Educational Inequalities among Latin American Adolescents: Continuities and Changes over the 1980s, 1990s and 2000s

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Abstract

The goal of this paper is to examine recent trends in educational stratification for Latin American adolescents growing up in three distinct periods: the 1980s, during severe recession; the 1990s, a period of structural adjustments imposed by international organizations; and the late 2000s, when most countries in the region experienced positive and stable growth. In addition to school enrollment and educational transitions, we examine the quality of education through enrollment in private schools, an important aspect of inequality in education that most studies have neglected. We use nationally representative household survey data for the 1980s, 1990s and 2000s in Brazil, Chile, Mexico and Uruguay. Our overall findings confirm the importance of macroeconomic conditions for inequalities in educational opportunity, suggesting important benefits brought up by the favorable conditions of the 2000s. However, our findings also call attention to increasing disadvantages associated with the quality of the education adolescents receive, suggesting the significance of the EMI framework and highlighting the value of examining the quality in addition to the quantity of education in order to fully understand educational stratification in the Latin American context.

1. Introduction

Recent research has shown that the trends in inequalities in educational opportunity in Latin America sharply depart from those reported for the industrialized world (Torche, 2010). Latin American countries exhibit an unprecedented strengthening of the association between parental resources and educational attainment among cohorts growing up in the 1980s; this has been attributed to the economic crisis that overwhelmed the region during the "lost decade"[1] (Torche, 2010). The 1980s were a peculiar time in Latin America because of severe debt crisis and structural adjustments (Carrasco, 1999; Thorp, 1998). During this period, the region experienced a sharp slowdown in schooling progress (Behrman, Duryea, & Szekely, 1999), and both short- and long-term inequalities in educational opportunity widened. Parents reacted to high unemployment by taking children out of school and often sending them to work (Duryea, Lam, & Levison, 2007), which led to a widening of the long-term inequality in educational opportunity, particularly for low-income children (Torche, 2010). Another consequence of the overall reforms of the 1980s and 1990s was a widening of earnings differentials, with increasing wage inequality across schooling levels, which reinforced disparities in rates of return to education (Behrman et al., 1999). The consequences of the economic downturn were so staggering that Berhman and colleagues claimed that "unless there is a substantial surge in schooling accumulation after ages 15 and 18, which is unlikely, the slowdown in schooling accumulation would continue and was likely to intensify" (1999: 10).

After a decade of slow social and economic growth, several Latin American countries have shown significant economic stability and steep growth in the 2000s. Although inequality still remains high, particularly relative to other countries with the same per capita gross domestic product (GDP), several countries in the region have shown signs of declining inequality, as measured by the Gini coefficient (Lopez-Calva & Lustig, 2010). At the same time, throughout the 1990s and 2000s, the region experienced an unprecedented expansion of educational systems, with most countries—most notably Brazil and Mexico—achieving universal enrollment in primary education and consistently high enrollment levels in secondary education (Veloso 2009). Chile and Uruguay had already reached universal levels of primary schooling in the 1960s, and recent decades witnessed a steady expansion of secondary school enrollment.

[1] The 1980s are often referred to as the "lost decade" for Latin America because per capita income levels at the end of the decade were generally below those at the start.

Because macroeconomic conditions are critical determinants of changes in social, economic, and educational contexts, the favorable conditions of the 2000s have likely led to lower levels of inequalities in educational opportunity, particularly when compared to the adverse conditions of the 1980s. With a few exceptions, Uruguay being the most notable, those growing up in the 2000s have seen decreasing levels of unequal educational opportunity.

The goal of this paper is to examine changes in inequalities in educational opportunity for recent cohorts of adolescents in four Latin American countries: Brazil, Chile, Mexico, and Uruguay. Together, these four countries have more than half of Latin America's population. Comparing inequalities of educational opportunities in these countries is also interesting because Brazil and Mexico have traditionally had lower levels of education, while Chile and Uruguay have presented the region's higher levels of schooling. We analyze recent trends in educational stratification for adolescents growing up in three distinct periods: the 1980s, during severe recession; the 1990s, a period of structural adjustments imposed by international organizations; and the late 2000s, when most Latin American countries experienced positive and stable growth. We examine school enrollment and educational transitions. We also examine differences in the quality of education through enrollment in private schools, an important aspect of inequality in education that most studies have neglected.

2. Recent Social, Economic and Educational Trends in Latin America

Table 1 shows social, economic and educational indicators for each country for 1985–2005. The 1980s low levels of GDP per capita in all four countries illustrate the unfavorable economic conditions of the "lost decade." With the exception of the 1995 crisis in Mexico and Chile's response to the Asian Tiger crisis, all countries experienced significant economic growth throughout the 1990s, as measured by GDP per capita. Uruguay's significantly lower GDP in 2005 than in 1995 reflects an early 2000s economic crisis. Because of such unfavorable economic conditions, reflected by a decline in GDP per capita, Uruguay is the exception among the countries we examine.

Table 1 also shows that the economic growth of the 2000s is not associated with decreases in economic inequality as measured by the Gini coefficient. Latin American countries have persistently ranked among the most unequal in the world. The Gini coefficient increased from 1985 to 1995 in Brazil and Chile but decreased slightly by the mid-2000s (Lopez-Calva & Lustig,

2010). This decline suggests that we may -see improvements in educational opportunity by the late 2000s. The Gini coefficient increased consistently in Mexico and Uruguay throughout the period, revealing the same persistent and pervasive accumulation of resources in fewer hands that has plagued most of Latin America for decades.

Table 1 shows significant differences in educational expenditures in the four countries. Mexico is the only one of the four that significantly increased public spending on education, from 3.6% to 4.9% of the country's GDP. In 1992, Mexico introduced major educational reforms[2], including decentralizing and introducing a new financing plan. There was also a push toward evaluation and extending the number of school days (Zorrilla, 2002). The two most important reforms were to make secondary education compulsory in 1993 and a change in curriculum in 2006, creating the National Baccalaureate System and the Sub-Secretary of Upper Secondary Education. This educational expansion led to a steady increase in government educational expenditures. Another strategy to increase attendance and completion rates was conditional cash transfer programs targeting children and adolescents such as Progresa/Oportunidades. The impact of Progresa/Oportunidades on school enrollment has been significant, particularly in secondary education and among girls (Parker, 2003, 2005; Schultz, 2000).

Brazil, in contrast, considerably reduced its spending on education during the 1990s (Table 1). The Brazilian educational system has traditionally been problematic, with low educational coverage, high grade repetition, low attainment, and problems with school access (Birdsall & Sabot, 1996; Gomes-Neto & Hanushek, 1994). The low levels of educational attainment have been associated with high fertility levels, economic problems, and lack of access to schools (Barros & Lam, 1996; Birdsall & Sabot, 1996). Smaller cohorts of school-age children (Lam & Marteleto, 2008) and new educational policies since the mid-1990s have contributed to recent improvements (Veloso, 2009). Yet a large proportion of Brazilian adolescents still end their educational careers at the secondary level (Néri, 2009). For example, three in ten of Brazilian 17–18-year-olds were not enrolled in school in 2007. Although the Brazilian schooling distribution has clearly expanded over the last 15 years, important inequalities persist.

Since 1998, FUNDEF (Fundo de Desenvolvimento do Ensino Fundamental e Valorização do Magistério) has redistributed federal funding for primary education. All states contribute equally with 15% of their tax revenues, and funding allocation to municipalities depends on the

[2] National Agreement for the Modernization of Basic Education.

number of students enrolled in school. A second important policy, implemented in 2001, is Bolsa Escola/Família,[3] a conditional cash-transfer program similar to Progresa/Oportunidades in Mexico, with a focus on improving school enrollment and attendance and reducing child labor. Although primary education in Brazil is now universal, enrollment in secondary schooling remains limited, and Brazilian public schools are of lower quality than other countries in the region (Carnoy, Gove, & Marshall, 2007).

