

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

By

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Abstract: This paper aims at improving our understanding of the persistent shares of youth that are out of school and out of work in Latin America, with special attention to those in the 15 to 18 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 18 countries across the region, identifying the set of micro 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; we verify whether the group responds to changes in the environment, including overall GDP growth, as well as to economic shocks. We also explore the possibility that they are simply a demographic transient phenomenon.

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Introduction

The widely mentioned and studied demographic “*window of opportunity*” seems to be reaping some of its benefits during the first years of the 21st century in Latin America.² As predicted, since the 1990s and in some countries a decade earlier, a historic sharp decline in economic dependency rates started with the acceleration in the growth rate of the 15 to 24-year-old group, as compared to those under 15 and the over 65. This means that the share of the working age population (and the potential of increasing productivity) is close to maximum levels. Furthermore, the patterns imply that the situation will prevail for about 20 years until the 65 and over age group begins to grow faster, which will bring new challenges to the region.

After the “window” opened, the 2000s have witnessed the highest real gross domestic product growth rates 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 the year 2000 to 30 percent in 2009³, and even the previously persistent high income inequality levels seem to be registering a decline.⁴

However, this more prosperous environment has not been free of problems. One widely recognized challenge is that if the region is not able to invest in generating enough educational and employment opportunities for the fast growing 15 to 24 age group, the “window” will not be fully capitalized and the possibilities of producing enough resources to support those over 65 in the future will be considerably hindered.

This is especially sensitive for those in the 15 to 24 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 can 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, and can become a source of potential risks for society at large in areas such as crime, addictions and insecurity.

Within this group, those between 15 and 18 years of age are particularly worrisome. At this stage of the life cycle, as compared with those 19 to 24, there is little ambiguity that being in the

² Some examples of the large literature on this issue are the Inter American Development Bank (1999) and Behrman et al. (2002).

³ See SEDLAC (2010).

⁴ This is shown in López Calva and Lustig (2010). According to the most recent data (SEDLAC (2010)), the Gini income inequality index declined during the 2000s in 12 out of 17 countries in the region.

formal education system is the most desirable and socially productive activity.⁵ In most countries, those 18 and under are still in school age and supposed to be attending high school or its equivalent; furthermore, those under the age of 15 have not reached the legal working age in some cases and their physical, mental and emotional development process is still underway.⁶ In this sense, 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, among others.⁷ 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 the adequate protection, support and integration mechanisms, osov youth are exposed to situations that may affect their future development prospects negatively and threaten others in their societies.⁸

This paper aims at improving our understanding of osov youth in Latin America, with special attention to those in the 15 to 18 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 osov. During the last 20 years, their share of the population has been reduced by less than 6 percentage points but the absolute number of individuals belonging to it has remained practically unchanged due to demographic growth.

Apart from characterizing the osov youth, we present an analysis of the patterns of their evolution in 18 countries across the region, identifying the set of micro and aggregate variables that are correlated with their dynamics. We explore the relationship with the household's

⁵ The 19-24 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 (i.e., 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 not participating in the labor market nor enrolling in school, and choosing for instance, household activities as an alternative. The problem of osov youth refers to lack of educational and labor opportunities and therefore, should not include these other situations, where the status is not due to exclusion but chosen voluntarily.

⁶ Our analysis focuses on the population 15 and above, since the International Labor Organization (ILO) 1973 *Minimum Age Convention* -to which all Latin American countries have abided- sets the minimum age for admission to employment or work at age 15 (<http://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/child-labour/lang--en/index.htm>). Actually, the ILO 1999 *Worst Forms of Child Labor Convention* approved across LA childhood comprises the 0 to 18 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 *Convention of the Rights of the Child* of 1989, which is a legally binding international instrument, specifies universally agreed standards and obligations of governments towards individuals under 18 years of age, including the access to education as a preponderant right.

⁷ As shown by Spinks (2003), during these years of the adolescence period, important improvements in the neurological development of the human brain take place. The frontal cortex that determines memory, planning capacity, organizational skills and even temper, is under fast evolution during this stage, and the cerebellum area that regulates decision making capabilities is still under development.

⁸ The World Bank (2007a, b) 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.

socioeconomic characteristics (including income) and with the structure and evolution of labor markets. We identify the links with the schooling system and school dropout patterns; we verify whether the group responds to changes in the environment, including overall GDP growth and economic shocks. We also explore the possibility that the osow youth are simply a demographic transient phenomenon. We perform our analysis for the 15 to 18 and 19 to 24 age groups separately to capture the possibility that school dropouts and labor market participation decisions are of a different nature in each one of the subgroups.

In order to perform our analysis, we process micro data in 215 household surveys for 18 Latin American countries spanning from the early 1980s to 2010 and build a panel of 215 observations on the proportion of osow youth that 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 into 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. Section 1 presents the data as well as a characterization of osow youth across Latin America. Section 2 explores the importance of micro 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. Section 3 presents our econometric analysis using the panel constructed from household surveys, which is lined to data on aggregate indicators from various sources. Section 4 concludes.

1. 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 12 to 29 years of age, depending on the source and approach of each investigation. The range of scope and focus is also wide, going from issues such as school dropouts, teenage pregnancy, addictions, labor market participation, crime rates, etc.⁹ However to our knowledge, there is much less analysis on osow youth in the particular 15-18 age range. 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 215 household

⁹ Some of the relevant related studies are Cunningham, et al. (2008), Rodriguez (2010), World Bank (2003, 2008), Duryea, et al. (2003), and Hopenhayn (2008), among many others.

surveys for 18 countries in the region spanning the years 1980 to 2010. We homogenize a series of variables including household structure, economic activity, socioeconomic characteristics, education, income, etc. to produce a dataset of comparable statistics on *osow* youth

The present study defines *osow* as those individuals in the 15-18 and 19 to 24 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 those individuals who have 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 have not worked during the reference period due to extraordinary circumstances (illness, strike, vacation, etc.) Therefore the definition of *osow* used here includes housewives, unemployed individuals actively looking for jobs, youth that decided to take a “gap year”, among others. One critical point worth noting is that there exists 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 labelling 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. It is also important to note that 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. For Paraguay and Venezuela 21 surveys are available to us, respectively, while we have access to 16 for Peru and Brazil, 15 for Costa Rica, 14 for El Salvador, 13 for Mexico, 12 for Honduras and Argentina, 11 for Panama and Colombia, 10 for Uruguay, nine for Chile and Dominican Republic, eight for Bolivia, seven for Ecuador, six for Guatemala and four for Nicaragua. We have 14 surveys for 1980-1985, 20 for 1986-1990, 33 for 1991-1995, 59 for 1996-2000, 61 for 2001-2005 and 28 for 2006-2010. The surveys are representative of the total population of each country, with the exception of Argentina for surveys prior to the 2000s and Uruguay where the sample is only for urban areas. All in all, the data expanded with population weights includes information for 554 million individuals (at 2010 population statistics), encompassing 96 percent of the population in Latin America.

Stylized facts: Osoy youth in Latin America over two decades

Figure 1 presents the evolution of the average share of *Osoy* youth in Latin America between the years of 1989 and 2009. The trend starts in 1989 since there are seven countries –Dominican Republic, Ecuador, Guatemala, Nicaragua, Panama, Peru and Uruguay- where observations prior to 1990 are not available.¹⁰ In order to construct 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 non-weighted average share of *osow* youth in the 15 to 18 age group in 1989 was of 24.3 percent representing 10.3 million individuals. Interestingly, the proportion of *osow* youth declined only modestly in the next two

¹⁰ 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 is available to us, so the descriptive statistics presented in this section comprise only until 2009. However, the information for 2010 is included in the econometric analysis.

decades, reaching 18.5 percent in the year 2009. This is a decline of less than 6 percentage points, which amounts to 9.4 million youth. So, in the course of 20 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 15 to 18 age group from 10.3 to 11 million in spite of a decline from 24.3 percent to 22.1 percent relative to the population in the same age group –averages weighted by country populations are very similar and we do not report them. Evidently, 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 1990-2009, both the share and number of osow youth declined at a faster pace, resulting in a reduction from 11 to 9.4 million during these years.¹¹

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 20 years in Latin America. The modest reduction during this period contrasts with the evolution of other indicators, including GDP per capita, which according to figures from the Economic Commission for Latin America and the Caribbean (ECLAC) increased by more than 50 percent in real terms during the same period¹²; or with the regional poverty estimates by the Socio Economic Data Base for Latin America and the Caribbean from the World Bank (SEDLAC), which show a decline in the proportion of poor individuals from 27.9 percent in 1992 to 19.3 percent in 2009; the total number of poor individuals in the region was reduced by over 30 million from 119.3 to 89 million; and even with respect to the traditionally high-income inequality levels, which have been reduced by .5 points of the Gini index during the 2000s and represents around 10 percent of the value of the index.¹³ Thus, having a significant share of youth population classified as osow seems to have become a structural phenomenon even under the relatively prosperous environment of the first decade of the 21st century.

