17.7 | 12.9 | 6.5 |
| Bolivia (2007) | 18.8 | 28.1 | 25.0 | 15.6 | 12.5 |
| Brazil (2007) | 29.8 | 26.3 | 21.1 | 14.0 | 8.8 |
| Chile (2006) | 30.4 | 21.4 | 19.6 | 16.1 | 12.5 |
| Colombia (2005) | 27.3 | 22.2 | 21.2 | 18.2 | 11.1 |
| Costa Rica (2007) | 30.6 | 25.0 | 25.0 | 13.9 | 5.6 |
| Dominican Republic (2007) | 23.1 | 23.1 | 18.5 | 21.5 | 13.8 |
| Ecuador (2007) | 29.3 | 25.9 | 22.4 | 17.2 | 5.2 |
| El Salvador (2004) | 34.7 | 23.5 | 21.4 | 13.3 | 7.1 |
| Guatemala (2006) | 32.3 | 25.3 | 19.2 | 13.1 | 10.1 |
| Honduras (2007) | 29.7 | 25.4 | 20.3 | 15.3 | 9.3 |
| Mexico (2006) | 31.8 | 23.9 | 20.5 | 13.6 | 10.2 |
| Nicaragua (2005) | 25.0 | 26.0 | 19.2 | 18.3 | 11.5 |
| Panama (2007) | 36.7 | 25.0 | 20.0 | 11.7 | 6.7 |
| Paraguay (2007) | 25.0 | 29.4 | 19.1 | 17.6 | 8.8 |
| Peru (2008) | 13.7 | 21.6 | 20.6 | 20.6 | 23.5 |
| Uruguay (2007) | 41.6 | 26.0 | 19.5 | 9.1 | 3.9 |
| Average | 29 | 25 | 21 | 15 | 10 |

Source:   Authors' calculations, based on household survey data.

working, and 8.9 percent were simultaneously in school and working; in 2010, these shares were 76.7 percent, 13.4 percent, and 10.4 percent, respectively. The largest increases in the shares of youth in school occurred in Ecuador (with a 40 percent rise), Costa Rica (36.2 percent), and Colombia (28.8 percent). The smallest variations were recorded in Bolivia, Panama, and El Salvador. These shifts are relevant for characterizing the OSOW category, since they show that younger cohorts stay in school longer and enter the labor market later. The shifts are therefore indicative of larger numbers of better-educated youth becoming OSOW due to reduced employment opportunities.

### Patterns of OSOW Youth in the Fifteen-to-Eighteen Age Range for 1989–2009

Table 4 shows the distribution of OSOW youth across the income distribution, based on the most recent data available for the fifteen-to-eighteen age group. On average, 54 percent of OSOW youth live in households in the poorest 40 percent of the population, while only 10 percent are located in the richest 20 percent of households. The countries with the most polarized distribution (that is, a higher concentration of OSOW among the poor) include Uruguay, Costa Rica, and Ecuador, where only a small minority of OSOW youth are found in the richest sectors of society.

According to our calculations, 51 percent of OSOW youth did not complete primary school, 33 percent did not finish lower secondary (the first three years post-primary), and 13 percent never completed upper secondary (the remaining years of secondary school). This suggests that early dropout from the education system increases the probability of joining this vulnerable group.

Another interesting feature is the proportion of OSOW youth covered by the formal social protection system, as computed from our data base. According to our calculations, the proportion of OSOW youth with social protection is extremely low. The share is under 10 percent in Argentina, Bolivia, El Salvador, Honduras, Nicaragua, Panama, Paraguay, Peru, and Venezuela. Only Chile and Costa Rica register shares over 30 percent.

These preliminary results are in line with other estimates in the literature on youth at risk in Latin America, which generally focuses on wider age groups and situations. For instance, Cunningham and Bagby, who use youth surveys for Chile and Mexico, find that the probability of youth falling into risk situations decreases with the family's level of income and education and increases when the relationship with parents is problematic.[16] Recent evidence from Brazil also points to these correlations.[17] Risk patterns for youth in the fifteen-to-twenty-four age range increase considerably when household income is below the poverty line and are intimately related with racial characteristics (where white youth are subject to lower risks). There is also a high correlation with the socioeconomic status of the immediate social environment, including schooling.

## General Explanations

The literature on at-risk youth classifies the determinants of vulnerability for this group into three broad categories, which we rely on later for our empirical investigation. These are individual and family factors; community factors; and macroeconomic factors.

INDIVIDUAL AND FAMILY FACTORS. The first set of factors has to do with personal and household characteristics that determine or influence individual behavior. Personal characteristics include physical features such as race, ethnicity, gender, biological determinants, and genetic endowments. Household characteristics refer to the immediate context of residence (the household), which has a strong influence on psychological development, cognitive skills,

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16. Cunningham and Bagby (2010).
17. Dell' Aglio and others (2007).

personality, social skills, and so on. In particular, family members can play a critical role in assuring a protective environment for avoiding external risks, but they can also be a source of risk when violence, abuse, discrimination, or exclusion are prevalent within the household. Family poverty is a situation that leads to risk exposure and can nurture negative behavior when protective mechanisms are absent. Household characteristics influencing these features include structure, size, socioeconomic conditions, general household environment, and attitudes toward violence, respect, and so on.

COMMUNITY FACTORS. Community factors have to do with the provision of services, such as urban infrastructure, health, education, security, the rule of law, and other elements that mediate between the individual and his or her environment. Deficiencies in the provision and quality of these services may increase specific risks and may even trigger other vulnerabilities. For instance, the lack of high school education services at the local level may considerably increase the cost of enrolling in school for youth populations, thereby accentuating the risk of dropout.

MACROECONOMIC FACTORS. Macroeconomic factors are those elements in the general environment and institutions that are external, that affect large groups of society, and that might affect youth decisions. They include macroeconomic conditions, volatility, economic shocks, inequality of opportunity, cultural patterns, and so forth. A large number of studies document the effects of economic shocks on school dropout rates, showing that when school dropout is combined with restricted opportunities in the labor market, the probability of becoming OSOW is greater.[18] An additional element closely linked to the availability of education and labor market opportunities is the aforementioned demographic transition through which the Latin American and Caribbean region is progressing, which is characterized by an accelerated growth of the fifteen-to-twenty-four age group. Demographics are also classified in this category.

## OSOW Youth and Microeconomic Factors

The household survey database constructed for this paper allows exploring the relationship between some household features (which characterize individual and family factors) and the size of the OSOW youth group, ages fifteen

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18. For example, such as Patel (2009); Singh and others (2009); Mendoza (2009); Ramesh (2009); Mehrotra (2009); Friedman and Levinsohn (2002); Shang and Wu (2003).