Like Brazil, Uruguay showed slight spending declines between 1985 and 2005. Since 1986, Uruguay's educational policies have focused on infrastructure, curricular changes, and improving teachers' qualifications (Aristimuño, 2009; Cardozo, 2008). Educational policies have focused particularly on secondary schooling in an effort to improve enrollment and quality in a context where primary school enrollment has been universal for several decades. Although the latest reform in 2009 made secondary education mandatory, only one-third of Uruguayan adolescents complete this cycle. Recent policies in Uruguay have targeted early dropout and school delay, focusing on the most vulnerable population and attempting to reincorporate dropouts into the system (Aristimuño, 2009; Mancebo & Monteiro, 2009).

Although enrollment in middle and high school has increased throughout the period we examine (Administración Nacional de Educación Pública, 2005), in 2004, enrollment rates declined. This change cannot be explained by adolescents' entry into the labor market, as two out of three dropouts do not work, study, or seek employment (Cardozo 2008). Another important issue in Uruguay's educational system has been grade retention, as almost all students were delayed in 2006. This is particularly alarming considering that delayed students have lower chances of enrolling the following year.

Finally, in Chile, public spending on education declined considerably during the military dictatorship and recovered throughout the 1990s (Cox, 2005). Chile ranks highest among the countries we examine in share of the youth population enrolled. In 2009, 91% of children between 14 and 18 were attending high school. Chile's primary school enrollment was universal by the end of the 1960s, so its policies throughout the study period focused mainly on secondary education. It is worth mentioning, however, that the mechanisms to achieve universal rates of primary schooling in Chile included increases in school supply, teacher training, meal programs in schools, double

[3] Bolsa Família provides cash for families on the basis of their income level and number and age of children, with a limit of three children per family. The transfer is made directly to the mother or other female tutor, conditional on children attending at least 85% of classes.

shifts in large urban schools, and scholarships for the poor (Núñez, 1982). Another unique feature of the Chilean system is the introduction in the 1960s of a general track focused on college and a vocational track oriented to prepare students for work. The Chilean system underwent an important administrative reform in 1981, with decentralization and partial privatization. Three types of schools were established: (1) municipal schools free of charge and funded by vouchers provided by the Ministry of Education; (2) semiprivate schools funded by the Ministry of Education's vouchers but with extra fees since 1994; and (3) private schools administered by private parties with no vouchers (MINEDUC, n.d.). Analysis of the Chilean voucher system suggests increases in the advantages associated with private-voucher schools after the reform, in addition to the benefits of attending private schools (Torche, 2005).

With compulsory secondary schooling in 2003, the government implemented two programs to increase the attendance rates of children of low socioeconomic status (SES) and rural children. *Prorretención* provides subsidies to schools for every child enrolled in grades 7–12, provided they attended school during the previous year (MINEDUC, n.d.), and *Piso Rural* provides funds to small rural schools (MINEDUC, n.d.).

Overall in these countries, educational attainment, as measured by completed years of schooling, has increased. By the mid-2000s, Latin American adolescents reached secondary school at ever-higher rates, although levels of completion are still low. Table 1 confirms that enrollment in primary school was universal by the mid-2000s in all four countries, whereas enrollment in secondary school is still a challenge. School dropout rates are high among those ages 14 and older (see last columns of Table 1). In all other countries, between 27% and 30% of adolescents do not attend school, though attendance is steadily increasing in all countries.

Although there are similarities in the process of educational expansion over the last 35 years in Latin America, there are also important differences. With the exception of Mexico, the gradual increase in educational attainment has more heavily skewed the distribution of education. Although all countries experienced unprecedented educational expansion during the period we examine, skill upgrading was much more egalitarian in other parts of the world, such as in East Asia. Mean educational attainment rose, but the dispersion of educational attainment also spread, which could lead to higher inequality at subsequent levels of education. In the next section, we describe the theoretical frameworks for examining the determinants of educational opportunity.

3. Determinants of educational opportunity

Educational outcomes are influenced by macro-structural forces, as well as school and family factors (Buchman and Hannum 2001). Among the first, the state and macro-economic conditions play central roles. While the state shapes the provision and quality of schools and promotes the demand for education, in Latin America, the state has traditionally offered limited resources and is highly dependent on international conditions. Macro-economic conditions are important determinants of education because they can affect both the supply and demand for education (Hannum and Buchman 2005). With an economic crisis and consequent structural adjustments, governments have less to spend in education, with harmful consequences in the provision of quality education. Macro-economic conditions have played an important role in Latin America due to the volatile conditions the region has experienced. This is particularly true of the economic crisis of the 1980s "lost decade" that affected the region as a whole, and Uruguay's crisis in the early 2000s.

The effect of macro-economic conditions on families investing in education is not as clear-cut, and can result in less or more investments in children's education. According to the income effect idea, families take children out of school to cope with poor conditions and macroeconomic crises, suggesting that families cannot afford to wait for long-term returns to education if that enrollment reduces family income in the short run. This is particularly relevant in Latin America, where adolescents' work in informal markets is a survival strategy for many families (Orazem, Sedlacek, & Tzannatos, 2009). The economic crisis of the 1980s was associated with increased labor force participation and poorer school outcomes for Brazilian youth (Duryea et al., 2007). On the other side of the spectrum, if families act according to the substitution effect, adolescents would be more likely to be enrolled and progress in school in difficult times because of high unemployment rates and diminishing opportunity costs of education. Families would be substituting the short-run wages of adolescent employment for the long-run return of education, which led to a strengthening of the long-term inequality in educational opportunity, particularly for low-income children (Torche, 2010). What is unclear is the extent to which inequalities in educational opportunity have changed as a result of the improved macroeconomic conditions of the 2000s.

Among the micro factors associated with education, family social origin, especially parental education, is the most important predictor of children's education in the Latin American

context (Barros & Lam, 1996; Costa-Ribeiro 2007 for Brazil; Contreras & Macías, 2002; Mizala & Romaguera, 2000; Torche, 2005 for Chile; Administración Nacional de Educación Pública, 2003, 2005; Kaztman & Filgueira, 2001; Kaztman & Rodríguez, 2007 for Uruguay; Binder, 1998; Binder & Woodruff, 2002; Giorguli-Saucedo, 2002 for Mexico). Less clear is the extent to which the disadvantages associated with social origin have changed for adolescents as a result of educational expansion and overall improved conditions of the late 1990s and 2000s.

In that regard, different theories have aimed to explain how educational expansion can influence the effect of social origin on educational attainment. Modernization theory assumes that with industrialization and the increasing requirement for skilled labor, educational expansion will invariably reduce the influence of social origin in educational attainment (Treiman, 1970). However, a large body of research has shown that educational expansion alone does not reduce the relative advantages associated with higher social origin (Shavit & Blossfeld, 1993; Torche, 2010). Social reproduction theory (Bourdieu & Passeron, 1977) posits that the educational system reproduces social stratification. Thus, students from disadvantaged backgrounds are also disadvantaged in the educational system, resulting in unequal educational opportunities. From this theoretical perspective, educational expansion would increase access for low-SES students in the initial grade levels, but inequality would remain in the upper levels.

Raftery and Hout (1993) argue that a process of "maximally maintained inequality" (MMI) explains such persistent inequality, in that inequality will decrease through educational expansion only when countries achieve universal enrollment rates at certain levels of education. MMI posits that disadvantaged students gradually attain higher levels of education but that expansion depends on the saturation of educational levels by advantaged classes. Once high school is universalized among high-SES students, for example, this level would open up for low-SES students, and their educational attainment chances would increase. This thesis would explain the bottlenecks that some countries' educational systems face in the last years of high school, for example.