Figure 1 also presents the data for the 19 to 24 age group. This group has two important differences with the younger 15 to 18 range. On the one hand, labor market participation has legal status and is therefore much more prevalent, which would be expected to reduce the propensity to belong to the osow youth group. On the other hand, school attendance rates are much lower than at younger ages, which would tend to fuel the participation in the osow youth group. According to Alfonso et.al. (2011), school attendance rates decline from an average of 50 percent at ages 15 to 18 in Latin America to around 25 percent for those over 19 years of age. Our estimates reveal that the presence of the osow youth group in the 19 to 24 age bracket is considerably higher than in the 15 to 18 age range, suggesting that the higher propensity to participate in the labor market is not able to counter balance the incidence of lower school attendance. In 1989, the ratio of osow youth in the 19 to 24 age group versus the ratio in the 15 to 18 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

¹¹ The most recent figures in the Graph, covering up to 2008 and 2009 for most countries, are different from those presented in Székely (2011), were the latest estimates are for the years 2005-2007.

¹² See <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp?idAplicacion=6&idTema=131&idioma=>.

¹³ See SEDLAC, 2011.

older ages. The figure also includes the evolution of the full 15 to 24 age group, which shows a similar behavior than the 19 to 24 bracket.

Panels A and B in Figure 2 present a break down by gender (for the 15 to 18 and 19 to 24 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 19 to 24 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 15 to 18, trends are similar although reductions are more modest in the case of women –of only 2.7 points. In both cases, it can be said that 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 throughout the last 20 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 15-18 age range by type and reveals that throughout the period under analysis around two-thirds of *osow* are women—most of them living with their parents and looking for work- although there is a declining trend, with male *osow* increasing their share especially between the early and the mid-2000s decade. Between 1995 and 2010, the proportion of *osow* women that started a new household (with or without children) is somewhat increasing, while the proportion remaining in the parental household declines. By 2010 almost 10 percent of total *osow* in Latin America are accounted for by female adolescents that started a new household and have children, while a majority of these women are not looking for a job. In contrast, among male *osow* the majority is living in the parental household, and most are 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 associated to a greater extent to other types of phenomena, such as teen pregnancy or early marriage (Azevedo et al (2012) discuss some of these issues in more detail).

Osow magnitudes by country for the 15 to 18 age range are presented in Table 2. The country with the highest proportion of *osow* youth around 2009 is Honduras with 28 percent, while the lowest is Bolivia with only 7 percent. There are other eight countries with shares above the Latin America average of 18.5 percent, including Peru (26.2 percent), Guatemala (25.3), Nicaragua (24.4), Mexico (22.0) Panama (20.7), Chile (20.5), El Salvador (20.4), and Colombia (20.0). The remaining countries register levels below the Latin America average with Brazil (11.7), Paraguay (11.9) and the Dominican Republic (13) showing the lowest shares. In absolute terms, the largest numbers in 2009 are found in Brazil and Mexico with around 2 million, respectively, followed by 865,000, 754,000 and 566,000 in Colombia, Peru and Argentina, respectively.

According to our results, the countries where the largest reductions in the share of *osow* youth have been registered in the past two decades are Venezuela (-35.1 percentage points), Paraguay (-10.7), Uruguay (-9.2), Nicaragua (-8.3) and Costa Rica (-7.9), while at the other extreme, Colombia (+4.2 points), El Salvador (+3), Chile (+1.9) and Guatemala (+0.9) are countries registering increases. Interestingly, as shown in the last column of Table 2, there are 10 countries where the absolute number of *osow* youth increased during the course of the 20 years under

analysis. The largest increases are found in Colombia (with an incorporation of 319,000 youth in to this group), Argentina (with 109,000) and Guatemala (162,000 more). The largest declines are found in Brazil (847,000 less) and Venezuela (a reduction in 558,000).¹⁴

Tables A2 and A3 in the appendix present similar results for the 19 to 24 and the 15 to 24 age ranges. When the older 19 to 24 age group is considered, five countries show increases in the share of osow youth from 1989-2009: Colombia (+5.2 points), Guatemala (+4.5), Argentina (+3.8), Paraguay (+1.9) and El Salvador (+0.4). The sharpest declines are found in Uruguay (-26.9 points), Peru (-20.2), Venezuela (-16.7), Nicaragua (-15.4) and Honduras (-11.1).

An important distinction worth noting, however, is that there are considerable differences across countries in terms of the activities by those that are *not* in the osow category. For instance, while Bolivia is the country with the lowest proportion of osow youth (see Table 2), as shown in the last three columns of Table 3, it is also one of the countries with the lowest shares of 15 to 18 year olds around the year 2010 that attend school –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.¹⁵ However, in Chile, which also registers osow shares above the regional average, less than 6 per cent of those that are osow participate in the labor market –more than 93 per cent are actually in school. In contrast, while Brazil is a country with relatively lower osow averages, a high share of about 30 per cent of those that are not osow, are working.

Another interesting feature in Table 3 is that the composition of those that are not osow has changed in important ways since the beginning of the 1990s and the years closest to 2010. While on average in 1990, 62.9, 28.1 and 8.9 per cent were in school, working, and in school and working simultaneously, respectively, the shares changed to around 76.7, 13.4 and 10.4 per cent, respectively in each of these classifications. The largest increases in the shares of youth in school are observed in Ecuador (with a 40 per cent raise), Costa Rica (with 36.2 per cent), and Colombia (with 28.8 per cent). In contrast, the lowest variations are observed in Bolivia, Panama and El Salvador. These shifts are relevant for characterizing the osow category since they show that younger cohorts stay longer in school and enter later into the labor market. The shifts can therefore be indicative of larger numbers of better educated youth becoming osow due to reduced employment opportunities.

¹⁴ As can be seen in the Table, there are some specific shares that appear to be out of scale, including for instance the data for Venezuela for 1989 or Paraguay for 1995. We verified in detail the accuracy in the calculations of these apparent outliers but were not able to identify the reason. It is possible 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 we computed regional averages by excluding the specific data points and the conclusions derived from the figures, remain. The only exception is Venezuela, where the sharp decrease in the proportion of osow youth that is driven by the atypically high value in 1989, practically vanishes when this data point is excluded.

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

Patterns of osow youth in the 15 to 18 age range for 1989-2009

Based on the most recent data available for the 15 to 18 age group, Table 4 shows the distribution of osow youth across the income distribution. 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 showing the most polarized distribution (where the concentration of osow among the poor is larger) 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 secondary (the equivalent to the 3 years post primary), while 13 percent never completed high school (post secondary and pre-higher education). This suggests that early drop out 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. In Paraguay, Peru, Venezuela, Nicaragua, El Salvador, Honduras, Argentina, Panamá and Bolivia, the proportion is under 10 percent. Only Chile and Costa Rica register shares over 30 percent.

These preliminary results are in line with other estimates found in the literature on youth at risk in Latin America –which generally focuses on wider age groups and situations. For instance, Cunningham and Bagby (2010) use youth surveys for Chile and Mexico and find that the probability of youth falling into risk situations decreases with the level of income and education of the family, and increases when the relationship with parents is problematic. Recent evidence from Brazil by Dell Aglio et al. (2007) also points to this. Risk patterns for the youth in the 15 to 24 age range increase considerably when household incomes are below the poverty line and are intimately related with racial characteristics (where white youth are subject to lower risks) and 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 has classified the determinants of vulnerability for this group into three broad categories, which we rely on later for our empirical investigation:

Individual and family factors: The first set of factors has to do with personal and household characteristics that determine or influence individual behavior in one way or another. 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 strong influence on psychological development, cognitive skills, personality, social skills, etc. 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, etc.

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 its 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, increasing the risk of dropout.