**F I G U R E  3 .  Microeconomic Factors Associated with the Probability of Being OSOW at Age Fifteen to Eighteen**[a]
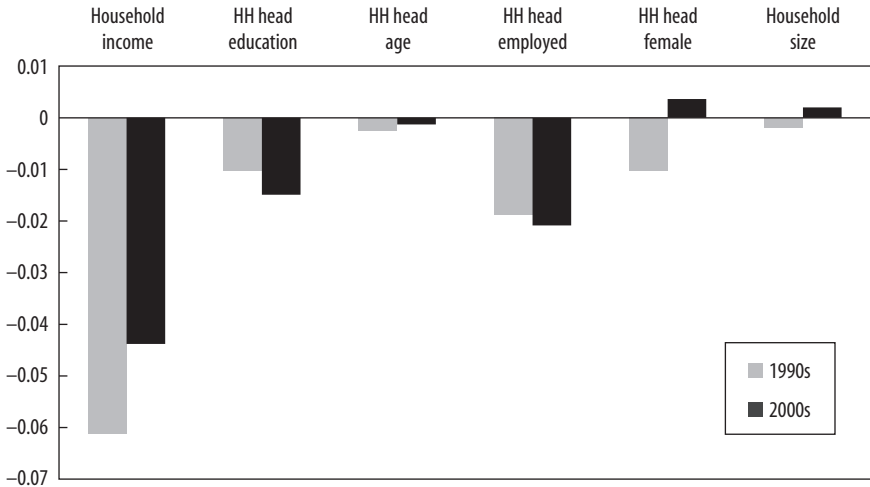


Source:  Authors' calculations, based on microdata from 216 household surveys; see table A1 in the appendix for details.
a.  The figure graphs the marginal effects from probit estimations.

to eighteen, in eighteen Latin American and Caribbean countries. The empirical strategy we follow is to estimate probit models in which the probability of belonging to the OSOW youth group is a function of household income per capita (excluding the income of the individual youth to avoid endogeneity), household size, and the education level, age, employment status, and gender of the household head. Income, size, age, and education are continuous variables, while gender and the household head's employment status are dummy variables (taking a value of one for female heads and for being employed and active in the labor market, respectively). The variables included are those that can be homogenized across the household surveys and provide confident estimates. The marginal effects from each variable can be interpreted as the effect of the independent variable on the probability of belonging to the OSOW youth group, controlling for the other observable characteristics. Probit estimations are run separately for each household survey; that is, individual estimates are obtained for each country and year.

Figure 3 presents our results aggregated in regional averages for the fifteen-to-eighteen age group. The figure shows the average marginal effect of the independent variable on the probability of belonging to the OSOW

youth group based on country- and year-specific probit estimates. We present regional averages by decade to identify general time trends. For computing regional averages, we only include coefficients that are statistically significant at the 95 percent level. Our estimates suggest that the observable household characteristic that is most strongly associated with the probability of belonging to the fifteen-to-eighteen OSOW youth group is household income per capita. The influence of this variable declined slightly between the 1990s and 2000s, but it still has the strongest estimated marginal effect. This result is consistent with the literature linking at-risk youth with poverty and with the link between school dropout and socioeconomic conditions, which in turn reflects the incapacity of the poor to invest in human capital. The association therefore points to a potential vicious circle wherein poor households have limited human capital investment possibilities, which leads to lower income-earning capacity in the future and thus higher school dropout (and a higher prevalence of OSOW youth) in future generations.

The employment status and education level of the household head have the second and third strongest associations, respectively, with the probability of belonging to the OSOW youth group. According to our results, the presence of a household head who has more years of education and is employed (and presumably generating income) reduces the probability that their fifteen- to eighteen-year-old children are in the OSOW youth group. This can be interpreted as evidence that a more stable household environment reduces individual risk at younger ages. The age of the household head and the household size are also significantly negatively associated with the probability of belonging to the OSOW youth group (in most cases), but their effect is economically small. The effect of a female head of household is also much smaller, but it was negative (reducing the probability) in the 1990s and positive in the 2000s.

Table 5 presents the average value of the coefficients by decade and country for the fifteen-to-eighteen age group. In the table, zero values indicate that the coefficients were not statistically significant in the specified case, while missing values indicate either that a household survey is not available for the decade or that the survey is available but we are not able to compute homogenized variables. In what follows, we point to the main deviations from each country's individual results from the regional averages.

In the case of Argentina, the strongest marginal effect (similar in size to the income association) is the gender of the household head. Similarly, in the Dominican Republic in the 1990s and in Brazil, Peru, Uruguay in the 2000s, we find a significantly higher probability of belonging to the fifteen-to-eighteen OSOW youth group when the head of the household is female,

**T A B L E  5 .  Microeconomic Factors Associated with the Probability of Being OSOW at Age Fifteen to Eighteen[a]**

| Country | Income | | | Education of household head | | | Age of household head | | | Employment status of household head | | | Female household head | | | Household size | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s |
| Argentina | −0.079 | −0.042 | −0.055 | 0.005 | −0.019 | −0.006 | −0.003 | −0.003 | −0.001 | −0.065 | −0.053 | 0.011 | −0.031 | 0.064 | 0.040 | 0.002 | 0.005 | 0.006 |
| Bolivia | −0.016 | 0.000 | −0.024 | −0.009 | −0.006 | −0.009 | −0.004 | −0.001 | −0.004 | −0.072 | −0.003 | −0.016 | −0.035 | −0.023 | −0.005 | −0.011 | −0.002 | 0.006 |
| Brazil | −0.062 | −0.045 | −0.008 | −0.006 | −0.008 | −0.003 | −0.003 | −0.003 | −0.002 | −0.039 | −0.044 | −0.026 | −0.031 | 0.003 | 0.019 | −0.013 | −0.007 | −0.001 |
| Chile | −0.042 | −0.043 | −0.043 | −0.013 | −0.011 | −0.089 | −0.003 | −0.002 | 0.011 | −0.053 | −0.011 | 0.000 | 0.000 | 0.016 | 0.000 | 0.010 | 0.006 | 0.009 |
| Colombia | | −0.070 | −0.053 | | −0.001 | −0.002 | | −0.002 | −0.003 | | −0.034 | −0.029 | | −0.019 | 0.000 | | 0.004 | 0.001 |
| Costa Rica | −0.087 | −0.099 | −0.017 | −0.015 | −0.015 | −0.002 | −0.005 | −0.004 | −0.003 | 0.015 | −0.015 | −0.053 | −0.072 | −0.030 | 0.008 | −0.008 | −0.007 | 0.019 |
| Dominican Rep. | | −0.044 | −0.033 | | −0.009 | −0.006 | | −0.003 | −0.004 | | −0.010 | −0.024 | | 0.031 | −0.017 | | −0.005 | −0.004 |
| Ecuador | | −0.031 | −0.048 | | −0.007 | −0.007 | | −0.003 | −0.002 | | −0.050 | −0.083 | | −0.021 | 0.015 | | 0.006 | −0.002 |
| El Salvador | | −0.081 | −0.065 | | −0.013 | −0.012 | | −0.003 | −0.003 | | −0.055 | −0.050 | | −0.051 | −0.024 | | −0.010 | −0.006 |
| Guatemala | | −0.045 | −0.048 | | −0.011 | −0.013 | | −0.001 | −0.003 | | −0.023 | −0.028 | | −0.069 | −0.048 | | −0.003 | −0.008 |
| Honduras | −0.080 | −0.073 | −0.104 | −0.012 | −0.017 | −0.061 | −0.004 | −0.003 | 0.001 | −0.013 | | 0.000 | −0.060 | −0.055 | 0.010 | −0.018 | −0.002 | 0.005 |
| Mexico | −0.085 | −0.095 | −0.078 | −0.018 | −0.012 | −0.010 | −0.003 | −0.002 | −0.002 | 0.000 | 0.000 | 0.000 | −0.022 | −0.006 | 0.002 | −0.010 | −0.005 | −0.001 |
| Nicaragua | | −0.013 | −0.049 | | −0.016 | −0.015 | | −0.004 | −0.002 | | −0.014 | 0.000 | | −0.006 | 0.023 | | −0.006 | 0.000 |
| Panama | | −0.047 | −0.044 | | −0.014 | −0.015 | | −0.003 | −0.002 | | −0.001 | −0.002 | | −0.010 | −0.002 | | 0.008 | 0.006 |
| Paraguay | −0.076 | −0.134 | −0.039 | −0.022 | −0.003 | −0.010 | −0.002 | −0.003 | −0.002 | −0.009 | −0.013 | −0.047 | 0.008 | −0.007 | 0.001 | 0.005 | −0.003 | −0.004 |
| Peru | | −0.034 | −0.023 | | −0.013 | 0.003 | | −0.003 | 0.001 | | 0.000 | −0.003 | | −0.032 | 0.025 | | −0.007 | 0.001 |
| Uruguay | | −0.124 | −0.019 | | −0.004 | −0.003 | | −0.001 | −0.001 | | 0.000 | 0.000 | | 0.049 | 0.014 | | −0.008 | 0.002 |
| Venezuela | −0.042 | −0.080 | −0.037 | −0.003 | −0.004 | −0.008 | −0.002 | 0.000 | −0.002 | −0.001 | 0.006 | −0.026 | −0.009 | −0.022 | 0.006 | 0.001 | 0.001 | 0.006 |
| Regional average | | −0.061 | −0.044 | | −0.010 | −0.015 | | −0.003 | −0.001 | | −0.019 | −0.021 | | −0.010 | 0.004 | | −0.002 | 0.002 |