Finally, the "efficiently maintained inequality" (EMI) framework assumes that even when educational expansion leads to higher levels of education, other dimensions within the social structure maintain inequality (Lucas, 2001). The EMI framework highlights the importance of examining measures of school quality such as tracking and school sector (private versus public), aspects that would function to set different chances of educational success and consequent labor opportunities. Examining whether varied educational quality plays a significant role in educational

stratification for adolescents in secondary schooling ages is particularly important in the Latin American context, where enrollment rates in secondary education have only recently reached record levels. On the basis of the above theoretical frameworks, we offer the following hypotheses:

1. School enrollment: The associations between social origin and adolescents' school enrollment were weaker in the 1980s than in the 1990s and late 2000s because families were not pulling adolescents out of school during economic crises, signaling a substitution effect. On the other hand, if we find that the associations between family social origin and adolescents' school enrollment were stronger in the 1980s than in the 1990s and late 2000s, we would find support for the notion that families acted on the basis of an income effect.
2. Educational transitions:
   i. *Primary schooling*: We hypothesize that the associations between social origin and adolescents' likelihood of finishing primary schooling have weakened throughout the period we examine. We expect the associations in the 1980s to be smaller in Chile and Uruguay, where primary school enrollment was already universal, than in Brazil and Mexico. We also expect that declines in the association were minimal in Chile and Uruguay, suggesting that universalization of primary education would have already lessened the disadvantages associated with social origin. For Brazil and Mexico, on the other hand, we expect steady declines in the association over the last three decades.
   ii. *Secondary schooling:* We hypothesize that the associations between social origin and adolescents' likelihood of transitioning into secondary schooling have weakened throughout the period we examine. In contrast to primary education, we expect that the magnitude of this temporal decline varies in all countries but that the magnitude differs according to the country's stage of educational expansion. We expect weaker associations in Chile and Uruguay and stronger associations in Brazil and Mexico, which would fit with the MMI framework.
3. Sector of enrollment: We hypothesize that the association between social origin and private school enrollment has gradually become stronger over the period we examine, suggesting a strengthening of added forms of differentiation. The quality divide between public and private schools in Latin America is particularly strong. We hypothesize that the EMI theory will be confirmed; as education expands and enrollment in secondary schooling grows, the resulting

stronger social structures will conserve the privileges of higher SES through inequality in the access to private schools.

4. Data and Methods

We use data from nationally representative household surveys for Brazil, Chile, Mexico, and Uruguay. These surveys are carried out by the census bureaus in each country and are highly comparable. For Brazil, we use data from the 1982, 1992, and 2007 PNAD (Pesquisa Nacional por Amostra de Domicílio), a nationally representative, probability-based, stratified, multistage household survey. The sampling design follows a three-step probabilistic procedure based first on counties, then census tracts within counties, and finally households within sectors. For Chile, we use nationally representative household data from 1987, 1992, and 2009 CASEN (Encuesta de Caracterización Socioeconómica Nacional). In 1987 and 1992, CASEN was a stratified, multistage cluster survey, whereas in 2009 it was geographically stratified, cluster, and two-staged. For Mexico, we use nationally representative household data from 1984, 1992, and 2008 ENIGH (Encuesta Nacional de Ingresos y Gastos de los Hogares). The ENIGH's sample is probabilistic within primary sampling units, stratified, multistage, and clustered, where the final selection unit is the house and the observation unit is the household. For Uruguay, we use data from 1986, 1991, and 2009 ECH (Encuesta Continua de Hogares), a representative survey of regions with 5,000 inhabitants or more (85% of the population) until 2006, and since then nationally representative, including rural areas. The sampling is probabilistic, stratified, and multistage.

We use an analytic sample of 15- to 18-year-olds to address the question of whether educational disadvantages associated with social origin narrowed or increased between the 1980s and the late 2000s, including a qualitative measure of educational opportunity. The choice of using 15- to 18-year-olds is both theoretical and practical. Theoretically, these adolescents are at an age when they should have completed primary schooling and transitioned into secondary education. In practical terms, because the data sets we use are household surveys, the data lack information on parents' education for adolescents who do not live with their parents.[4] Because parents' education is one of the most important determinants of children's schooling[5], and most 15- to 18-year-olds

[4] Exceptions are the 1982 and 1996 PNADs where a special module on social mobility was implemented.

[5] Despite its importance in studies of educational transitions, we do not include father's occupation in our models for four reasons. First, the codes for father's occupation in the 1980s data for Mexico, Chile and Uruguay do not provide sufficient detail for conversion into ISEI classifications. Second, there has been a great deal of change throughout the three decades we examine in how occupations are classified by the agencies that collect the datasets. Third, because we use household data, to include father's occupation in our models we would need to examine only adolescents who

live with at least one parent in Latin America,[6] using this adolescent sample permits analyses of educational attainment accounting for social origin. To accurately include mother's education in the models, we therefore restrict the analytical samples to children of the head of the household, whether female or male, with a mother present.[7] We tested for differences in the samples of children who do and who do not live with their mothers and found no significant differences between the two groups.

While with its own sets of limitations that we consider in the discussion section below, our analytical approach to study educational stratification using adolescents is a creative and much needed way to handle the inexistence of data spanning across a lengthy period with information on parents' background in the countries we study and in most developing countries. This approach has the significant strength of not depending on retrospective information for parents. For this reason, this paper's approach can easily be replicated to generate evidence on social stratification for countries with similar data limitations, but where household and census data are generally available. Replicating this paper's protocol could significantly broaden the scope of research on social stratification, with the potential to generate much needed comparative evidence for a wide array of countries.

We use mother's education as a measure of social origin for two main reasons. First, because women are the primary caregivers in most families, maternal education affects how children are reared beyond the benefits traditionally associated with economic and social capital. Educated mothers enhance children's social networks and cognitive skills because they have more knowledge about what is needed for their children to succeed and more opportunities for turning these assessments into reality (Augustine, Cavanagh and Crosnoe 2009). Second, as we discussed above, due to the nature of household data, we have information on parental background only of adolescents living with at least one parent. Because a higher proportion of adolescents live with

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live with their fathers, which would limit our analytical sample more than examining adolescents living with their mothers. Fourth, we examined father's occupation using the ISEI classification for the years the data is available. We found that results including and not including father's occupation do not vary much.

[6] In Brazil, 84.3% of 15- to 18-year-olds are children of the head of the household in 1982; 82.6%, in 1992 and 82.2% in 2007. In Chile, this proportion was 83.6% in 1987, 84.7% in 1992, and 77.7% in 2009. In Mexico, this proportion was 84.5% in 1984, 83.1% in 1992, and 83.8% in 2008. In Uruguay, this proportion was 84.7% in 1986, 87.4% in 1991, and 87.4% in 2009.

[7] Several researchers have used household data to examine a variety of outcomes of children and adolescents in Latin America, following a similar approach (see Barros and Lam 1996; Behrman et al. 2001; Filgueira, Filgueira, and Fuentes 2003; Marteleto *forthcoming*).

their mothers than with their fathers, by using mother's education we cover a larger proportion of adolescents in our analytical sample.

We start with modeling school enrollment using logistic regression models for the 1980s, 1990s, and late 2000s in each country. We next implement similar models predicting completion of primary schooling and transitioning into secondary school. These models are widely used to examine inequality in educational opportunity, offering a flexible and less parametric way to capture educational attainment. The equation representing these models is

$$\Pr(Y = 1|X) = \Phi(X'\beta),$$

where Pr denotes the probability of finishing primary or starting secondary schooling and X is a vector of covariates described below. In our third set of models, we examine private school enrollment, also using logistic regression. In all models, we control for adolescent's sex, age, mother's education, household headship, log of household income per capita and level of urbanization[8]. We also control for region of residence in Brazil and Mexico—Brazil's five main regions and Mexico's seven main regions. We do not include region in the models for Chile and Uruguay because regional differences disappear in those countries once urbanization level is considered.

It is important to note that the four countries organize their educational systems differently. In Brazil and Chile, primary education lasts eight years[9] whereas in Mexico and Uruguay it lasts six years. For comparability reasons, we examine the completion of primary education and the transition to high school conditional on having finished the earlier cycle. This means that in Brazil and Chile, we examine the transition to high school (Grade 9) conditional on the completion of primary education (Grade 8). In Mexico and Uruguay, instead of examining transitions between Grades 8 and 9, which are not meaningful in the educational systems of these countries, we also examine the transition to high school but conditional on having completed middle school (Grade 9), where dropouts are more likely to happen.

We report robust standard errors that correct for clustering of multiple adolescents in the same family. Because we expect that the inequalities in educational opportunity associated with adolescents' social origin have changed over time, we estimate the models separately by year. We

[8] Results from colinearity tests indicate that the models we estimated have no problem with multicolinearity. The variance inflation factors (VIF) statistics for all our models are close to 1, indicating that the models we estimated have no problem with multicolinearity.