Macro factors: Macro general factors refer to those elements in the general environment and institutions that are external and that affect large groups of society, and that might impact youth's decisions. They include macroeconomic conditions, volatility, economic shocks, inequality of opportunity, cultural patterns, etc. There are a large number of studies documenting the effects of economic shocks on school dropout rates, such as Patel (2009), Singh et al. (2009), Mendoza (2009), Ramesh (2009), Mehrotra (2009), Keane (2009), Friedman and Levinsohn (2002), and Shang and Wu (2003), among many others that show that when school dropout is combined with restricted opportunities in the labor market, the probability of becoming osow is greater. 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, and which is characterized by an accelerated growth of the 15 to 24 age group. Demographics are also classified in this category.

2. Osow youth and micro factors

The household survey database constructed for this paper allows exploring the relationship between some household features (that characterize individual and family factors) and the size of the osow youth group, ages 15 to 18, in 18 Latin American and Caribbean countries. The empirical strategy we follow is to estimate Probit models where the probability of belonging to the osow youth group is a function household per capita income (excluding the income of the individual youth to avoid endogeneity), household size, and of 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's head employment status are dummies (taking a value of 1 for female heads and 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 15 to 18 age group. The statistics in the figure refer to 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 15 to 18 osov youth group is household per capita income. The influence of this variable declined slightly between the 1990s and 2000s but remains as the strongest estimated marginal effect. This result is consistent with the literature linking youth at risk 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 where poor households have limited human capital investment possibilities, which lead to lower income earning capacity in the future and thus higher school dropout (and higher osov youth prevalence) in future generations.

The education level and employment status of the household head appear as the second strongest associations with the probability of belonging to the osov youth group. According to our results, a household head that has more years of education and who is employed (and presumably generating income) reduces the probability that their 15 to 18-year-old children are in the osov youth group. This can be interpreted as evidence that a more stable household environment reduces individual risks at younger ages. The age of the household head and household size are also significantly negatively associated with the probability of belonging to the osov youth group (in most cases), but their effect is economically small. The effect of a female head of household is also much smaller, but interestingly its effect was negative (reducing the probability) in the 1990s and positive in the 2000s decade.

Table 5 presents the average value of the coefficients by decade and country for the 15 to 18 age group. Zero values indicate that the coefficients were not statistically significant in the specified case while missing values are for countries where a household survey for the decade is not available or where a 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.

For instance, in the case of Argentina, one interesting feature is that the strongest marginal effect (similar in size to the income association) is the gender of the household head. It is also the case in the Dominican Republic and in Uruguay, Brazil and Peru in the 2000s, that when the head of the household is female, there is a significantly higher probability of belonging to the 15 to 18-year-old osov youth group, even after controlling for income and other socioeconomic characteristics. In the first three countries, the size of the marginal effect is lower in the 2000s decade but it is still considerable. Brazil stands out for the relatively higher influence of the employment status of the household head, which has a significant negative marginal effect on the probability of being in the osov youth group, similar in size (and even stronger in the 2000s) to the income effect. This is a feature shared by Costa Rica, Ecuador, El Salvador and Paraguay. Chile is the country where the strongest effect of the household head's education level is observed, especially in the 2000s.

The case of Honduras is interesting for registering the greatest marginal effects for income in its association to the probability of having an osov youth status. The estimated coefficients for this variable are relatively high and not declining throughout the 1980s, 1990s and 2000s. The value

for the education of the household head coefficients is also relatively high in the 2000s. Mexico shows a similar pattern in terms of the association between household per capita income and osow youth with high coefficients as well. Colombia, Guatemala, Nicaragua, Panama, Dominican Republic and Venezuela show patterns similar than those observed in Table 5, while Bolivia presents very similar coefficients across all independent variables.

Table 6 presents similar average results for the 19 to 24 age group.¹⁶ As compared to the 15 to 18 age group, the differences are a stronger income and employment status association 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 15 to 18-year-old osow youth group is significantly associated to the immediate environment of residence of individuals, which include individual and family factors. The probability is significantly associated to household socioeconomic characteristics, including income, age, education and employment status of the household head and in some of the cases the gender of the household head. There are interesting variations across countries but all in all the general conclusion of the influence of household observable characteristics remains strong. Finally, household size does not seem to play an important role as judged by the magnitude of the marginal effects.

Out of School, or out of Work?

A related issue of interest to be explored with our micro data is the extent to which the osow condition is related to being out of school, or being out of work. To explore this, we take advantage of a characteristic of the micro data base constructed for this paper, not exploited so far, and which has to do with the possibility of following cohorts of individuals in the same age group, over time, across the repeated cross sections in household surveys of a given country.¹⁷ Specifically, the strategy consists of identifying cohorts of individuals in each year on the basis of their year of birth and identifying each cohort in subsequent surveys at different points in time.

Take for instance the case of Argentina where latest survey available is for 2010. In this year, those adolescents observed at 15 to 18 years of age were born between 1992 and 1995. In the previous surveys available for the country for 2005 and 2000 for instance, the same group of representative individuals would belong to the 10 to 13 and 5 to 8 age groups, and the shares in various activities (i.e., working or in school) could be identified. The same could be done for all the countries in our sample, where the characteristics of those in the 15 to 18, or in the 19-24 age

¹⁶ These results should be taken with much more caution due to the potential endogeneity across variables. In particular, although the measure of family income included does not incorporate the income of the observation in question, it is likely that income of any family member in the 19 to 24 age group can influence other member's behavior and income generating activity.

¹⁷ 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/or 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.

group in a particular household survey can be compared with features of the same cohort observed before, to the extent that earlier surveys are available.

Specifically, to verify the extent to which the osow condition is associated to previous school dropout or labor market participation, we compute the correlation between the share of osow in a given survey, with the share already out of school or working in the same cohort in previous years. The interpretation is that higher values of the correlation coefficient are indicative of a stronger association between being osow at the 15-18 or the 19-24 age group in a particular year, and having either dropped out of school, or entered into the labor market (and existed subsequently), respectively, when the cohort was younger.¹⁸

Table 7 presents the correlation coefficients obtained. As can be observed, the share of osow in the 15-18 age range is highly correlated with the share of individuals of the same cohort already out of school at ages 12 to 14 (with a correlation of 67 per cent), 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 decade. Interestingly, the correlation between the share of osow at ages 15 to 18 and the share of individuals that were working in the same cohort earlier is negligible, and the same applies when the comparison is made with those that were simultaneously working and in school. This suggests that being osow during adolescence is mainly a phenomena associated with dropping out of school, and to a much lesser extent, with having entered and then exited the labor market.

The results for the 19-24 are also indicative of the same conclusion –of being osow more strongly associated with having dropped out of school prematurely rather than having exited the labor market. As shown in the Table, the correlation coefficient between being osow at ages 19 to 24 and having dropped out of school earlier at ages 15-18 and 12-14 is considerably high, reaching levels of 72 and 85 per cent. There is also a positive association between the share of osow at 19-24 and the share of individuals in the same cohort already participating in the labor market earlier, but the association is much weaker (of 24 per cent or less), and practically inexistent with having been in the category of working and studying simultaneously.

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

¹⁸ As in previous sections, we pool the data from all the countries and years together 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.

3. 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, as well as 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 proportion of men (m) or women (w) in age group c , country j and year t that are out of school and not working ($IY_{c,j,t}^{i=m,w}$). 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:

$$IY_{c,j,t}^m = X_{j,t}\beta_c^m + Z_{j,t}\delta_c^m + \varepsilon_{c,j,t}^m \quad (1)$$

$$IY_{c,j,t}^w = X_{j,t}\beta_c^w + Z_{j,t}\delta_c^w + \varepsilon_{c,j,t}^w \quad (2)$$

Notice that the independent variables (X and Z) are the same across age cohorts and gender, but the parameters and residuals are age- and cohort-specific (β , δ and ε). 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 plus imports as a proportion of GDP; and the unemployment rate. All these four variables were taken from the World Bank's World Development Indicators (WDI).¹⁹ In turn, Z is a vector including: urbanization rates (or the inverse of rurality), returns to schooling measured by wage premium for workers with different education levels (complete primary, complete secondary and complete university); average years of schooling among the population 15 years and older; and the 15- and 20-year lagged fertility rate. Urbanization rates were taken from the WDI; years of schooling are taken from Barro-Lee educational attainment dataset²⁰ and the lagged fertility rate comes from ECLAC's statistics.²¹ Finally, the estimations of the returns to schooling used as independent variables are taken from SEDLAC²² and complemented with similar parameters estimated by the authors using household survey data. In particular, SEDLAC (2010) estimates a Mincer equation where the logarithm of the hourly wage in the main occupation for adults aged 25 to 55 is explained by educational dummies, age, age squared, an urban dummy and regional dummies. The calculations provide the marginal returns to completing each educational level for individuals participating in the labor market.