Source:  Authors' calculations, based on microdata from 216 household surveys; see table A1 in the appendix for details.

a. The table presents the marginal effects from probit estimations including all variables.

even after controlling for income and other socioeconomic characteristics. In Argentina, the Dominican Republic, and Uruguay, the size of the marginal effect falls in the 2000s but is still considerable. In Brazil, Costa Rica, Ecuador, El Salvador, and Paraguay, the employment status of the household head has a significant negative marginal effect on the probability of being OSOW, similar in size to the income effect (and even stronger in the 2000s). Chile demonstrates the strongest effect of the household head's education level, especially in the 2000s.

Honduras stands out for registering the greatest marginal effects of income on the probability of having OSOW youth in the household. The estimated coefficients for this variable are relatively high and not declining throughout the 1980s, 1990s, and 2000s. The coefficients for the education of the household head are also relatively high, especially in the 2000s. Mexico shows a similar pattern in terms of the strong association between household income per capita and OSOW youth, as well. Colombia, the Dominican Republic, Guatemala, Nicaragua, Panama, and Venezuela show patterns similar to those observed in table 5, while Bolivia presents very similar coefficients across all independent variables.

Table 6 presents similar average results for the nineteen-to-twenty-four age group.[19] Compared with the fifteen-to-eighteen age group, the differences are a stronger correlation with income and employment status, but this may very well reflect the potential endogeneity issues for the older age group. Figure 4 presents the averages by country.

The results in this section suggest that the probability of belonging to the fifteen- to eighteen-year-old OSOW youth group is significantly associated with the immediate environment of the individual's residence, which include individual and family factors. The probability is significantly associated with household socioeconomic characteristics, including household income and the household head's age, education, employment status, and, in some cases, gender. There are interesting variations across countries, but all in all the general conclusion of the influence of observable household characteristics remains strong. Finally, household size does not seem to play an important role as judged by the magnitude of the marginal effects.

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19. These results should be taken with much more caution due to the potential endogeneity across variables. In particular, although the measure of family income does not incorporate the income of the observation in question, it is likely that the income of any family member in the nineteen-to-twenty-four age group can influence other members' behavior and income-generating activity.

**T A B L E  6 . Microeconomic Factors Associated with the Probability of Being OSOW at Age Nineteen to Twenty-Four[a]**

| Country | Household income | | | Education of household head | | | Age of household head | | | Employment status of household head | | | Female household head | | | Household size | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s | 1980s | 1990s | 2000s |
| Argentina | −0.086 | −0.162 | −0.129 | 0.007 | −0.011 | −0.001 | −0.004 | −0.001 | 0.000 | 0.029 | 0.067 | 0.000 | −0.085 | −0.037 | −0.036 | 0.010 | −0.007 | −0.002 |
| Bolivia | −0.030 | −0.040 | −0.008 | −0.012 | −0.004 | −0.003 | −0.006 | −0.003 | −0.005 | 0.006 | −0.007 | −0.048 | −0.111 | −0.041 | −0.024 | 0.011 | 0.004 | 0.007 |
| Brazil | −0.124 | −0.120 | −0.014 | 0.008 | 0.005 | −0.003 | −0.003 | −0.002 | −0.003 | −0.038 | −0.049 | −0.106 | −0.084 | −0.051 | −0.021 | −0.016 | −0.011 | 0.005 |
| Chile | −0.173 | −0.180 | −0.173 | −0.001 | 0.000 | 0.108 | −0.001 | −0.001 | −0.028 | 0.010 | −0.002 | 0.000 | −0.057 | −0.048 | 0.000 | −0.003 | −0.004 | 0.006 |
| Colombia | | −0.164 | −0.131 | | 0.000 | −0.001 | | −0.001 | −0.002 | | −0.010 | −0.058 | | −0.064 | −0.047 | | −0.006 | 0.000 |
| Costa Rica | −0.161 | −0.189 | −0.046 | 0.002 | 0.003 | 0.000 | −0.004 | −0.004 | −0.003 | 0.033 | 0.009 | −0.064 | −0.093 | −0.073 | −0.038 | −0.015 | −0.015 | 0.009 |
| Dominican Rep. | | −0.161 | −0.177 | | 0.004 | 0.007 | | −0.003 | −0.001 | | 0.001 | 0.000 | | −0.031 | −0.041 | | −0.021 | −0.002 |
| Ecuador | | −0.050 | −0.095 | | −0.003 | 0.001 | | −0.002 | −0.001 | | −0.035 | −0.069 | | −0.006 | −0.054 | | −0.001 | −0.005 |
| El Salvador | | −0.148 | −0.130 | | −0.001 | −0.006 | | −0.002 | −0.002 | | −0.049 | −0.095 | | −0.051 | −0.030 | | −0.007 | −0.011 |
| Guatemala | | −0.065 | −0.106 | | 0.003 | 0.000 | | −0.002 | −0.003 | | −0.104 | −0.070 | | −0.069 | −0.044 | | −0.015 | −0.006 |
| Honduras | −0.104 | −0.105 | −0.066 | 0.004 | −0.010 | −0.013 | −0.001 | −0.002 | 0.013 | 0.112 | 0.033 | −0.034 | −0.088 | −0.056 | −0.020 | −0.009 | −0.004 | 0.008 |
| Mexico | −0.143 | −0.130 | −0.126 | 0.000 | −0.001 | 0.000 | −0.004 | −0.002 | −0.002 | −0.022 | −0.012 | −0.030 | −0.097 | −0.065 | −0.039 | −0.010 | −0.009 | −0.005 |
| Nicaragua | | −0.062 | −0.097 | | −0.001 | 0.003 | | −0.001 | −0.001 | | 0.013 | −0.035 | | 0.019 | −0.058 | | 0.000 | −0.001 |
| Panama | | −0.140 | −0.143 | | −0.001 | 0.001 | | −0.002 | −0.002 | | −0.034 | −0.063 | | −0.041 | −0.049 | | 0.007 | 0.000 |
| Paraguay | −0.199 | −0.227 | −0.118 | −0.013 | 0.003 | 0.001 | −0.003 | 0.000 | −0.001 | 0.018 | −0.026 | −0.077 | 0.053 | −0.087 | −0.012 | 0.000 | −0.011 | −0.011 |
| Peru | | −0.102 | −0.011 | | −0.006 | 0.002 | | −0.002 | 0.000 | | 0.010 | −0.006 | | −0.041 | 0.005 | | −0.006 | 0.000 |
| Uruguay | | −0.183 | −0.021 | | 0.010 | −0.001 | | 0.001 | −0.002 | | −0.030 | −0.030 | | −0.031 | −0.009 | | −0.010 | 0.003 |
| Venezuela | −0.176 | −0.195 | −0.108 | 0.002 | −0.001 | −0.004 | −0.001 | −0.001 | −0.003 | 0.088 | 0.078 | −0.035 | −0.054 | −0.026 | −0.029 | −0.005 | −0.001 | 0.005 |
| Regional average | | −0.135 | −0.094 | | 0.000 | 0.005 | | −0.002 | −0.003 | | −0.008 | −0.045 | | −0.044 | −0.030 | | −0.007 | 0.000 |

Source:  Authors' calculations, based on microdata from 216 household surveys; see table A1 in the appendix for details.
a.  The table presents the marginal effects from probit estimations including all variables.