[9] Starting in 2009, primary education in Brazil started to include 9 years of education.

first determine the educational disadvantages associated with social origin for each country in the 1980s, 1990s, and late 2000s and then test for whether the difference in coefficients is statistically significant in pooled models where we interact all variables with year.

Using household surveys to examine inequalities in educational opportunity enhances the comparability of results over time and across countries, but this approach has limitations. An important limitation of using information on changes in schooling attainment from cross-sectional data is right censoring. If a large proportion of adolescents continues to attend school after the survey, their schooling will tend to be underestimated. As with past research that used a similar approach (Behrman et al., 2000; Duryea et al., 2007; Marteleto, Forthcoming), we conclude that postsample schooling is unlikely to bias our comparisons on educational inequalities across countries and over time in a significant way. First, 15- to 18-year-olds should have finished primary schooling and transitioned into secondary schooling. Those who have not yet made the transitions we examine because of grade repetition or school dropout have little chance to proceed much further in their educational careers. Studies have shown that grade repetition has long-term consequences, as it is an important predictor of ultimate schooling attainment in Latin America (Gomes-Neto & Hanushek, 1994; PREAL, 2006). Second, although some adolescents will continue to accumulate schooling after the surveys, the inequalities in education found at adolescence will only increase with age. Research has shown that the increasing average schooling in Latin American countries is a result of those at the top of the educational distribution gaining more education and those at the bottom gaining less (Barros & Lam, 1996; Lam & Duryea, 1999). Indeed, to demonstrate this important point, in Table 2 we follow a nationally representative cohort of Brazilians at ages 10, 15, 20, 25, and 30.[10] The table shows that although the distribution of education as a cohort ages yields higher means of schooling, it also produces larger standard deviations. The variation associated with completed years of education is amplified with age rather than dissipated, suggesting that, if anything, our results would be conservative estimates of inequalities in education in adulthood.

5. Descriptive Results

[10] Because of the inexistence of panel data on education where we could follow the same sample as it ages, we follow a nationally representative cohort at ages 10, 15, 20, 25 and 30 using the PNAD data to examine the educational distribution of a cohort as it ages.

Table 3 shows sample means and proportions by year and country. More than 60% of the adolescents in all countries already lived in urban areas in the early 1980s. The proportion living in urban areas is very high in Brazil, Chile, and Uruguay. Only in Mexico did fewer than 80% of adolescents ages 15–18 live in urban areas in the late 2000s.

Mothers' educational level has increased substantially in all countries throughout the 35-year period. Chile and Uruguay had higher levels in the 1980s than Brazil and Mexico, and continued to show higher levels in the late 2000s. Despite these increases, the countries are still ranked in the same manner as in the early 1980s, with Brazil and Mexico showing similar and lower levels of mother's schooling than Chile and Uruguay.

Another relevant change, particularly between the 1990s and the late 2000s, is the increase in the proportion of adolescents living in female-headed households, a desirable control of educational outcomes that previous studies have not used because of data limitations. Although a relatively small proportion of adolescents lived in these households in the early 1980s (13.86% in Brazil, 17.30% in Chile, 11.41% in Mexico, 14.31% in Uruguay), by the late 2000s these proportions increased substantially (28.29% in Brazil, 28.80% in Chile, 20.99% in Mexico, 34.53% in Uruguay).

Table 4 shows the proportion of adolescents enrolled in school, completing primary schooling, transitioning into secondary schooling and enrolled in private school, by our covariates. In all countries, the proportion of adolescents completing primary schooling saw a slow but sustained improvement, especially between the 1980s and the 1990s. The improvement is most striking in Brazil and in Mexico. This large improvement accelerated in the 1990s and 2000s; in Brazil, for example, the proportion rose from 26.4% in 1992 to 63.0% in 2007. Although Chile and Uruguay show the highest levels of primary school completion in the late 2000s, Uruguay shows an unexpected reduction in the transition to high school, which we discuss in further detail below.

With the exception of Mexico, adolescent girls had an increasing advantage over adolescent boys in finishing primary schooling in all countries. Also at an advantage are adolescents in urban areas and in male-headed households. In all countries, adolescents with well-educated mothers have a large advantage over those whose mothers have low or no formal schooling. With a few exceptions, the overall patterns for transitioning into high school are similar to the ones we discussed above for completing primary education.

6. Multivariate Analysis

Figure 1 shows the coefficients of mother's education and the probability of school enrollment in the 1980s, 1990s, and 2000s by country. Table 1 in Appendix A shows the full set of coefficients for the regressions we used to construct Figure 1. The coefficients representing our control variables have the expected signs: older children and those in low-income households are less likely to be enrolled in school. With the exception of Chile, the coefficient of log of household income per capita has declined over the period we examine. An interesting finding is that girls have higher probabilities of school enrollment in all countries and years we examine, and, with the exception of Uruguay, the magnitude of the coefficient has increased over time, suggesting a growing gender gap in school enrollment in favor of girls in Latin America (0.208 in Brazil, 0.086 in Chile, 0.109 in Mexico and 0.367 in Uruguay). A gender gap in education in favor of girls has also been documented in other parts of the world (Grant and Behrman 2010).

Figure 1 shows slight increases in the school enrollment disadvantages associated with social origin between the 1980s and the 1990s in Chile, Mexico, and Uruguay. Brazil shows slight, but not statistically significant, declines in the association between the 1980s and the 1990s. These findings suggest that low-ses families in Chile, Mexico, and Uruguay pulled children out of school because of the 1980s economic crisis, suggesting that an income effect was taking place.

With the exception of Uruguay, the 2000s offer a different story. Figure 1 shows a significant decline in the effect of social origin on the probability of school enrollment in Brazil, Chile, and Mexico. The difference between the 1990s and 2000s coefficients is significant at the 0.01 level in Brazil and Mexico, and at the 0.05 level in Chile. To give a clear idea of what this represents, we calculated predicted probabilities of school enrollment holding all covariates at their means and varying mother's education. In Brazil, for example, adolescents with college-educated mothers were 59 percentage points more likely to be enrolled in school than their peers with mothers with no formal education in the 1980s. This gap declined to 29 percentage points in the 2000s. In Uruguay on the other hand, the enrollment disadvantages associated with social origin returned to their 1980s levels in the 2000s. Adolescents with college-educated mothers were 49 percentage points more likely to be enrolled in school than those with mothers with no formal schooling in the 1980s. Such gap in the probability of school enrollment slightly increased to 52 percentage points in the 2000s.

Figure 2 shows the associations between mother's education and the completion of primary school, and Table 2 in Appendix A reports the models we used to yield these associations. Panel A of Figure 2 shows completion of primary schooling unconditional on having started Grade 1, whereas Panel B of Figure 2 shows analogous results conditional on adolescents' enrollment in Grade 1. Although social origin has a positive and statistically significant association with completing primary schooling both conditional and unconditional on first-grade enrollment and in all years we examine, there are important changes in the magnitude of this association during the 35-year period and across the countries we examine.

The association between social origin and adolescents' probability of primary school completion weakened in all countries during the period we examine. It is not surprising that the trends for unconditional (Panel A) and conditional (Panel B) primary school completion are nearly identical, although the magnitude of the coefficients is larger for unconditional associations. While the associations remain nearly stable between the 1980s and the 1990s, they declined significantly between the 1980s and the late 2000s in all countries except Uruguay (differences in 1980s and 2000s coefficients significant at the 0.01 level). For example, holding the other variables at their mean, in the 1980s Mexican children of college-educated mothers were 30 percentage points more likely to complete primary education than their counterparts with mothers with no formal education. Such gap declined to 8 percentage points in the 2000s.

Although the magnitude of the coefficients declined over the entire 35-year period, the largest declines took place between the 1990s and 2000s, a period that witnessed economic growth and a plethora of policies targeted at including and keeping low-SES children in the educational system. On the other hand, the estimates for Uruguay suggest stability of the disadvantages associated with social origin, with the gap in the predicted probability of primary school completion between children of low- and high-educated mothers at 8 percentage points in the 1980s and in the 2000s. The estimates in Uruguay have remained stable over time, suggesting persistent disadvantages associated with social origin among those in the low-ses stratum.