¹⁹ 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 that allowed identifying the age group specific shifts that would be necessary for including in our estimations.

²⁰ Data available from <http://www.barrolee.com/>

²¹ See <http://www.eclac.org/estadisticas/>

²² The returns to schooling can be downloaded from SEDLAC's webpage <http://cedlas.econo.unlp.edu.ar/esp/index.php>

The final dataset is an unbalanced panel of 18 Latin American countries covering the period 1980–2010. Although 215 household surveys were processed, some observations are lost for lack of complete macro 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 age groups 15 to 18 and 19 to 24, and for men and women (F-tests reject the null hypothesis of equality of coefficients across age and gender groups), respectively. The observations are not weighted by population so each pair of country-year observation is treated equally. The results for men and women are presented in Tables 10 and 11.²³ Random and fixed effects models are estimated for both age groups and for men and women. The Hausman specification test indicates that in the case of men of both age groups and women between the ages of 15 and 18, random effects are preferred over the fixed effects model; for women between the ages of 19 and 24, 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 with the expected negative effect on the proportion of osow youth 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. Interestingly enough, economic growth does not seem to have a significant effect on the proportion 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.

An interesting result is related to the association of trade openness on the share of osow youth. The estimated coefficient 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 have established that productivity growth in Latin America is less associated with productivity growth within firms and more associated with reallocation of production from less toward more productive plants. Eslava et al. (2004) conduct decompositions of TFP for Colombia that separate the simple average of TFP and the covariance between the share of production and productivity, which captures the extent of reallocation. This decomposition shows that while within plant TFP in Colombia was low and sometimes negative, the increased share of production of more productive plants accounts for most of aggregate productivity in Colombia. Pavcnik (2002) also finds that reallocation accounts for high productivity in the 1980s in Chile. Similarly, Bergoing et al. (2010) find the same for the period 1980-2001, with within firm productivity being negative and entry and exit of firms accounting

²³ OLS regressions pooling together all observations were estimated, 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).

for productivity gains during this period. Using firm-level data for Mexico during the period 1993-2002, De Hoyos and Iacovone (2011) show that larger firms were able to benefit from NAFTA by displacing small exporting firms. So, it seems that reallocation has been the main driver of productivity growth in Latin America during the past decades.

What our results indicate is that productivity enhancing reallocation is not the only relevant element of trade openness. Here we emphasize the costs of churning for the youth which seem to be high. The working conjecture is that the destruction and creation of jobs seems to have affected the young more adversely relative to other groups. But a full assessment of this hypothesis is beyond the scope of this paper. There is, however, 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 casualty is a major concern here for the 19 to 24 age group as a higher proportion of osow youth results also in a higher unemployment rate (not necessarily for the 15 to 18 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 15-18 age group, but they are positive and significant for the 19-24 age range, indicating that higher proportions of urban concentration are associated with larger shares of osow. One interpretation is that in rural settings, participation in household agricultural or other similar activities that do not depend on formal labor market opportunities as in urban areas, are a common option for youth.

On the social variables, in the case of men and for all age groups the coefficient on years of schooling is not significant. However, among women there is evidence of a negative relationship between the proportion of osow youth and years of schooling. This result can be explained by lower primary school enrollment rates among girls than boys, a gap which only in recent years has seen a reduction. For boys close to universal primary enrollment has been the case for several years, however, among girls efforts are still to be made to reach this coverage. Also, more years of schooling reduce the probability of youth pregnancy, which then results in a lower proportion of women being out of school and out of work.²⁴

The 15-year lagged fertility rate shows the expected positive effect over the proportion of osow men ages 15 to 18. Countries with a larger adolescent population have greater difficulties in providing access to education. This effect is not present for osow youth ages 19 to 24 using the 20-year lagged fertility rate. In the case of women, lagged fertility rates show a strong and positive effect on the proportion of osow youth, both for 15 to 18 and 19 to 24 age groups. The positive and significant parameters on fertility rates confirm that some of the changes in the proportion of osow youth are explained by the demographic transition that most Latin American countries are experiencing.

²⁴ It should be noted that we use a measure of the stock of the years of education for the working age population over 18 years of age as 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 18).

Finally, returns to complete secondary education (relative to primary) would tend to create an incentive for adolescents to stay in school.²⁵ This is the case of men (with an 8 percent significance) but not for women. In principle, this can be explained by the fact that for the younger age bracket (15-18) becoming osow begins with the decision to drop out from school, which is influenced by variables pertaining educational quality and its economic returns. For the older age bracket (19-24) labor market conditions play a greater role in determining the osow youth status. If these osow youth do not have 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.²⁶

An additional element influencing this result, might be that, as shown by a series of studies, the returns to schooling in Latin America have declined during the 2000s decade as compared to the 1980s and 1990s. Manacorda, Sánchez Páramo and Schady (2010), Bassi, Busso and Nuñez (2013), Aedo and Walker (2012) and Gasparini, et.al. (2011) document these trends, and put forward explanations including the increase in the supply of workers with more years of schooling, the inclusion of lower ability workers with greater education in the labor force, as well as lower education quality. In particular, Gasparini, et.al. (2011) argue that the increased demand and prices for commodities in world markets, which are unskilled labor intensive, reduced the relative demand for higher skills in Latin America, with a consequent decline in their premium. 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.

4. Conclusions

There are nearly 10 million Latin Americans between the ages of 15 and 18 that 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 on Latin America's recent economic and social performance, it remains intriguing why these groups

²⁵ It is important to mention, that as discussed by Murane (2013), the value associated to schooling can change through various channels including higher productivity, exogenous economic factors, but also to shifts in the value of school credentials related to socioeconomic status, etc.

²⁶ As already 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 for 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 (i.e. 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. In order 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 by the corresponding relative wages, and our results are very similar –the coefficients are negative in all cases, and not statistically significant throughout.

of the population are still facing 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 following decades. Perhaps more worrisome, they will fail to generate adequate incomes to support the higher dependency rates which are expected to rise again in two decades.

To formulate adequate policy responses to this problem, it is essential to have a comprehensive understanding of its main causes. This is the main goal of this paper, where we explore a combination of microeconomic and macroeconomic determinants.

Not surprisingly, household per capita income 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 future earning capacity. With lower future incomes one can expect higher school dropout rates and higher osow youth prevalence in future generations. Combined with this factor, 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 proportion of osow young men but not of women, which seem to be impacted by a different set of variables. An interesting result is that trade openness, which can be considered a proxy for the importance of competitive markets, is positively associated with the proportion of the young men and women out of school and not working. Our interpretation –to be corroborated in future studies- is that this has a negative side-effect of an otherwise positive force that has led to higher productivity due to the faster destruction and creation of jobs. However, young individuals seem to have been adversely impacted by the greater reallocation of resources and the incidence of churning in the labor market. The new jobs created have required greater abilities than what the young can offer.

In the case of women, there is evidence of a negative association between the proportion of osow youth and years of schooling. This result suggests that fewer years of schooling are associated with greater fertility rates for this group. This, in turn, increases the probability of young women becoming osow youth. There is again a vicious circle because children of households with low income and education are themselves also likely to experience the problem being part of 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 per capita incomes, 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, as discussed by Barrera, et.al (2011) and Attanasio, et.al. (2011), offering each student 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.