**F I G U R E 4 .** **Microeconomic Factors Associated with the Probability of Being OSOW at Age Nineteen to Twenty-Four**[a]
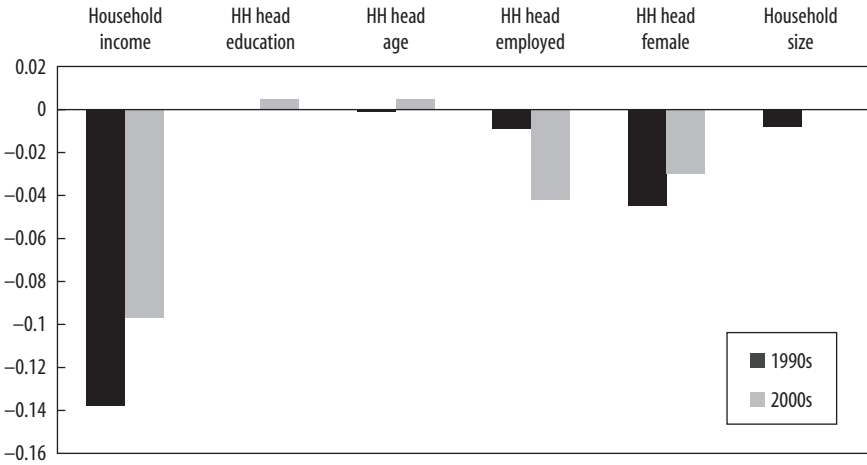


Source: Authors' calculations, based on microdata from 216 household surveys; see table A1 in the appendix for details.

## Out of School or Out of Work?

A related issue of interest to be explored with our microdata is the extent to which the OSOW condition is related to being out of school versus being out of work. To explore this, we take advantage of a specific characteristic of the microdata set constructed for this paper, which has to do with the possibility of following cohorts of individuals in the same age group, over time, across the repeated cross-sections of household surveys for a given country.[20] Specifically, the strategy consists in identifying cohorts of individuals in each year on the basis of their year of birth and then following each cohort in subsequent surveys at different points in time. For example, in the last available survey for Argentina (2010), adolescents aged fifteen to eighteen were born between 1992 and 1995. In the earlier Argentine surveys, the same group of representative individuals would belong to the ten-to-thirteen age group in

20. The ideal setting for analyzing this question would be to have access to panel data, with which the sequence of the events of leaving school and not working could be identified more closely. We do not, however, have access to this type of data for a sufficient number of countries, so we follow an alternative approach.

**T A B L E   7 .   Correlation between Being OSOW and Having Been out of School or Working in Earlier Surveys**[a]

| | Correlation coefficient with respect to the same cohort observed at age | | | |
|---|---|---|---|---|
| *Sample and variable* | *6–9 years of age* | *9–12 years of age* | *12–14 years of age* | *15–18 years of age* |
| 15–18 years of age | | | | |
|   % out of school | 0.13 | 0.34 | 0.67 | |
|   % working | −0.03 | −0.06 | 0.02 | |
|   % working and in school | 0.00 | 0.01 | 0.01 | |
| 19–24 years of age | | | | |
|   % out of school | 0.16 | 0.43 | 0.72 | 0.85 |
|   % working | 0.02 | 0.08 | 0.18 | 0.24 |
|   % working and in school | −0.03 | −0.02 | 0.02 | 0.03 |

Source:  Authors' calculations, based on household survey data.
a.  The table shows the correlation coefficient between the share of OSOW youth at ages fifteen to eighteen and nineteen to twenty-four and the share of the same cohort that was out of school or working in earlier surveys.

2005 and the five-to-eight age group in 2000, and the shares in different activities (namely, working or in school) can be identified. The same procedure can be applied to all the countries in our sample, where the characteristics of youth in the fifteen-to-eighteen age group or the nineteen-to-twenty-four age group in a given household survey can be compared with features of the same cohort observed in earlier surveys, to the extent that these earlier surveys are available.

Specifically, to verify the extent to which the OSOW condition is associated with prior school dropout or labor market participation, we compute the correlation between the share of OSOW in a given survey and the share already out of school or working in the same cohort in previous years. The interpretation is that a higher correlation coefficient is indicative of a stronger association between being OSOW at age fifteen to eighteen or nineteen to twenty-four in a particular year and having either dropped out of school or entered the labor market (and existed subsequently) when the cohort was younger.[21]

Table 7 presents the correlation coefficients obtained. The share of OSOW in the fifteen-to-eighteen age range is highly correlated with the share of individuals of the same cohort already out of school at ages twelve to fourteen

21. As in previous sections, we pool the data from all the countries and years to increase the sample size and identify the general regularities for the region. To perform a balanced analysis across countries, we interpolate data for missing years between surveys.

(with a correlation of 67 percent), while there is only a mild association with respect to shares out of school for the same cohort at younger ages. One reason for this could be the relatively low school dropout rates—and practically universal school coverage—observed in Latin America at the primary level, which were already prevalent across the region in the 1990s. Interestingly, the correlation between the share of OSOW at ages fifteen to eighteen and the share of individuals that were working in the same cohort earlier is negligible, as is the correlation with those that were simultaneously working and in school. This suggests that being OSOW during adolescence is mainly a phenomenon associated with dropping out of school rather than with having entered and then exited the labor market.

The results for the nineteen-to-twenty-four age bracket are indicative of the same conclusion—namely, that being OSOW is more strongly associated with having dropped out of school prematurely than with having exited the labor market. As shown in the table, the correlation coefficient between being OSOW at ages nineteen to twenty-four and having dropped out of school earlier at ages fifteen to eighteen or twelve to fourteen is fairly high, reaching levels of 72 and 85 percent. There is also a positive association between the share of OSOW youth at nineteen to twenty-four and the share of individuals in the same cohort who were already participating in the labor market earlier, but the association is much weaker (at 24 percent or less); the correlation with having been in the category of working and studying simultaneously is practically nonexistent.

These results suggest that being OSOW at any point in time seems to be more closely related to prematurely exiting the schooling system than to engaging early in the labor market and exiting as cohorts become older.

## OSOW Youth and Aggregate Conditions

As explained in the previous section, the proportion of OSOW youth can theoretically be determined by individual factors, family and community factors, and macroeconomic conditions. This section identifies some community and macroeconomic conditions that are correlated with the proportion of OSOW youth. Given the important differences in trends and correlations between the proportion of OSOW men and women, separate regressions are run for these two groups.