Chile and Uruguay presented lower associations than Brazil and Mexico in the 1980s. Chile and Uruguay are also the countries that had achieved universal primary schooling by the 1980s, whereas Brazil and Mexico still had room for improvement, confirming the important role of educational expansion in reducing inequality in educational opportunity as suggested by MMI. It is noteworthy that although Uruguay presented the smallest coefficient of the four countries in

the 1980s, when the country had already presented universal levels of primary school enrollment, that changed in the 2000s.

Figure 3 shows the associations between social origin and adolescents' probability of transitioning into high school. Panel A shows the unconditional associations, and Panel B shows the associations conditional on completing the prior level. Panel A of Figure 3 indicates that the disadvantages in high school transition associated with social origin did not change significantly between the 1980s and 1990s except in Uruguay, where we see a slight increase in the magnitude of the association. Whereas the coefficients remained practically unchanged between the 1980s and 1990s, they declined significantly between the 1990s and the 2000s (difference in 1990s and 2000s coefficients is statistically significant at the 0.05 level).

Panel B of Figure 3 shows the coefficients between mother's education and the probability of high school transition conditional on completing the prior level. As expected, the magnitude of the associations is smaller for the conditional than for the unconditional transitions. Also expected, the magnitude of the associations is generally smaller for transitioning to secondary than for completing primary. The associations remained practically unchanged between the 1980s and 1990s. During the 2000s, though, Brazil and Chile show a weakening of the association, with statistically significant differences in the coefficients representing the 1990s and 2000s (at the 0.10 level in both countries).

When we consider the entire period, the association between social origin and transitioning into high school conditional on completing the prior level has weakened significantly only in Chile (difference in coefficients significant at the 0.05 level), but has strengthened in Mexico and Uruguay, partially confirming our hypothesis of varying magnitudes in the decline of the role of social origin in educational transitions—Mexico and Uruguay are failing in keeping adolescents in school. The association has declined slightly in Brazil.

The gap in the predicted probabilities of transitioning to high school conditional on completing the prior level between adolescents with primary- versus college-educated mothers has declined from 10 to 5 percentage points between the 1980s and the 2000s in Chile. Because in Chile the proportion of adolescents finishing primary education was already high in the 1980s, the country has focused on educational policies targeting secondary schooling for the last three decades. The creation of a widespread vocational track in secondary schooling has expanded the Chilean system in a singular way in Latin America.

Uruguay, on the other hand, presents a case where high school enrollment rates were also high in the 1980s, but where the associations between mother's education and conditionally transitioning to high school have slightly increased throughout the period we examine. For example, the gap in the predicted probabilities of transitioning to high school for children of primary- versus college-educated mothers was 10 percentage points in the 1980s and 12 percentage points in the 2000s. Because Uruguay achieved universal primary schooling more than three decades ago, we expected a significant weakening of the disadvantages in high school transitions associated with social origin. We attribute such stability in the disadvantages associated with social origin in Uruguay to the 2000s economic crisis. Despite programs focusing on incorporating dropouts into the educational system, the economic crisis of the 2000s has hindered the continuation of the progress made in earlier decades. Whereas all the other countries we examine have experienced favorable economic conditions during the 2000s, Uruguay is the exception, highlighting the importance of macroeconomic conditions for educational inequalities.

Figure 4 shows the results for the associations between social origin and private school enrollment, which in most Latin American countries is closely related to higher quality education. With the exception of Chile, the dependent variable for these models is attending private versus public school. To reflect Chile's triad system, in Figure 4 we present the coefficient for attending private versus public school coming from multinomial regression models with a dependent variable categorized as public, semiprivate, and private. Only Chile provides a complete series of data on private school enrollment in the 1980s, 1990s, and 2000s. Table 5 in Appendix A shows the full models that yield the coefficients presented in Figure 4.

Figure 4 shows that, with the exception of Mexico, the associations between social origin and adolescents' private school enrollment have increased over time. In Brazil we see a statistically significant increase in the association between the 1980s and 2000s. In Uruguay, the gap in the predicted probabilities of private school enrollment between adolescents with primary- versus college-educated mothers was 3 percentage points in the 1980s and 10 percentage points in the 1990s. Chile also shows significant increases in the association between social origin and private school enrollment during the period of time we examined. This finding is consistent with reports of increasing benefits associated with private school enrollment during and after the voucher reform (Torche, 2005), and it expands previous analyses by showing that inequality in the access to private education has persisted well into the late 2000s. Mexico is the only country with a

slight decline in the associations between disadvantages in private enrollment associated with social origin between the 1990s and the late 2000s, but these declines are not statistically significant.

7. Conclusions and Discussion

The goal of this paper was to identify changes in inequalities in educational opportunity (both quantity and quality) during the last three decades in Brazil, Chile, Mexico, and Uruguay. We examined the strength of the associations between social origin and adolescents' educational opportunities from the "lost decade" of the 1980s to the late 2000s, when most Latin American countries were experiencing positive and stable economic growth. This research helps to fill a gap in the literature on inequalities in educational opportunity by focusing on periods marked by different economic conditions while extending the analysis to recent cohorts. We also address an important aspect of inequality in education that most studies have neglected; that is, we examine trends in social origin disadvantages associated with the quality of the education received over an extended period.

Our findings confirm the importance of macroeconomic conditions for inequalities in educational opportunity. Although in general the impact of social origin on adolescent school enrollment did not change dramatically between the 1980s and 1990s, in the 2000s, there were significant and consistent declines in all countries we examined. This suggests that children are in school during times of economic prosperity. Noteworthy is also that the 1990s-2000s decline in the role of social origin on school enrollment was not accompanied by significant increases in the proportion of adolescents enrolled in the private school sector. This suggests that the reduction in school enrollment inequality comes from disadvantaged adolescents gaining access to public schools. Also interesting is that, in Brazil and Chile—countries with the largest declines in the association between social origin and school enrollment—we also see an increase in the magnitude of the association between social origin and enrollment in private school, suggesting a strengthening of the inequality of access into quality education, as we further discuss below.

A similar story of declining inequalities based on social origin in the 2000s emerged for primary school completion, but here the different magnitudes of the association in different countries have key implications. The differences in the magnitude of the associations between

social origin and primary school completion resemble countries' stages in primary school universalization over the period we examine, following an MMI framework.

Although the influence of social origin has generally weakened for school enrollment and primary school completion, our findings yield mixed results for high school transitions. We find overall stability in how social origin relates to adolescents' transitions to high school in Mexico and Uruguay, slight declines in Brazil, and significant declines in Chile. The favorable macroeconomic conditions of the 2000s, coupled with the important educational expansion of the last few decades, have created conditions for an ever-higher number of adolescents to transition into secondary schooling, resulting in a decrease in the effect of social origin on secondary school participation in Chile. However, Uruguay reminds us that if macroeconomic conditions are unfavorable, the progress toward democratizing access to education can slow down, particularly for adolescents.

During the last decades, the Latin American countries we examined implemented major reforms to improve school enrollment, particularly for adolescents (Progresa/Oportunidades in Mexico; Bolsa Família in Brazil; Plan de Emergencia/Plan de Equidad in Uruguay). These programs focus on keeping disadvantaged children and adolescents in the educational system through cash allowances. For the most part, these programs targeted access and years of education completed, but quality was omitted. The quality divide between public and private schools in most Latin American countries is a critical component sustaining inequalities in education in the region. The private school advantage in math test scores was 106.73 in Brazil and 79.97 in Uruguay, for example (OECD 2009). Research has, for the most part, failed to examine this significant dimension of educational inequality in the context of the educational expansion in Latin American countries in the last decades. The persistence of, and even increase in, the probability of attending private school by social origin suggests that, although differences in the quantity of the education received have generally declined by SES, the disadvantages associated with the quality of the education have not. Rather, these associations have significantly increased in Brazil and Chile, suggesting the significance of the EMI framework and highlighting the value of examining the quality and the quantity of education in order to fully understand educational stratification in the Latin American context.