References

- Aedo, Christian, and Ian Walker. *Skills for the 21st Century in Latin America and the Caribbean*. World Bank, Washington, DC, 2012.
- Alfonso, M., Bos, S., Duarte, J., and Rendón, C., “Panorama General de la Educación en Latinoamérica y el Caribe”, Inter American Development Bank, forthcoming.
- Almeida, R. and Y. Cho, “Employer-Provided Training in the Developing World; Patterns and Incentives for Building Skills for Higher Productivity”, The World Bank, Forthcoming, 2010.
- Attanasio, Orazio, Adriana Kugler, and Costas Meghir. 2011. "Subsidizing Vocational Training for Disadvantaged Youth in Colombia: Evidence from a Randomized Trial." *American Economic Journal: Applied Economics*, 3(3): 188–220.
- Azevedo, J. P., Favara, M., Haddock, S., López-Calva, L.F., Muller, M., Perova, E (2012) “Teenage Pregnancy and Opportunities in Latin America and the Caribbean. On Early Child Bearing, Poverty and Economic Achievement”, The World Bank, Washington, DC.
- Bagby, E., and W. Cunningham, “Early Identification of At-Risk Youth in Latin America: An Application of Cluster Analysis”, Policy Research Working Paper 4377, The World Bank, Washington DC., 2007.
- Bagby, E., and W. Cunningham, “Factors that Predispose Youth to Risk in Mexico and Chile”, Policy Research Working Paper 5333, The World Bank, Washington D.C., 2010.
- Barrera-Orsorio, Felipe, Marianne Bertrand, Leigh L. Linden, and Francisco Perez-Calle. 2011. "Improving the Design of Conditional Transfer Programs: Evidence from a Randomized Education Experiment in Colombia." *American Economic Journal: Applied Economics*, 3(2): 167–95.
- Bassi, M., M. Busso, Sergio Urzúa and J. S. Muñoz, “Is the Glass Half Empty of Half Full?: school enrollment, graduation and drop out rates in Latin America”, *IDB Working Paper Series No. IDB-WP-492*, Inter-American Development Bank, 2013.
- Behrman, J., S. Duryea and M. Székely “We Are All Getting Older: A World Perspective on Aging and Economics”, *East Asian Economic Perspectives*, No. 13, Vol. 2, pp.18-51, 2002.
- Banco Mundial, “Informe de Desarrollo Mundial 2007: Desarrollo y las Nuevas Generaciones”, Banco Mundial, Oxford University Press, 2006.
- Banco Mundial, “Brazil: Youth at Risk in Brazil”, Report No. 32310-BR, The World Bank, Washington DC, 2007.
- Banco Mundial, “Brazil: Youth at Risk in Brazil, Vol. II”, Report No. 32310-BR, The World Bank, Washington DC, 2007.
- Bergoeing, Raphael, Andres Hernando and Andrea Repetto. 2010. “Market Reforms and Efficiency Gains in Chile,” *Estudios de Economía*, 37(2), December.

- Case, A., and C. Paxon, “Stature and status: Height, ability, and labor market outcomes”, *Journal of Political Economy*. No. 116, Vol. 3, pp:499-532, 2008.
- CEPAL, “Programa Regional de Acciones para el Desarrollo de la Juventud en América Latina 1995-2000”, Santiago de Chile, División de Desarrollo Social, 2004a.
- CEPAL, “La Juventud en Iberoamérica: Tendencias y Urgencias” Santiago de Chile, División de Desarrollo Social, 2004b.
- Cunha, F. and J. Heckman, "The Technology of Skill Formation," *American Economic Review*, 97(2): 31-47, 2007.
- Cunha, F., Heckman, James J., Lochner, Lance J. and Masterov, Dimitriy V. "Interpreting the Evidence on Life Cycle Skill Formation," In *Handbook of the Economics of Education*, edited by E. Hanushek and F. Welch. Amsterdam: North Holland, Chapter 12, pp. 697-812, 2006.
- Cunningham, W., “Unpacking Youth Unemployment in Latin America”, Policy Research Working Paper 5022, The World Bank, Washington DC, 2009.
- Cunningham, W., and J. Bustos, “Youth Unemployment Transitions in Latin America”, Policy Research Working Paper 5521, The World Bank, Washington DC, 2011.
- Cunningham, W., and M Correia, “Caribbean Youth Development”, The World Bank, Washington DC, 2003.
- Cunningham, W., L. Cohan, S. Naudeau, and L. McGinnis, “Supporting Youth at Risk: A Policy Toolkit for Middle-Income Countries” The World Bank, Washington DC, 2008.
- Cunningham, W., L. McGinnis, R. García-Verdú, C. Tesliuc and D. Verner, “Youth at Risk in Latin America and the Caribbean” The World Bank, Washington DC, 2008.
- De Hoyos, Rafael E. and Iacovone, Leonardo, "Economic performance under NAFTA : a firm-level analysis of the trade-productivity linkages," *Policy Research Working Paper Series* 5661, The World Bank, May 2011
- Dell’Aglia, D., W. Cunningham, S. Koller, V. Cassepp, and J. Severo, “Youth well-being in Brazil; an Index for Cross-Regional Comparisons”, World Bank Policy Research Working Paper 4189, April 2007.
- Duarte, J. and S. Bos, “Retos Educativos en América Latina” Forthcoming, Inter American Development Bank, 2011.
- Duryea, S., A.C. Edwards,, and M. Ureta, eds, “Critical Decisions at a Critical Age: Adolescents and Young Adults in Latin America”, Inter American Development Bank, Washington DC, 2003.

- Eslava, Marcela, John Haltiwanger, Adriana Kugler and Maurice Kugler. 2004. "The Effects of Structural Reforms on Productivity and Profitability Enhancing Reallocation: Evidence from Colombia," *Journal of Development Economics*, 75, December.
- Friedman, J. and J. Levinsohn . "The Distributional Impacts of Indonesia's Financial Crisis on Household Welfare: A "Rapid Response" Methodology". The World Bank Economic Review, Volume 16, Number 3 December, pp. 397-423, 2002.
- Gasparini, L. et al. 2011. *Educational Upgrading and Returns to Skills in Latin America*. Policy Research Working Paper 5921. Washington, DC, United States: World Bank.
- Grantham-McGregor, S. Grantham-McGregor and A. Cornelius, "A Review of Studies on the Effect of Iron Deficiency on Cognitive Development in Children" *Journal of Nutrition*. 131, pg. 649S-668S, 2001.
- Hanushek, E., and L. Woessmann, "The Role of School Improvement in Economic Development", *CESifo Working Paper* No. 1911, February, 2007.
- Heckman, J. "Catch 'em Young: Investing in Disadvantaged Young Children is Both Fair and Efficient." *Wall Street Journal*, January 10, A14, 2006a.
- Heckman, J. "Investing in Disadvantaged Young Children is Both Fair and Efficient," Presented to the Committee for Economic Development, the Pew Charitable Trusts, PNC Financial Services Group, New York City, January, 2006b.
- Heckman, J. "Skill Formation and the Economics of Investing in Disadvantaged Children," *Science*, 312(5782): 1900-1902, 2006c.
- Heckman, J. "The Economics, Technology and Neuroscience of Human Capability Formation." *Proceedings of the National Academy of Sciences* 104(33):13250-13255, 2007.
- Heckman, J. "Schools, Skills and Synapses," *Economic Inquiry*, 46(3): 289-324, 2008a.
- Heckman, J. "The growing polarisation of American society and its implications for productivity: Schools, Skills and Synapses," CEPR Policy Research VOX Report. August 25, 2008b.
- Hopenhayn, M. "Juventud y Cohesión Social en Iberoamérica: un modelo para armar", Naciones Unidas, CEPAL, Santiago de Chile, 2008.
- Kane, June, "What the Economic Crisis Means for Child Labor" *Global Social Policy*, vol 9 (supp), pp 175-196.
- Kluve, J., F. Rother, and ML Sánchez,, "Training programs for the unemployed, low income and low skilled workers", The World Bank, Forthcoming, 2010.
- Kundsen, E., "Sensitive Periods in the Development of the Brain and Behavior", *Journal of Cognitive Neuroscience*, 16:8 pp. 1412-1425, 2006.