The variable of interest is the share of men ($m$) or women ($w$) in age group $c$, country $j$, and year $t$ who are out of school and not working $IY_{cjt}^{i=m,w}$. We contend

that the shares of *IY* are a function of aggregate conditions which can reflect both overall economic (**X**) and community-social (**Z**) factors. In particular, we estimate the following specifications:

$$(1) \qquad\qquad IY_{cjt}^{i=m} = \mathbf{X}_{jt}\beta_c^m + \mathbf{Z}_{jt}\delta_c^m + \varepsilon_{cjt}^m,$$

and

$$(2) \qquad\qquad IY_{cjt}^{i=w} = \mathbf{X}_{jt}\beta_c^w + \mathbf{Z}_{jt}\delta_c^w + \varepsilon_{cjt}^w.$$

The independent variables (**X** and **Z**) are the same across age cohorts and gender, but the parameters and residuals are age- and cohort-specific ($\beta$, $\delta$, and $\varepsilon$). The vector **X** includes the following variables for country *j* in year *t*: GDP per capita at constant PPP international dollars; annual GDP per capita growth rate in year *t*; trade openness, measured as the sum of exports and imports as a share of GDP; and the unemployment rate. All four of these variables were taken from the World Bank's World Development Indicators (WDI).[22] The vector **Z** includes urbanization rates (or the inverse of rurality); returns to schooling, measured by the wage premium for workers with different education levels (complete primary, complete secondary, and complete university); average years of schooling among the population aged fifteen years and older; and the fifteen- and twenty-year lagged fertility rate. Urbanization rates are from the WDI; years of schooling are from the Barro and Lee educational attainment data set; and the lagged fertility rate is from ECLAC's statistics.[23] Finally, the estimations of the returns to schooling used as independent variables are taken from the Socio-Economic Data Base for Latin America and the Caribbean from the World Bank (SEDLAC) and are complemented with similar parameters that we estimated using household survey data.[24] In particular, SEDLAC estimates a Mincer equation where the logarithm of the hourly wage in the main occupation for adults aged twenty-five to fifty-five is explained by educational dummy variables, age, age squared, an urban dummy variable, and regional dummy variables. The calculations

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22. The data can be downloaded from http://databank.worldbank.org/ddp/home.do. Other variables of interest, such as international migration flows, were not included since we were not able to find information with sufficient coverage of countries and years to allow identifying the age-group-specific shifts that would be necessary for including in our estimations.

23. The Barro and Lee data set is available online at www.barrolee.com. For fertility rates, see www.eclac.org/estadisticas.

24. The returns to schooling can be downloaded from the SEDLAC webpage (http://cedlas.econo.unlp.edu.ar/esp/index.php).

**TABLE 8.  Number of Observations per Country Used in the Regressions**

| Country | Frequency | Percent |
|---|---|---|
| Argentina | 11 | 5.95 |
| Bolivia | 8 | 4.32 |
| Brazil | 15 | 8.11 |
| Chile | 9 | 4.86 |
| Colombia | 8 | 4.32 |
| Costa Rica | 14 | 7.57 |
| Dominican Republic | 8 | 4.32 |
| Ecuador | 6 | 3.24 |
| El Salvador | 13 | 7.03 |
| Guatemala | 5 | 2.7 |
| Honduras | 11 | 5.95 |
| Mexico | 10 | 5.41 |
| Nicaragua | 3 | 1.62 |
| Panama | 11 | 5.95 |
| Paraguay | 8 | 4.32 |
| Peru | 14 | 7.57 |
| Uruguay | 10 | 5.41 |
| Venezuela | 21 | 11.35 |
| Total | 185 | 100 |

provide the marginal returns to completing each educational level for individuals participating in the labor market.

The final data set is an unbalanced panel of eighteen Latin American countries covering the period 1980–2010. Although 216 household surveys were processed, some observations are lost for lack of complete macroeconomic or community-level data, reducing the relevant sample to 185 observations. Tables 8 and 9 show the number of observations per country, as well as the descriptive statistics of the variables involved in the estimations.

Separate estimations are undertaken for the fifteen-to-eighteen age group and the nineteen-to-twenty-four age group and for men and women (*F* tests reject the null hypothesis of equality of coefficients across age and gender groups). The observations are not weighted by population, so each pair of country-year observations is treated equally. The results for men and women are presented in tables 10 and 11.[25] Random- and fixed-effects models are estimated for both age groups and for men and women. The Hausman specification test

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25. We estimated OLS regressions pooling all observations, under the assumption that the residuals follow a normal distribution with zero mean and known variance. As expected, the Breusch-Pagan Lagrangian multiplier (LM) test for random effects rejects the null hypothesis of such an error structure and suggests the presence of a residual that varies along the cross-sectional dimension of the panel (countries).

**TABLE 9. Descriptive Statistics of Macroeconomic Variables Used in the Model**

| Variable | Mean | Standard deviation | Minimum | Maximum | p25 | p50 | p75 |
|---|---|---|---|---|---|---|---|
| OSOW, 15–18, men | 8.75 | 4.01 | 2.36 | 22.23 | 6.12 | 7.56 | 10.23 |
| OSOW, 19–24, men | 8.70 | 3.25 | 2.92 | 21.06 | 6.52 | 8.61 | 10.63 |
| OSOW, 15–18, women | 14.61 | 4.90 | 6.89 | 29.20 | 11.10 | 14.11 | 17.00 |
| OSOW, 19–24, women | 23.12 | 4.24 | 14.00 | 33.30 | 19.60 | 23.00 | 25.80 |
| Per capita GDP[a] | 7.22 | 2.79 | 1.97 | 13.43 | 5.18 | 7.23 | 9.56 |
| Per capital GDP, growth | 1.97 | 3.81 | −10.73 | 16.24 | 0.01 | 2.16 | 4.12 |
| Trade (X+M)/GDP | 63.13 | 34.42 | 11.55 | 198.77 | 40.03 | 55.87 | 74.72 |
| Unemployment rate | 8.60 | 4.16 | 1.40 | 20.06 | 5.59 | 7.70 | 11.01 |
| Urbanization rate | 69.59 | 14.67 | 41.10 | 92.98 | 58.68 | 70.46 | 83.00 |
| Returns to secondary[b] | 2.15 | 1.22 | −7.64 | 10.48 | 1.78 | 1.99 | 2.33 |
| Returns to university[b] | 1.65 | 0.46 | 0.55 | 3.61 | 1.41 | 1.62 | 1.79 |
| Years of schooling (15 +) | 7.10 | 1.43 | 2.95 | 10.09 | 6.19 | 7.09 | 8.22 |
| Lagged fertility rate | 4.37 | 1.07 | 2.51 | 6.87 | 3.53 | 4.25 | 5.20 |

a. Thousands of US dollars, PPP.
b. The returns to secondary and university are measures relative to the returns in primary and secondary schooling, respectively.

**TABLE 10. Associations with the Share of OSOW Youth: Men[a]**

| Independent variable | % of OSOW Youth, 15–18 years of age | | % of OSOW Youth, 19–24 years of age | |
|---|---|---|---|---|
| | Random effects | Fixed effects | Random effects | Fixed effects |
| *Macroeconomic* | | | | |
| Per capita GDP ($Y_{pc}$) | 0.27 | 0.39 | −0.18 | 0.09 |
| | (0.24) | (0.30) | (0.19) | (0.25) |
| $Y_{pc}$, growth | −0.13** | −0.13** | −0.10** | −0.10** |
| | (0.06) | (0.06) | (0.05) | (0.05) |
| Trade (X+M)/GDP | 0.04** | 0.03 | 0.04** | 0.03** |
| | (0.02) | (0.02) | (0.01) | (0.02) |
| Unemployment rate | 0.08 | 0.07 | 0.30** | 0.32** |
| | (0.09) | (0.09) | (0.06) | (0.07) |
| Urbanization rate | 0.07 | −0.11 | 0.14** | 0.23** |
| | (0.07) | (0.15) | (0.06) | (0.12) |
| *Community-social* | | | | |
| Returns to secondary | −0.34 | −0.41** | | |
| | (0.20) | (0.20) | | |
| Returns to university | | | −0.60 | −0.83 |
| | | | (0.48) | (0.52) |
| Years of schooling | −0.62 | −0.65 | 0.00 | −0.58 |
| | (0.43) | (0.67) | (0.32) | (0.53) |
| Lagged fertility rate | 1.13** | 0.40 | 0.73 | 0.89 |
| | (0.56) | (0.71) | (0.43) | (0.57) |
| Constant | −1.13 | 15.29 | −6.62 | −11.17 |
| | (7.38) | (11.95) | (5.75) | (9.66) |
| *Summary statistic* | | | | |
| Year controls | No | No | No | No |
| $R^2$ | 0.13 | 0.02 | 0.38 | 0.19 |
| No. observations | 185 | 185 | 185 | 185 |

**Statistically significant at the 5 percent level.
a. Per capita GDP is measured in thousands of U.S. dollars (PPP). Years of schooling correspond to the population aged fifteen years and older. Hausman and LM specification tests indicate that random effects are preferred over fixed effects for both age groups. The reported $R^2$ is the within variation plus the between variation explained by the models. Standard errors are in parentheses.