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Tables and Figures

and Educational Indicators in Selected Latin American Countries: 1985–2005

	Gini index			Public expenditure in education as % of GDP			Years of schooling completed 15-24 years old			*Years of schooling completed 25-59 years old*			Net enrollment Primary			Net enrollment Secondary		
5	1985*	1995	2005	1985	1995	2005	1980*	1995*	2005*	1980	*1995*	2005	1985	1995	2005	1985	1995	2005
1	0.58	0.637	0.613	--	5.0	4.0	5.5	6.5	8.8	5.1	6.3	8.0	81.2	89.7	94.4	14.3	19.5	78.7
3	0.56	0.553	0.522	3.8	3.0	3.4	9.9	10.4	11.0	9.3	10.2	11.1	89.1	87.3	94.4	43.6	54.9	85.3
4	0.46	0.526	0.528	3.7	3.6	4.9	9.7	8.9	10.0	8.4	8.0	9.8	99.6	100.0	97.8	45.9	51.2	67.6
3	0.42	0.423	0.464	2.6	2.6	2.4	8.0	8.7	9.6	8.6	9.2	9.7	88.3	92.5	97.4	55.8	--	67.7

ndicators 2008, ECLAC (2008). Notes: * For Brazil, authors' calculations using 1981, 1995, and 2005 PNAD data.

npleted Years of Education of 1967 Cohort by Age: Brazil

Indicator	Age				
	10	15	20	25	30
f cohort with…					
ion	39.69	10.09	9.20	9.92	9.59
omplete lower primary	60.31	45.97	30.59	28.98	25.24
omplete upper primary	0.00	41.97	32.85	31.01	31.08
omplete secondary	0.00	1.48	22.05	21.84	23.28
omplete college	0.00	0.00	5.30	8.25	10.82
f education	1.20	4.04	6.04	6.45	6.94
Deviation)	(1.20)	(2.42)	(3.65)	(4.12)	(4.36)

1982, 1987, 1992, and 1997 PNAD data, IBGE (National Household Sample Survey).

Table 3. Sample Means and Proportions (15–18 Children of the Head of the Household): Brazil, Chile, Mexico, and Uruguay—1980s, 1990s, and 2000s

	BRAZIL			CHILE			MEXICO			URUGUAY		
	1982	**1992**	**2007**	**1987**	**1992**	**2009**	**1984**	**1992**	**2008**	**1986**	**1991**	**2009**
Female	46.14	45.67	45.75	49.39	48.61	48.93	46.49	48.85	47.02	49.15	47.77	47.91
Age	16.44	16.39	16.45	16.50	16.50	16.50	16.41	16.46	16.44	16.42	16.44	16.45
SD	(1.11)	(1.11)	(1.12)	(1.10)	(1.10)	(1.10)	(1.14)	(1.12)	(1.12)	(1.10)	(1.11)	(1.11)
Urban area*	69.47	75.96	81.01	79.59	81.08	86.01	62.66	74.63	74.85	38.73	48.35	44.33
Other urban areas**										61.27	51.65	55.67
Mother's educational level												
No formal education	37.39	28.77	6.70	1.81	0.00	0.00	24.44	21.98	10.23	2.45	1.20	0.54
Primary (some or complete)	57.44	59.65	58.73	60.28	51.03	0.78	66.87	60.14	43.09	61.51	50.65	31.51
Secondary (some or complete)	3.61	7.46	23.41	21.87	30.66	28.81	6.81	15.70	38.10	29.03	36.55	45.15
Some College or higher	1.56	4.12	11.16	16.04	18.31	70.42	1.88	2.18	8.58	7.01	11.60	22.81
Mothers' education (years)	2.64	3.75	7.02	6.30	8.40	14.80	3.80	4.39	7.06	6.84	7.78	9.74
SD	(3.04)	(3.83)	(4.32)	(3.80)	(4.00)	(2.50)	(3.11)	(3.67)	(4.42)	(3.61)	(3.81)	(4.12)
Female-Headed Household	13.86	17.03	28.29	17.30	14.80	28.80	11.41	10.67	20.99	14.31	14.02	34.53
Log of household income per capita	9.14	12.65	5.54	9.10	10.40	11.60	10.05	13.72	8.62	9.06	5.35	8.77
SD	(0.98)	(1.06)	(0.99)	(1.00)	(1.00)	(0.90)	(0.83)	(0.86)	(0.82)	(0.79)	(0.76)	(0.77)
[N]	37,894	21,116	23,186	6,879	9,031	15,050	1,926	4,088	8,547	4,010	3,783	6,029

Source: PNAD 1982, 1992, and 2007; CASEN 1987, 1992, and 2009; ENIGH 1984, 1992, and 2008; ECH 1986, 1991, and 2009.

* For Uruguay, urban area refers to Montevideo.

**For Uruguay, other urban areas refer to urban areas with more than 5000 inhabitants, except Montevideo.

Table 4. Educational Transitions of 15-18 Year-olds (Children of the head of the household)

	BRAZIL											CHILE											
	School Enrollment			Completed Primary			Transitioned to HS			Private School Enrollment		School Enrollment			Completed Primary			Transitioned to HS			Private School Enrollment		
	1982	**1992**	**2007**	**1982**	**1992**	**2007**	**1982**	**1992**	**2007**	**1982**	**2007**	**1987**	**1992**	**2009**	**1987**	**1992**	**2009**	**1987**	**1992**	**2009**	**1982**	**1992**	**2007**
National mean	50.42	60.51	78.89	20.52	26.43	63.04	10.91	14.41	41.21	11.32	11.49	73.79	75.32	84.98	71.84	80.32	91.48	56.04	60.44	73.82	10.72	13.77	4.66
Gender																							
Female	54.43	67.88	82.29	23.88	31.75	70.78	13.22	17.98	48.48	12.80	13.19	74.91	76.36	84.21	74.66	82.99	93.63	58.85	64.16	77.32	10.96	14.36	4.41
Male	46.98	54.32	76.03	17.63	21.96	56.50	8.94	11.42	35.08	10.05	10.05	72.71	74.33	85.78	69.09	77.79	89.41	53.30	56.91	70.47	10.48	13.18	4.92
Household Head																							
Female	45.65	57.08	76.39	17.25	23.18	61.22	8.67	12.65	39.13	8.75	10.53	70.45	71.50	81.41	69.14	82.13	89.31	51.98	63.54	71.20	8.19	6.41	3.21
Male	51.19	61.22	79.88	21.04	27.10	63.75	11.28	14.78	42.03	11.73	11.86	74.49	75.98	86.42	72.41	80.01	92.35	56.92	60.00	74.89	11.22	14.97	5.22
Urbanicity																							
Rural	28.82	40.01	75.29	5.60	8.86	42.51	2.32	4.08	24.41	3.58	1.96	44.02	49.85	81.61	38.35	61.06	87.70	26.19	36.13	69.69	1.58	2.53	0.78
Urban *	59.91	67.00	79.74	27.07	31.99	67.85	14.69	17.69	45.15	14.74	13.72	81.43	81.25	85.52	80.43	84.82	92.09	63.72	66.22	74.50	12.01	15.38	5.27
Mother's education																							
No formal education	33.30	41.44	71.48	5.71	7.94	36.55	2.18	3.08	18.92	3.52	1.03	60.15	+	+	54.83	+	+	37.62	+	+	3.24	+	+
Primary	58.22	64.23	77.66	25.80	27.89	58.55	13.23	14.34	36.12	12.84	3.75	71.73	67.45	82.81	68.17	74.82	74.18	51.27	53.26	57.05	4.34	3.30	0.00
Secondary	91.16	89.29	84.08	68.02	60.39	79.58	45.77	38.36	56.54	50.68	19.49	89.17	88.56	80.90	92.96	90.54	89.82	77.43	71.78	70.90	19.62	15.21	0.36
Tertiary	94.99	95.61	88.41	83.15	78.59	90.65	60.34	54.78	67.04	59.71	49.89	62.16	74.99	86.67	58.76	78.55	92.35	46.86	61.46	75.21	21.63	36.81	6.35
N	38,276	21,508	23,784	38,276	21,508	23,784	38,276	21,508	23,784	37,298	23,158	6,884	9,052	15,059	6,884	9,052	15,059	6,884	9,052	15,059	4,798	6,227	12,507