- Manacorda, Marco, Sánchez-Páramo, Carolina, & Schady, Norbert. 2010. Changes in returns to education in Latin America: The role of demand and supply of skills. *Industrial and Labor Relations Review*: 307-326.
- Mehrotra, Santosh, “The Impact of the Economic Crisis on the Informal Sector and Poverty in East Asia” *Global Social Policy*, vol. 9 (supp), pp 101/118
- Mendoza, Ronald, “Aggregate Shocks, Poor Households and Children: Transmission Channels and Policy Responses” *Global Social Policy*, vol. 9 (supp), pp 55-78.
- Murnane, R.J. 2013. “U.S. High School Graduation Rates: Patterns and Explanations.” *Journal of Economic Literature* 51(2): 370-422.
- OECD, “*The High Cost of Low Education Performance*”, Organization for Economic Co-Operation and Development, Paris, 2010.
- OECD, “Latin American Economic Outlook 2011. How middle-class is Latin America?”, Organization for Economic Co-Operation and Development, Paris, 2011.
- Patel, Mahesh, “Economic Crisis and Children: An Overview for East Asia and the Pacific”, *Global Social Policy*, vol. 9 (supp), pp 33-54.
- Pavcnik, Nina. 2002. “Trade Liberalization, Exit, and Productivity Improvements: Evidence from Chilean Plants,” *Review of Economic Studies*, 69.
- Paxon, C. and N. Schady, “Cognitive development among young children in Ecuador : the roles of wealth, health and parenting”, *Journal of Human Resources*, vol. 42(1), 2007.
- Perrenoud, P. *Diez nuevas competencias para enseñar. Invitación al viaje*. Barcelona, Graó (Biblioteca de Aula, 196), 2004.
- Ramesh, M., “Economic Crisis and its Social Impacts: Lessons from the 1997 Asian Economic Crisis”, *Global Social Policy*, vol. 9 (supp), pp 79-99.
- Rao Singh, Anapama, Petel, M., Heyzer, N, Miyegombo, E., Kohler, G., Toole, D., Chhibber, A., and Patel, M. “Global Social Policy Forum: Children and the Economic Crisis” *Global Social Policy*, vol. 9 (supp), pp 5-31.
- Rodríguez, E., “Políticas Públicas de Juventud en América Latina: Avances concretados y desafíos a encarar en el marco del año internacional de la Juventud”, Serie de Debates SHS No. 1, Mayo, ISSN: 2177-7071, UNESCO, 2010.
- Shang, Xiaoyuan, and Wu, X. “Protecting Children under Financial Constraints: ‘Foster Mother Villages’ in Datong. *Journal of Social Policy*, Volume 32, Number 4 (October 2003), pp. 549-570.
- Spinks, S., “Adolescent Brains are Work in Progress”, PBS Frontline, 2003.
- Schwartzmann, S., and C. Cox, eds, “Políticas Educativas y Cohesión Social en América Latina”, Colección CIEPLAN, Uqbar Editores, Santiago de Chile, 2009.

Székely, M., “Hacia la Institucionalización de la Política Social en México”, Capítulo 5 en “*Transición y Nueva Institucionalidad en México*”, E. Torres and J de D Pineda, eds, Lat-Net, IAPEM, New Mexico, 2008.

Székely, M., “Jóvenes que no estudian ni trabajan: un riesgo para la cohesión social en América Latina”, CIEPLAN, Santiago de Chile, 2011.

UNESCO, “*Education in and for the Information Society*”, United Nations Educational, Scientific and Cultural Organization, Paris, 2003.

Table 1**Disaggregation of the osov population by 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: Author's calculations from household survey data.

Table 2**OSOW Youth in Latin America 1989-2009
15-18 age group**

Country	% in 15-18 Age group					Change 1989-2009	Absolute number (thousand)		Change 1989-2009
	1989	1995	2000	2005	2009		1989	2009	
Argentina	16.7	17.3	15.6	16.5	15.8	-0.9	457	566	109
Bolivia	10.2	11.5	12.7	8.1	7.0	-3.2	72	74	2
Brasil	19.0	15.3	12.5	12.3	11.7	-7.3	2,805	1,958	-847
Chile	18.6	14.8	15.6	13.7	20.5	1.9	230	304	74
Colombia	15.8	17.4	23.1	20.0	20.0	4.2	546	865	319
Costa Rica	25.9	23.2	23.8	19.8	18.1	-7.9	74	79	4
Ecuador	23.4	23.4	18.8	18.9	17.3	-6.1	255	231	-24
El Salvador	17.4	24.4	23.4	21.0	20.4	3.0	100	140	39
Guatemala	24.4	24.4	35.0	28.5	25.3	0.9	230	392	162
Honduras	33.3	35.6	37.4	39.1	28.0	-5.3	172	237	65
México	23.2	23.0	18.6	18.5	22.0	-1.2	2,267	2,100	-167
Nicaragua	32.7	32.2	28.4	25.7	24.4	-8.3	146	160	14
Panama	25.2	22.6	21.6	18.5	20.7	-4.6	66	63	-2
Paraguay	22.6	44.8	19.0	16.1	11.9	-10.7	94	79	-15
Perú	30.8	26.8	21.3	31.8	26.2	-4.6	709	754	45
Dominican R	18.8	18.8	18.2	18.5	13.0	-5.8	145	126	-19
Uruguay	27.2	32.8	28.1	23.4	18.0	-9.2	69	48	-22
Venezuela	51.4	24.6	24.9	19.7	16.4	-35.1	1,004	446	-558
LA Region	24.3	24.1	22.1	20.7	18.5	-5.7	10,308	9,427	-881

Author's calculations using micro data from 214 household surveys. See data appendix for details.

Table 3

Distribution of youth studying or working in Latin America in the early 1990s and circa 2010 (mutually exclusive categories)

Country	Early 1990s			Circa 2010		
	% in school	% working	% working & in school	% in school	% working	% working & 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: Author's calculations from household survey data.

Table 4**Distribution of Osow Youth by Income Quintile**

Country	Quintile 1 (%) of total	Quintile 2 (%) of total	Quintile 3 (%) of total	Quintile 4 (%) of total	Quintile 5 (%) of total
Argentina (2006)	38.7%	24.2%	17.7%	12.9%	6.5%
Bolivia (2007)	18.8%	28.1%	25.0%	15.6%	12.5%
Brasil (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%
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%
México (2006)	31.8%	23.9%	20.5%	13.6%	10.2%
Nicaragua (2005)	25.0%	26.0%	19.2%	18.3%	11.5%
Panamá (2007)	36.7%	25.0%	20.0%	11.7%	6.7%
Paraguay (2007)	25.0%	29.4%	19.1%	17.6%	8.8%
Perú (2008)	13.7%	21.6%	20.6%	20.6%	23.5%
República Dominicana (2007)	23.1%	23.1%	18.5%	21.5%	13.8%
Uruguay (2007)	41.6%	26.0%	19.5%	9.1%	3.9%
Average 18 Countries	29%	25%	21%	15%	10%

Table 5

**Micro factors associated with the probability of being osow at age 15-18
(marginal effects from Probit estimation including all variables)**

Country	Household Income			Education of HH Head			Age of HH Head			Household Head Employed			Female Head of Household			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
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
Dominican Republic		-0.044	-0.033		-0.009	-0.006		-0.003	-0.004		-0.010	-0.024		0.031	-0.017		-0.005	-0.004
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
LAC 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

Author's calculations using micro data from 214 household surveys. See data appendix for details.

Table 6**Micro factors associated with the probability of being osov at age 19-24
(marginal effects from Probit estimation including all variables)**

Country	Household Income			Education of HH Head			Age of HH Head			Household Head Employed			Female Head of Household			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
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
Dominican Republic		-0.161	-0.177		0.004	0.007		-0.003	-0.001		0.001	0.000		-0.031	-0.041		-0.021	-0.002
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
LAC 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

Author's calculations using micro data from 214 household surveys. See data appendix for details.

Table 7**Correlation coefficient between shares of osov at 15-18 and 19-24 years of age
and shares out of school and working in the same cohort observed in earlier surveys**

Sample	Variable	Correlation coefficients with respect to same cohort observed at ages			
		6 to 9	9 to 12	12 to 14	15 to 18
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: Author's calculations from household survey data.

Table 8

Number of observations per country used in 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
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
Dominican Republic	8	4.32
Uruguay	10	5.41
Venezuela	21	11.35
Total	185	100

Table 9
Descriptive statistics of macro variables used in the model

Variable	mean	sd	min	max	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*	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**	2.15	1.22	-7.64	10.48	1.78	1.99	2.33
Returns to university**	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

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

Table 10

Independent variables	Associations of the % of osow youth, men			
	% of Osow Youth, 15 – 18		% of Osow Youth, 19 - 24	
	Random Effects	Fixed Effects	Random Effects	Fixed Effects
Per capita GDP (Y_{pc})	0.27 (0.24)	0.39 (0.30)	-0.18 (0.19)	0.09 (0.25)
Y_{pc} , growth	-0.13 (0.06)	-0.13 (0.06)	-0.10 (0.05)	-0.10 (0.05)
Trade (X+M)/GDP	0.04 (0.02)	0.03 (0.02)	0.04 (0.01)	0.03 (0.02)
Unemployment rate	0.08 (0.09)	0.07 (0.09)	0.30 (0.06)	0.32 (0.07)
Urbanization rate	0.07 (0.07)	-0.11 (0.15)	0.14 (0.06)	0.23 (0.12)
Returns to secondary	-0.34 (0.20)	-0.41 (0.20)		
Returns to university			-0.60 (0.48)	-0.83 (0.52)
Years of schooling	-0.62 (0.43)	-0.65 (0.67)	0.00 (0.32)	-0.58 (0.53)
Lagged fertility rate	1.13 (0.56)	0.40 (0.71)	0.73 (0.43)	0.89 (0.57)
Year controls	NO	NO	NO	NO
Constant	-1.13 (7.38)	15.29 (11.95)	-6.62 (5.75)	-11.17 (9.66)
R^2	0.13	0.02	0.38	0.19
N	185	185	185	185

Notes: (1) standard errors in parenthesis; (2) parameters in bold significant at the 95% confidence level; (3) GDP per capita is measured in thousands of US dollars, PPP; (4) years of schooling correspond to the population 15 years and older; (5) highlighted column corresponds to the preferred model according to the LM and Hausman tests; (6) The R^2 reported is the within plus between variation explained by the models. .