**T A B L E  1 1 .   Associations with the Share of OSOW Youth: Women**[a]

| | % of OSOW Youth, 15–18 years of age | | % of OSOW Youth, 19–24 years of age | |
| --- | --- | --- | --- | --- |
| Independent variable | Random effects | Fixed effects | Random effects | Fixed effects |
| *Macroeconomic* | | | | |
| Per capita GDP ($Y_{pc}$) | 0.36 | 0.05 | −0.23 | −0.71** |
| | (0.22) | (0.26) | (0.20) | (0.23) |
| $Y_{pc}$, growth | −0.05 | −0.05 | −0.03 | −0.03 |
| | (0.05) | (0.05) | (0.04) | (0.04) |
| Trade (X+M)/GDP | 0.03 | 0.02 | 0.01 | 0.00 |
| | (0.01) | (0.02) | (0.01) | (0.01) |
| Unemployment rate | −0.06 | −0.10 | 0.17** | 0.11 |
| | (0.08) | (0.08) | (0.06) | (0.06) |
| Urbanization rate | −0.06 | −0.36** | 0.01 | 0.02 |
| | (0.07) | (0.13) | (0.06) | (0.11) |
| *Community-social* | | | | |
| Returns to secondary | −0.22 | −0.25 | | |
| | (0.18) | (0.17) | | |
| Returns to university | | | −0.22 | 0.15 |
| | | | (0.46) | (0.46) |
| Years of schooling | −0.81** | 0.76 | −0.78** | −0.10 |
| | (0.40) | (0.59) | (0.35) | (0.47) |
| Lagged fertility rate | 2.06** | 1.70** | 1.89** | 2.19** |
| | (0.51) | (0.63) | (0.43) | (0.50) |
| Constant | 12.03 | 26.62 | 19.16** | 16.62** |
| | (6.78) | (10.51) | (6.10) | (8.58) |
| *Summary statistic* | | | | |
| Year controls | No | No | No | No |
| $R^2$ | 0.47 | 0.18 | 0.40 | 0.23 |
| No. observations | 185 | 185 | 185 | 185 |

**Statistically significant at the 5 percent level.

a. Per capita GDP is measured in thousands of U.S. dollars (PPP). Years of schooling correspond to the population aged fifteen years and older. Hausman and LM specification tests indicate that random effects are preferred over fixed effects for the fifteen-to-eighteen age group, while fixed effects are preferred for the nineteen-to-twenty-four age group. The reported $R^2$ is the within variation plus the between variation explained by the models. Standard errors are in parentheses.

indicates that in the case of men of both age groups and women between the ages of fifteen and eighteen, random effects are preferred over fixed effects; for women between the ages of nineteen and twenty-four, the estimation with fixed effects is the preferred model.

The results in tables 10 and 11 indicate that per capita GDP growth is significant and has the expected negative effect on the proportion of OSOW men for both age groups. Therefore, everything else constant, countries with higher growth rates have a lower proportion of young men out of school and not working. This is an expected result, as higher economic growth brings more

opportunities and fewer incentives to remain OSOW. In contrast, economic growth does not seem to have a significant effect on the share of women that are OSOW. This suggests that other, noneconomic factors can play a greater role in women's schooling and labor market decisions at that age.

The estimated coefficient for trade openness on the share of OSOW youth is positive and significant. This is a robust result for men and women. In the interpretation of this result, it is important to recall that Latin American countries as a whole embraced an ambitious wave of trade liberalization reforms in the late 1980s and early 1990s, which includes the period of our study. The effects of the market reforms have been thoroughly analyzed in the literature. The main conclusion is that countries that introduced market-oriented reforms experienced a significant reallocation of factors of production. For example, several studies establish that productivity growth in Latin America is less associated with productivity growth within firms and more associated with the reallocation of production from less to more productive plants. Eslava and others conduct decompositions of total factor productivity (TFP) for Colombia, in which they separate the simple average of TFP and the covariance between the share of production and productivity, thereby capturing the extent of reallocation.[26] This decomposition shows that while within-plant TFP in Colombia was low and sometimes negative, the increased share of production held by more productive plants accounts for most of the aggregate productivity in Colombia. Pavcnik also finds that reallocation accounts for high productivity in the 1980s in Chile.[27] Similarly, Bergoeing, Hernando, and Repetto find the same for the period 1980–2001, with within-firm productivity being negative and the entry and exit of firms accounting for productivity gains in this period.[28] Using firm-level data for Mexico in 1993–2002, de Hoyos and Iacovone show that larger firms were able to benefit from NAFTA by displacing small exporting firms.[29] So, it seems that reallocation has been the main driver of productivity growth in Latin America over the past decades.

What our results indicate is that productivity-enhancing reallocation is not the only relevant element of trade openness. Here we emphasize that youth face high costs of churning, or moving from job to job. The working conjecture is that the destruction and creation of jobs seems to have affected the young more adversely than other groups. While a full assessment of this hypothesis

26. Eslava and others (2004).
27. Pavcnik (2002).
28. Bergoeing, Hernando, and Repetto (2010).
29. De Hoyos and Iacovone (2013).

is beyond the scope of this paper, there is evidence suggesting that after trade liberalization, labor market conditions worsened for individuals with low skills and low experience. The jobs created required greater abilities than what the youth could offer.

The other macroeconomic variable included in the regressions is the unemployment rate, which comes out positive and significant. However, care should be exercised in interpreting this result. Reverse causality is a major concern here for the nineteen-to-twenty-four age group, as a higher share of OSOW youth results in a higher unemployment rate. This is not necessarily a concern for the fifteen-to-eighteen age group, which is not represented in youth unemployment rates.

As for the urbanization rate, the coefficients are not statistically significant in the preferred specifications for the fifteen-to-eighteen age group, but they are positive and significant for the nineteen-to-twenty-four age range, indicating that higher shares of urban concentration are associated with larger shares of OSOW. One interpretation is that in rural settings, youth more commonly participate in household agricultural or other similar activities that do not depend on formal labor market opportunities, which are the main option for youth in urban areas.