	MEXICO											URUGUAY										
	School Enrollment			Completed Primary			Transitioned to HS			Private School Enrollment		School Enrollment			Completed Primary			Transitioned to HS			Private School Enrollment	
	1984	**1992**	**2008**	**1984**	**1992**	**2008**	**1984**	**1992**	**2008**	**1992**	**2008**	**1986**	**1991**	**2009**	**1986**	**1991**	**2009**	**1986**	**1991**	**2009**	**1986**	**1991**
National mean	52.07	49.71	62.30	79.50	87.36	95.67	16.99	21.42	37.97	12.32	9.30	64.79	68.28	76.82	94.11	95.11	97.21	31.72	27.36	36.46	9.58	14.17
Gender																						
Female	53.59	51.92	64.17	79.16	88.46	96.22	15.55	24.89	42.15	15.14	9.48	71.13	75.04	81.65	95.18	97.23	98.16	38.00	32.04	41.72	10.27	14.38
Male	50.75	47.60	61.64	79.81	86.31	95.19	18.23	18.11	34.25	9.64	9.14	58.66	62.10	72.38	93.08	93.17	96.33	25.65	23.08	31.62	8.78	13.94
Household Head																						
Female	43.63	48.23	61.26	81.86	89.10	94.85	13.50	28.00	36.24	12.79	10.00	56.10	65.53	72.96	89.72	94.32	96.21	29.62	27.84	30.58	7.14	11.85
Male	53.16	49.89	62.58	79.20	87.15	95.89	17.44	20.64	38.46	12.26	9.12	66.24	68.71	78.86	94.85	95.24	97.73	32.07	27.22	39.56	9.93	14.43
Urbanicity																						
Rural	36.68	26.41	48.20	63.24	71.07	91.11	7.36	6.48	26.66	3.19	2.14	--	--	--	--	--	--	--	--	--	--	--
Urban *	61.24	57.64	67.04	89.20	92.90	97.21	22.72	26.50	41.77	15.44	11.71	71.47	73.48	79.32	94.66	96.01	96.92	35.67	25.26	37.47	17.66	20.83
Other urban areas**												60.56	63.41	74.84	93.77	94.27	97.43	29.22	29.32	35.65	3.56	6.94
Mother's education																						
No formal education	39.36	25.99	37.11	60.49	69.92	84.58	4.60	8.65	17.86	3.42	2.93	46.32	34.09	62.73	82.11	90.91	86.78	13.68	9.09	27.29	4.55	6.67
Primary	52.47	48.13	51.61	84.64	90.67	94.74	16.03	17.04	30.97	9.32	4.22	54.57	56.88	61.74	92.67	92.31	94.74	23.68	20.05	18.90	4.45	5.58
Secondary	90.36	84.47	74.83	98.79	98.14	99.03	57.93	50.96	46.59	30.79	11.62	82.33	78.99	80.03	97.96	98.06	98.31	46.36	31.97	38.14	14.02	18.87
Tertiary	100.00	96.54	91.96	100.00	100.00	98.90	74.81	70.54	62.28	53.77	32.71	94.49	94.84	93.91	98.90	99.06	99.19	54.78	49.77	58.94	20.62	25.25
N	1,926	4,088	8,547	1,926	4,088	8,547	1,926	4,088	8,547	4,076	8,525	4,010	3,783	6,029	3,774	3,598	5,861	1,272	1,035	2,190	2,598	2,583

Source: PNAD 1982, 1992, and 2007; CASEN 1987, 1992, and 2009; ENIGH 1984, 1992, and 2008; ECH 1986, 1991, and 2009.

* For Uruguay, refers to Montevideo. ** For Uruguay, refers to urban areas with more than 5000 inhabitants, except Montevideo. + Indicates that there are no cases of children whose mothers have no formal education.

Figure 1. Association between Social Origin and Adolescents' School Enrollment in the 1980s, 1990s and 2000s: Brazil, Chile, Mexico and Uruguay

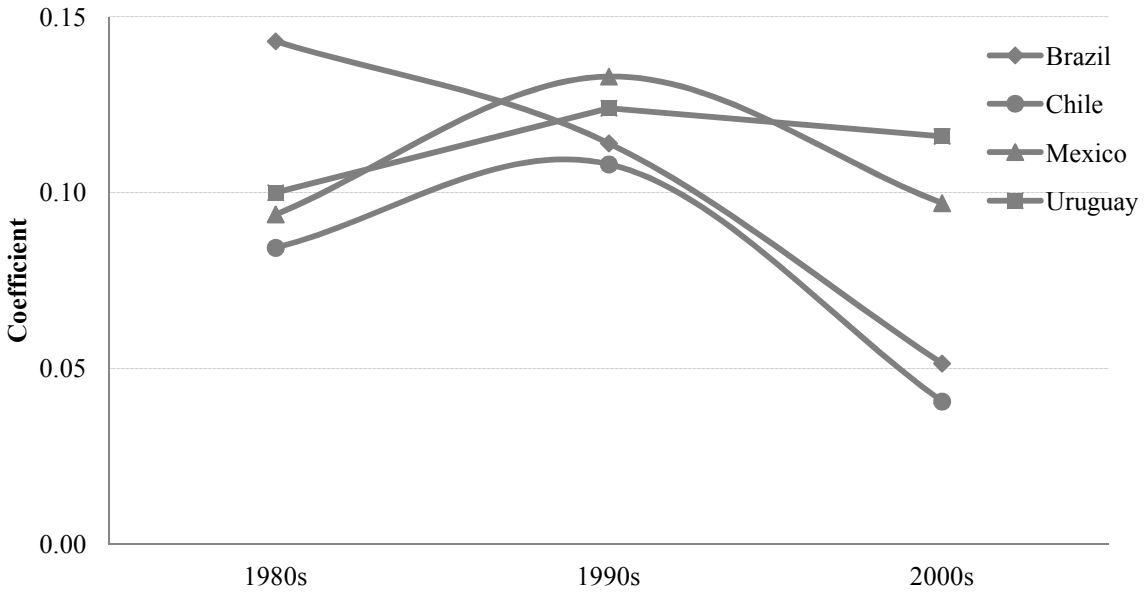
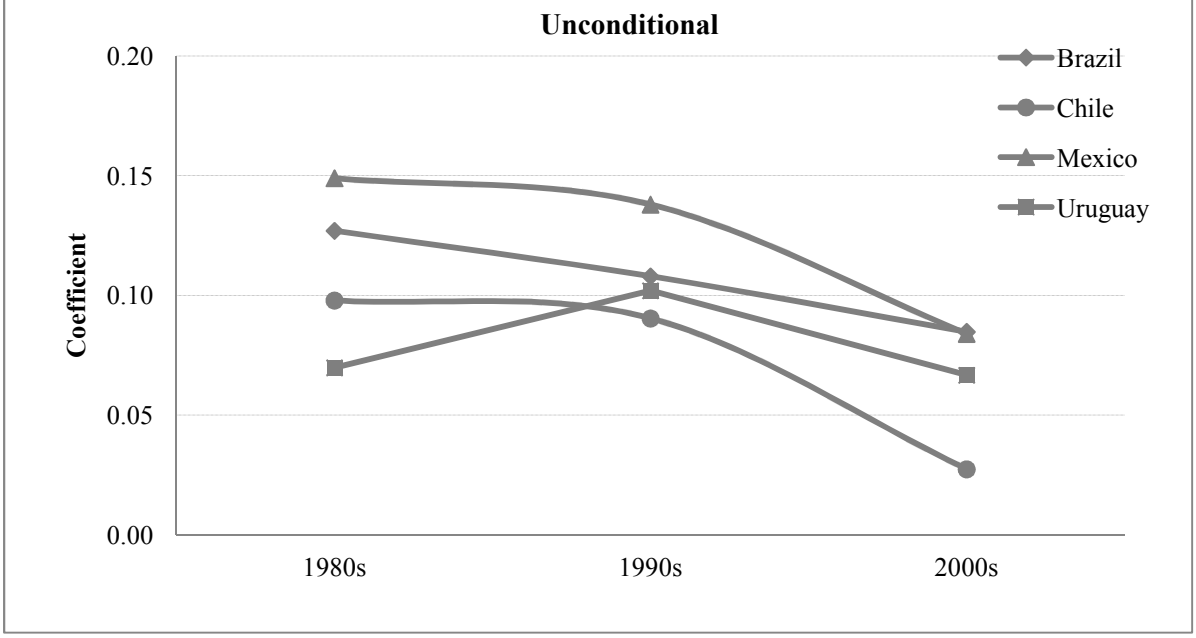