Table 11

		Associations of the % of osow youth, women			
		% of Osow Youth, 15 - 18		% of Osow Youth, 19 - 24	
Independent variables		Random Effects	Fixed Effects	Random Effects	Fixed Effects
Macro variables	Per capita GDP (Y_{pc})	0.36 (0.22)	0.05 (0.26)	-0.23 (0.20)	-0.71 (0.23)
	Y_{pc} , growth	-0.05 (0.05)	-0.05 (0.05)	-0.03 (0.04)	-0.03 (0.04)
	Trade (X+M)/GDP	0.03 (0.01)	0.02 (0.02)	0.01 (0.01)	0.00 (0.01)
	Unemployment rate	-0.06 (0.08)	-0.10 (0.08)	0.17 (0.06)	0.11 (0.06)
	Urbanization rate	-0.06 (0.07)	-0.36 (0.13)	0.01 (0.06)	0.02 (0.11)
Community-Social	Returns to secondary	-0.22 (0.18)	-0.25 (0.17)		
	Returns to university			-0.22 (0.46)	0.15 (0.46)
	Years of schooling	-0.81 (0.40)	0.76 (0.59)	-0.78 (0.35)	-0.10 (0.47)
	Lagged fertility rate	2.06 (0.51)	1.70 (0.63)	1.89 (0.43)	2.19 (0.50)
	Year controls	NO	NO	NO	NO
	Constant	12.03 (6.78)	26.62 (10.51)	19.16 (6.10)	16.62 (8.58)
	R ²	0.47	0.18	0.40	0.23
	N	185	185	185	185

Notes: (1) standard errors in parenthesis; (2) parameters in bold significant at the 95% confidence level; (3) GDP per capita is measured in thousands of US dollars, PPP; (4) years of schooling correspond to the population 15 years and older; (5) highlighted column corresponds to the preferred model according to the LM and Hausman tests; (6) The R² reported is the within plus between variation explained by the models.