On the social variables, the coefficient on years of schooling is not significant for men and for all age groups. In contrast, there is evidence of a negative relationship between the proportion of OSOW women and years of schooling. This result can be explained by lower primary school enrollment rates among girls than boys, a gap that has only begun to narrow in recent years. Boys have had close to universal primary enrollment for several years, but efforts are still needed to achieve this coverage among girls. Also, more years of schooling reduce the probability of youth pregnancy, which then results in a lower share of women being out of school and out of work.[30]

The fifteen-year lagged fertility rate shows the expected positive effect on the proportion of OSOW men ages fifteen to eighteen. Countries with a larger adolescent population have greater difficulties in providing access to education. This effect is not present for OSOW youth aged nineteen to twenty-four, using the twenty-year lagged fertility rate. In the case of women, lagged fertility rates show a strong and positive effect on the proportion of OSOW youth,

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30. We use a measure of the stock of the years of education for the working-age population over eighteen years of age as an indicator of the access to education services. This avoids a potential endogeneity problem, since the dependent variable is calculated for a different age group (under eighteen).

for both the fifteen-to-eighteen and the nineteen-to-twenty-four age groups. The positive and significant parameters on fertility rates confirm that some of the changes in the share of OSOW youth are explained by the demographic transition that most Latin American countries are experiencing.

Finally, returns to complete secondary education (relative to primary) would tend to create an incentive for adolescents to stay in school.[31] This is the case for men (with an 8 percent significance), but not women. In principle, this can be explained by the fact that for the younger age bracket (fifteen to eighteen), becoming OSOW begins with the decision to drop out of school, which is influenced by variables pertaining to educational quality and its economic returns. For the older age bracket (nineteen to twenty-four), labor market conditions play a greater role in determining the OSOW youth status. If these OSOW youth have not completed secondary education, the returns to university education lose relevance. In the case of women, returns to schooling do not seem to play a role, again suggesting that the main drivers of the decision to become OSOW are gender specific.[32]

An additional element influencing this result might be the declining returns to schooling in Latin America in the 2000s relative to the 1980s and 1990s. Several works document these trends, putting forward explanations such as the increase in the supply of workers with more years of schooling, the inclusion of lower-skilled workers with greater education in the labor force, and lower education quality.[33] In particular, Gasparini and others argue that the increased demand and prices for commodities in world markets, which are

31. As discussed by Murane (2013), the value associated with schooling can change through various channels, including not only higher productivity and exogenous economic factors, but also shifts in the value of school credentials related to socioeconomic status and so forth.

32. As mentioned, the variable introduced in the econometric estimation to account for education returns is the coefficient of the Mincer regression estimated for each country/year. This coefficient can be interpreted as the internal rate of return under the assumption that there are no monetary or other costs of attending school. One approach for addressing this could be to substitute the coefficients for the ratio of the value of average wages by different education levels (that is, secondary/primary or higher/secondary) and data about the cost of attending school as proxied, for instance, by the share of private to public enrollment at different levels. Unfortunately, our data sets do not allow identifying these types of alternative cost estimates for a sufficient number of the countries and years in our data base, so we are not able to perform this type of exploration. To assess the sensitivity of our conclusions to the use of Mincer coefficients, we estimate the aggregate regressions reported in tables 10 and 11 by substituting these indicators with the corresponding relative wages, and our results are very similar—the coefficients are negative in all cases and not statistically significant.

33. Manacorda, Sánchez-Páramo, and Schady (2010); Bassi, Busso, and Muñoz (in this volume); Aedo and Walker (2012); Gasparini and others (2011).

unskilled labor intensive, reduced the relative demand for higher skills in Latin America, with a consequent decline in their premium.[34] The negative sign in the coefficient estimates for the returns to secondary schooling presented in tables 10 and 11 suggest that the declining returns are consistent with higher shares of OSOW youth in the region.

## Conclusions

There are nearly 10 million Latin Americans between the ages of fifteen and eighteen who are neither studying nor working. This large number, which represents about 19 percent of the population in that age bracket, reflects one of the region's more daunting challenges. With so much praise for Latin America's recent economic and social performance, it problematic that these groups of the population are still facing a lack of adequate opportunities. Not surprisingly, social unrest, drug consumption, crime, and violence are typically associated with individuals belonging to this demographic group. If Latin America wants to reap the dividend of the so-called demographic window of opportunity, it needs to provide its youth with adequate educational and employment opportunities. Otherwise, they will not be able to increase the levels of productivity in the coming decades. Perhaps more worrisome, they will fail to generate adequate incomes to support the higher dependency rates that are expected over the next two decades.

Formulating adequate policy responses to this problem requires a comprehensive understanding of its main causes. To contribute to this knowledge, we have explored a combination of microeconomic and macroeconomic determinants. Not surprisingly, household income per capita comes out as a crucial determinant. This result is very relevant because it captures the nature of the vicious circle linking poverty today with diminished earning capacity in the future. With lower future incomes, one can expect higher school dropout rates and a higher prevalence of OSOW youth in future generations. The education level and employment status of the household head are also very relevant correlates of the OSOW youth condition.

In terms of macroeconomic variables, aggregate per capita GDP growth is associated with reductions in the share of OSOW young men but not women, who seem to be influenced by a different set of variables. An interesting

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34. Gasparini and others (2011).

result is that trade openness, which can be considered a proxy for the importance of competitive markets, is positively associated with the share of the young men and women out of school and not working. Our interpretation—to be corroborated in future studies—is that this is a negative side effect of an otherwise positive force that has led to higher productivity through the faster destruction and creation of jobs. However, young individuals seem to have been adversely affected by the sharp reallocation of resources and the increased churning in the labor market. The new jobs created have required greater skills than what the young can offer.

In the case of women, there is evidence of a negative association between the share of OSOW youth and years of schooling. This result suggests that fewer years of schooling are associated with higher fertility rates for this group. This, in turn, increases the probability of young women becoming OSOW youth. This is another vicious circle, in which the children of low-income and low-education households are themselves likely to enter the OSOW youth group. Finally, in the case of men, higher returns to complete secondary education (relative to primary) tend to create an incentive for adolescents to stay in school.

In sum, this paper provides suggestive evidence that greater household income per capita, higher returns to schooling, and improved pertinence of education services are consistent with lower OSOW rates. However, further research on particular policy actions should be undertaken to confirm these associations. For instance, offering students a lump-sum payment if secondary education is completed or providing cash payments for vocational training could be helpful in increasing the incentives for the young not to remain OSOW.[35]