Figure 1

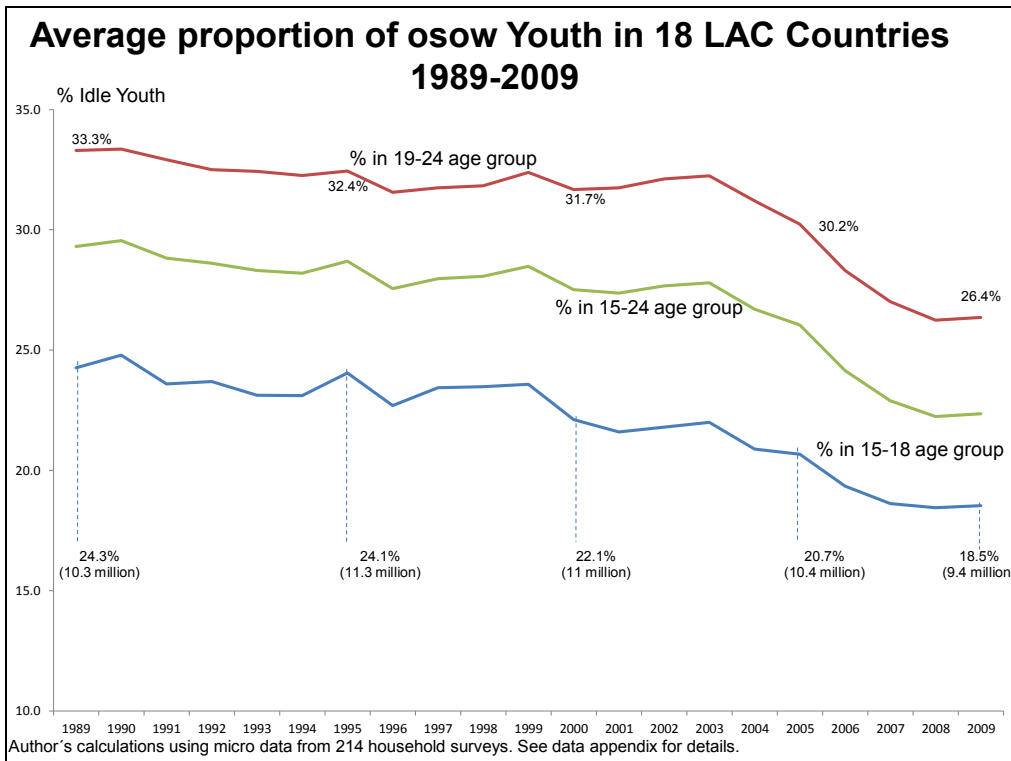


Figure 2

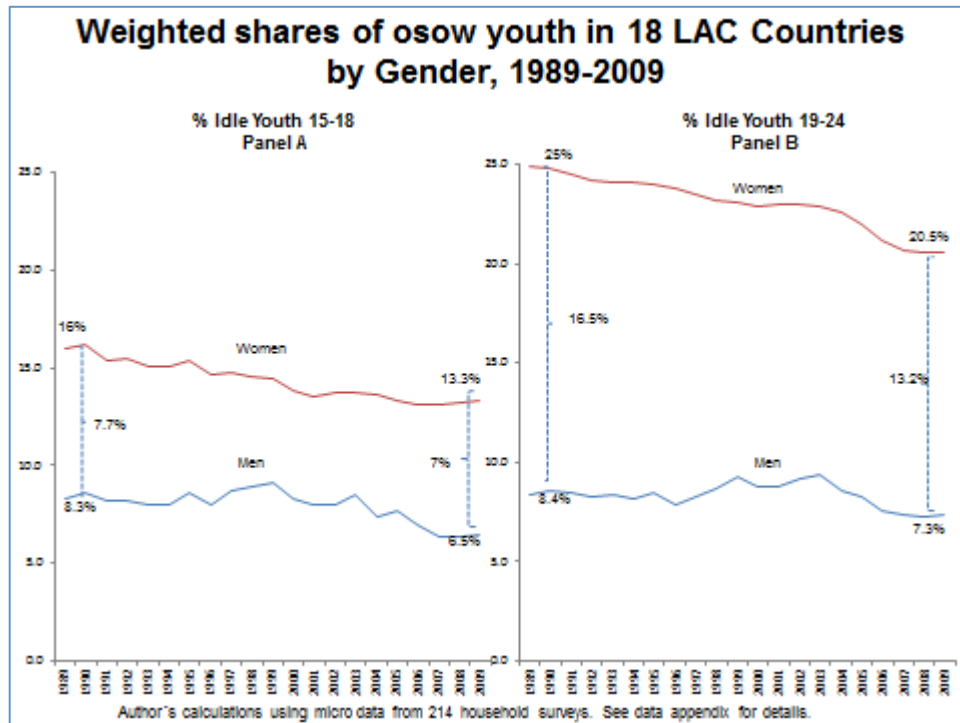


Figure 3

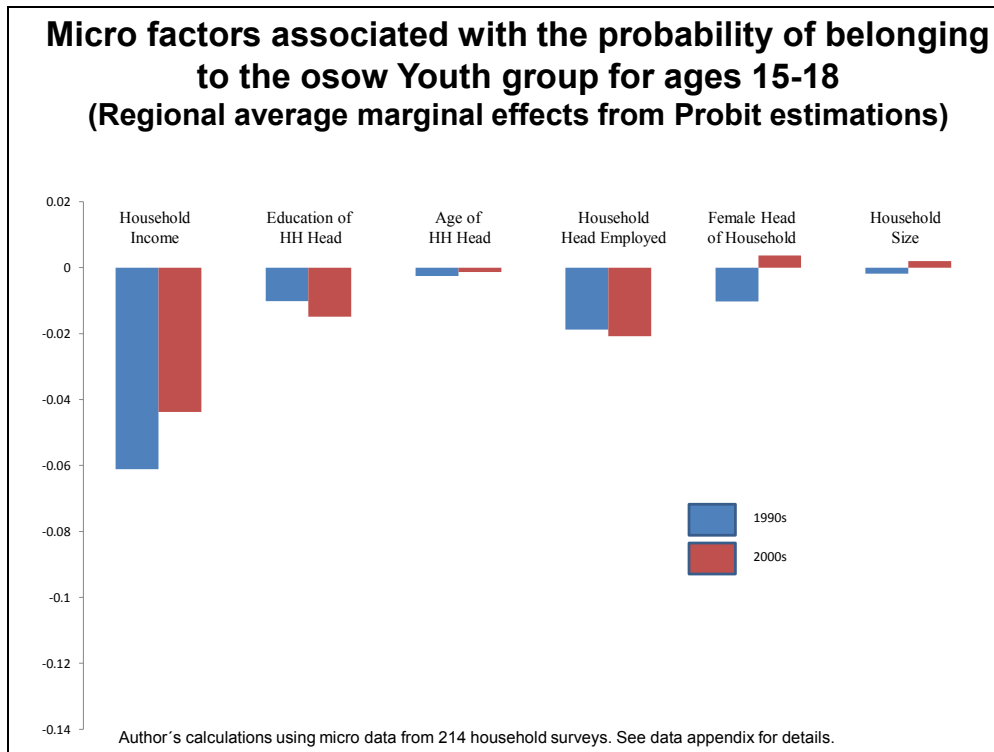
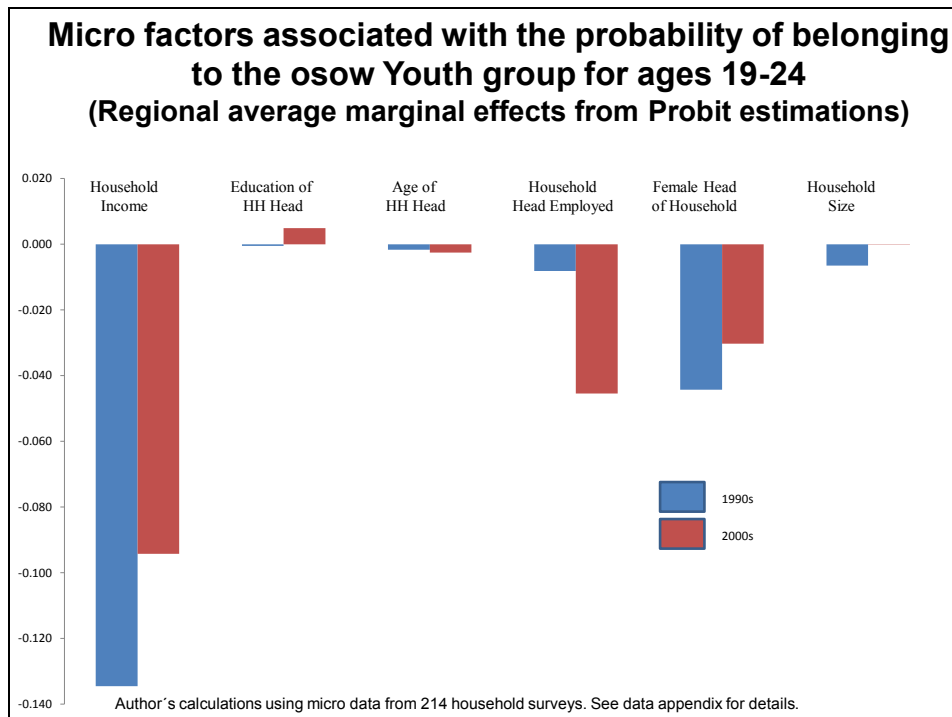


Figure 4



Appendix

Table A1

Household Survey Data Base

Country	# Surveys	Years	Survey
Argentina	12	1980, 1986, 1998, 2000, 2001, 2003, 2004, 2005 2006, 2007, 2008, 2009, 2010	Encuesta Permanente de Hogares
Bolivia	7	1986, 1995 1996, 1997 1999 2001, 2002, 2007	Encuesta Integrada de Hogares Encuesta Nacional de Empleo Encuesta Continua de Hogares (condiciones de vida) Encuesta de Hogares
Brazil	15	1981, 1983, 1986, 1988, 1992, 1993, 1995 1996, 1997, 1998, 1999, 2001, 2002, 2003, 2004, 2007	Pesquisa Nacional por Amostra de Domicilios
Chile	9	1990, 1992, 1994, 1996, 1998 2000, 2003, 2006, 2009	Encuesta de Caracterización Socioeconómica Nacional
Colombia	10	1980, 1986, 1989, 1992, 1996, 1997, 1998, 1999 2000 2003, 2005	Encuesta Nacional de Hogares - Fuerza de Trabajo Encuesta Continua de Hogares Encuesta de Calidad de Vida
Costa Rica	15	1983, 1985 1987, 1989, 1991, 1993, 1995, 1997, 1998 2000, 2001, 2002, 2003, 2004, 2009	Encuesta Nacional de Hogares - Empleo y Desempleo Encuesta de Hogares de Propósitos Múltiples Encuesta de Hogares de Propósitos Múltiples
Dominicana	8	1995, 1996, 1997, 2000 2001, 2002, 2003, 2004, 2007	Encuesta Nacional de Fuerza de Trabajo Encuesta Nacional de Fuerza de Trabajo
Ecuador	7	1995, 1998 2000, 2001, 2003, 2004, 2008	Encuesta de Condiciones de Vida 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	11	1989, 1992, 1996, 1997, 1998, 1999, 2001, 2002, 2003 2004 2005, 2007	Encuestas Permanente de Hogares de Propósitos Múltiples Encuesta de Condiciones de Vida Encuestas Permanente de Hogares de Propósitos Múltiples
Mexico	12	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 d Vida
Panama	11	1991 1995, 1996, 1997, 1998, 1999 2001, 2002, 2003, 2004, 2006	Encuesta de Hogares - Mano de Obra Encuesta de Hogares Encuesta de Hogares
Paraguay	20	1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996 1997 1999 2000 2002, 2003, 2004, 2007	Encuesta de Hogares - Mano de Obra Encuesta de Hogares - Mano de Obra Encuesta Integrada de Hogares Encuesta Permanente de Hogares Encuesta Integrada de Hogares Encuesta Permanente de Hogares
Peru	16	1991, 1994 1996, 1997, 1999, 2000, 2001, 2002, 2003 2004, 2005, 2006, 2007, 2008, 2009, 2010	Encuesta Nacional de Hogares sobre Medición de Niveles d Vida Encuesta Nacional de Hogares sobre Condiciones de Vida y Pobreza Encuesta Nacional de Hogares sobre Condiciones de Vida y Pobreza
Uruguay	9	1992, 1995, 1997, 1998 2001, 2002, 2003, 2004, 2005, 2008	Encuesta Continua de Hogares
Venezuela	20	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

Table A2

**Osw Youth in Latin America 1989-2009
19-24 age group**

Country	% in 19-24 Age group					Change in % 1989-2009
	1989	1995	2000	2005	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
Brasil	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
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
México	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
Perú	48.2	39.1	29.1	32.5	27.9	-20.2
Dominican R	35.1	35.1	32.6	32.4	25.0	-10.1
Uruguay	26.9	28.3	31.7	28.9	0.0	-26.9
Venezuela	43.1	33.9	37.8	30.5	26.4	-16.7
LA Region	33.3	32.4	31.7	30.2	26.4	-6.9

Author's calculations using micro data from 214 household surveys. See data appendix for details.

Table A3

**Osw Youth in Latin America 1989-2009
15-24 age group**

Country	% 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
Brasil	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
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
México	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
Perú	40.5	33.7	25.6	32.2	27.1	-13.4
Dominican R	27.8	27.8	26.2	26.3	20.0	-7.8
Uruguay	27.0	30.3	30.2	26.5	0.0	-27.0
Venezuela	46.9	29.8	32.3	25.9	22.2	-24.7
LA Region	29.3	28.7	27.5	26.0	22.4	-7.0

Author's calculations using micro data from 214 household surveys. See data appendix for details.