35. Barrera and others (2011) and Attanasio, Kugler, and Meghir (2011) discuss these policy options.

## Appendix: Supplemental Tables

**T A B L E   A 1 .**   **Household Survey Data Base**

| Country | No. surveys | Years | Survey |
|---|---|---|---|
| Argentina | 13 | 1980, 1986, 1998, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 | Encuesta Permanente de Hogares |
| Bolivia | 8 | 1986, 1995 | Encuesta Integrada de Hogares |
| | | 1996, 1997 | Encuesta Nacional de Empleo |
| | | 1999 | Encuesta Continua de Hogares: Condiciones de Vida |
| | | 2001, 2002, 2007 | Encuesta de Hogares |
| Brazil | 16 | 1981, 1983, 1986, 1988, 1992, 1993, 1995, 1996, 1997, 1998, 1999, 2001, 2002, 2003, 2004, 2007 | Pesquisa Nacional por Amostra de Domicílios |
| Chile | 9 | 1990, 1992, 1994, 1996, 1998, 2000, 2003, 2006, 2009 | Encuesta de Caracterización Socioeconómica Nacional |
| Colombia | 11 | 1980, 1986, 1989, 1992, 1996, 1997, 1998, 1999 | Encuesta Nacional de Hogares—Fuerza de Trabajo |
| | | 2000 | Encuesta Continua de Hogares |
| | | 2003, 2005 | Encuesta de Calidad de Vida |
| Costa Rica | 15 | 1983, 1985 | Encuesta Nacional de Hogares: Empleo y Desempleo |
| | | 1987, 1989, 1991, 1993, 1995, 1997, 1998, 2000, 2001, 2002, 2003, 2004, 2009 | Encuesta de Hogares de Propósitos Múltiples |
| Dominican Republic | 9 | 1995, 1996, 1997, 2000, 2001, 2002, 2003, 2004, 2007 | Encuesta Nacional de Fuerza de Trabajo |
| Ecuador | 7 | 1995, 1998 | Encuesta de Condiciones de Vida |
| | | 2000, 2001, 2003, 2004, 2008 | Encuesta de Empleo, Desempleo y Subempleo en el Área Urbana y Rural |
| El Salvador | 14 | 1989, 1992, 1993, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2007 | Encuesta de Hogares de Propósitos Múltiples |
| Guatemala | 6 | 1998, 2000, 2002, 2003, 2004, 2006 | Encuesta Nacional sobre Condiciones de Vida |
| Honduras | 12 | 1989, 1992, 1996, 1997, 1998, 1999, 2001, 2002, 2003, 2005, 2007 | Encuesta Permanente de Hogares de Propósitos Múltiples |
| | | 2004 | Encuesta de Condiciones de Vida |
| Mexico | 13 | 1984, 1989, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2005, 2006, 2008, 2010 | Encuesta Nacional de Ingresos y Gastos de los Hogares |
| Nicaragua | 4 | 1993, 1998, 2001, 2005 | Encuesta Nacional de Hogares sobre Medición de Niveles de Vida |
| Panama | 11 | 1991 | Encuesta de Hogares—Mano de Obra |
| | | 1995, 1996, 1997, 1998, 1999, 2001, 2002, 2003, 2004, 2006 | Encuesta de Hogares |

**T A B L E   A 1 .   Household Survey Data Base (*Continued*)**

| Country | No. surveys | Years | Survey |
|---|---|---|---|
| Paraguay | 21 | 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996 | Encuesta de Hogares: Mano de Obra |
| | | 1997, 2000 | Encuesta Integrada de Hogares |
| | | 1999, 2002, 2003, 2004, 2007 | Encuesta Permanente de Hogares |
| Peru | 16 | 1991, 1994 | Encuesta Nacional de Hogares sobre Medición de Niveles de Vida |
| | | 1996, 1997, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 | Encuesta Nacional de Hogares sobre Condiciones de Vida y Pobreza |
| Uruguay | 10 | 1992, 1995, 1997, 1998, 2001, 2002, 2003, 2004, 2005, 2008 | Encuesta Continua de Hogares |
| Venezuela | 21 | 1981, 1982, 1983, 1985, 1986, 1988, 1989, 1990, 1992, 1993, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2003, 2004, 2006, 2007 | Encuesta de Hogares por Muestreo |

**T A B L E   A 2 .   OSOW Youth in Latin America, 1989–2009: Nineteen-to-Twenty-Four Age Group**
Percent

| | Share of population in 19–24 age group | | | | | Change in |
|---|---|---|---|---|---|---|
| Country | 1989 | 1995 | 2000 | 2005 | 2009 | 1989–2009 |
| Argentina | 24.3 | 26.5 | 30.7 | 28.6 | 28.1 | 3.8 |
| Bolivia | 21.9 | 21.4 | 20.7 | 18.6 | 18.0 | −3.9 |
| Brazil | 27.4 | 25.1 | 25.4 | 24.1 | 21.9 | −5.5 |
| Chile | 36.0 | 29.9 | 33.9 | 29.3 | 33.4 | −2.7 |
| Colombia | 26.8 | 31.1 | 36.8 | 32.0 | 32.0 | 5.2 |
| Costa Rica | 29.9 | 27.8 | 26.4 | 27.5 | 26.8 | −3.1 |
| Dominican Republic | 35.1 | 35.1 | 32.6 | 32.4 | 25.0 | −10.1 |
| Ecuador | 32.2 | 32.2 | 29.1 | 27.4 | 25.4 | −6.8 |
| El Salvador | 30.7 | 32.0 | 32.7 | 33.5 | 31.1 | 0.4 |
| Guatemala | 32.4 | 32.4 | 35.1 | 38.0 | 36.9 | 4.5 |
| Honduras | 41.1 | 38.2 | 39.2 | 40.6 | 30.0 | −11.1 |
| Mexico | 32.6 | 29.8 | 25.9 | 24.3 | 26.7 | −5.9 |
| Nicaragua | 45.3 | 43.3 | 36.8 | 32.5 | 29.9 | −15.4 |
| Panama | 42.2 | 37.8 | 37.1 | 34.6 | 32.4 | −9.8 |
| Paraguay | 23.0 | 40.2 | 29.2 | 27.2 | 24.8 | 1.9 |
| Peru | 48.2 | 39.1 | 29.1 | 32.5 | 27.9 | −20.2 |
| Uruguay | 26.9 | 28.3 | 31.7 | 28.9 | n.a. | 2.0 |
| Venezuela | 43.1 | 33.9 | 37.8 | 30.3 | 26.4 | −16.7 |
| Regional average | 33.3 | 32.4 | 31.7 | 30.2 | 26.4 | −6.9 |

Source:  Authors' calculations using microdata from 216 household surveys; see table A1 for a list of the surveys.
n.a.  Not available.

**T A B L E  A 3 .  OSOW Youth in Latin America, 1989–2009: Fifteen-to-Twenty-Four Age Group**

| Country | Share of population in 15–24 age group | | | | | Change in 1989–2009 |
| | 1989 | 1995 | 2000 | 2005 | 2009 | |
|---|---|---|---|---|---|---|
| Argentina | 21.2 | 22.7 | 24.9 | 23.7 | 23.0 | 1.8 |
| Bolivia | 16.6 | 17.0 | 17.2 | 13.2 | 12.0 | −4.6 |
| Brazil | 23.8 | 20.7 | 19.9 | 19.4 | 18.6 | −5.2 |
| Chile | 28.8 | 23.8 | 26.0 | 22.5 | 28.2 | −0.6 |
| Colombia | 22.7 | 24.9 | 30.8 | 27.0 | 27.0 | 4.3 |
| Costa Rica | 28.3 | 25.7 | 25.2 | 24.1 | 23.2 | −5.1 |
| Dominican Republic | 27.8 | 27.8 | 26.2 | 26.3 | 20.0 | −7.8 |
| Ecuador | 28.2 | 28.2 | 24.5 | 23.6 | 21.7 | −6.5 |
| El Salvador | 24.7 | 28.3 | 28.8 | 28.0 | 26.0 | 1.3 |
| Guatemala | 28.3 | 28.3 | 35.1 | 33.5 | 31.4 | 3.0 |
| Honduras | 37.3 | 36.9 | 38.3 | 39.9 | 27.0 | −10.3 |
| Mexico | 28.1 | 26.8 | 22.6 | 21.5 | 24.5 | 3.6 |
| Nicaragua | 39.4 | 38.0 | 32.8 | 29.5 | 27.9 | −11.5 |
| Panama | 35.1 | 31.2 | 30.5 | 27.8 | 27.1 | −7.9 |
| Paraguay | 22.8 | 42.4 | 24.4 | 22.0 | 18.0 | −4.8 |
| Peru | 40.5 | 33.7 | 25.6 | 32.2 | 27.1 | −13.4 |
| Uruguay | 27.0 | 30.3 | 30.2 | 26.5 | n.a. | −0.5 |
| Venezuela | 46.9 | 29.8 | 32.3 | 25.9 | 22.2 | −24.7 |
| Regional average | 29.3 | 28.7 | 27.5 | 26.0 | 22.4 | −7.0 |

Source:  Authors' calculations using microdata from 216 household surveys; see table A1 for a list of the surveys.
n.a.  Not available.

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