Figure 2. Association between Social Origin and Adolescents' Completion of Primary Education in the 1980s, 1990s and 2000s Brazil, Chile, Mexico and Uruguay



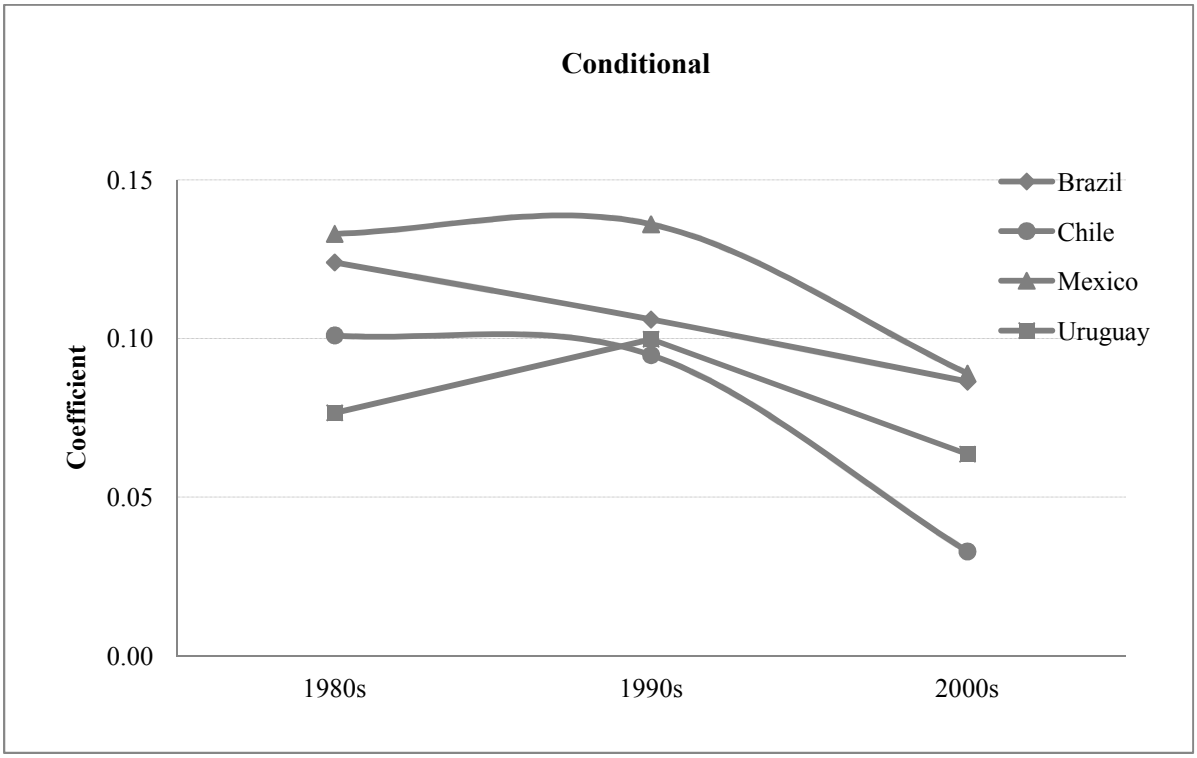
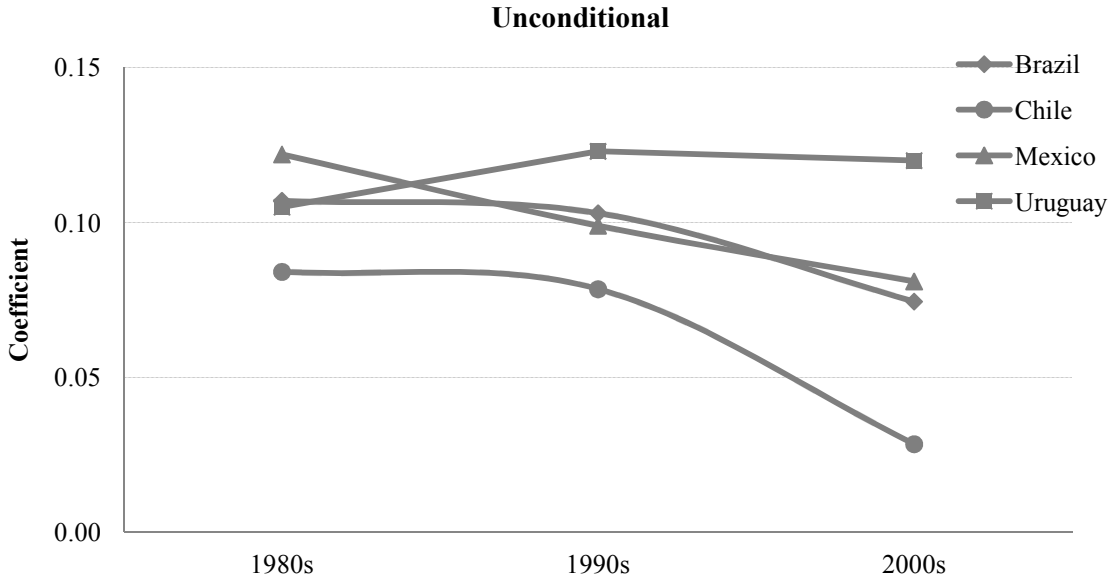


Figure 3. Association between Social Origin and Adolescents' Transition to Secondary Education in the 1980s, 1990s and 2000s Brazil, Chile, Mexico and Uruguay



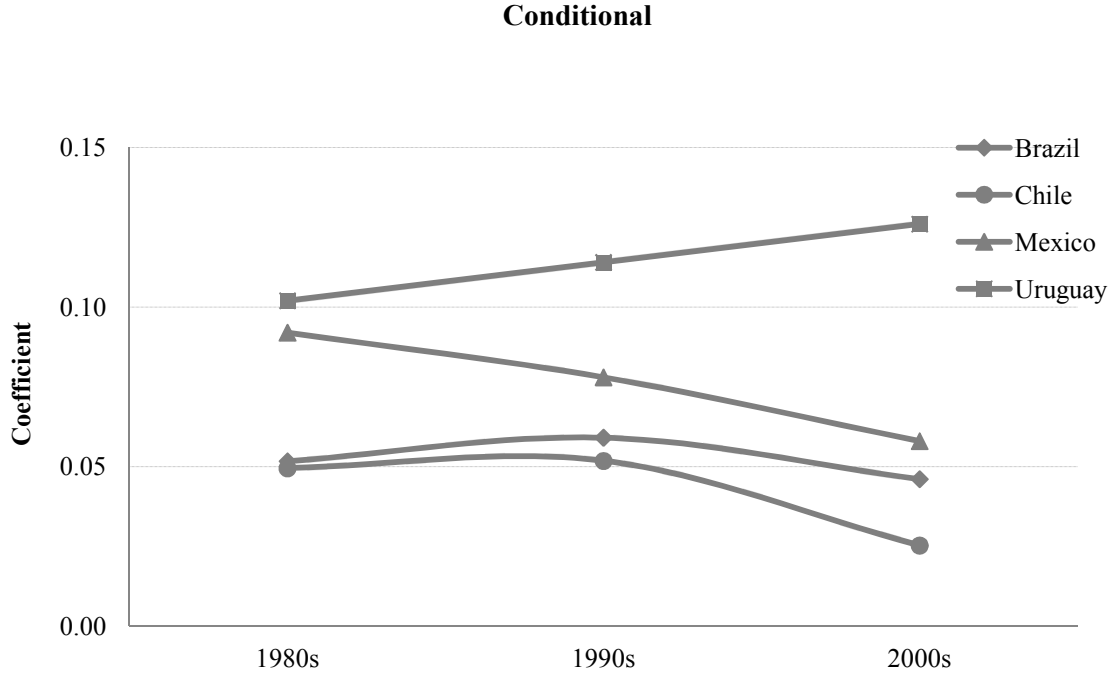
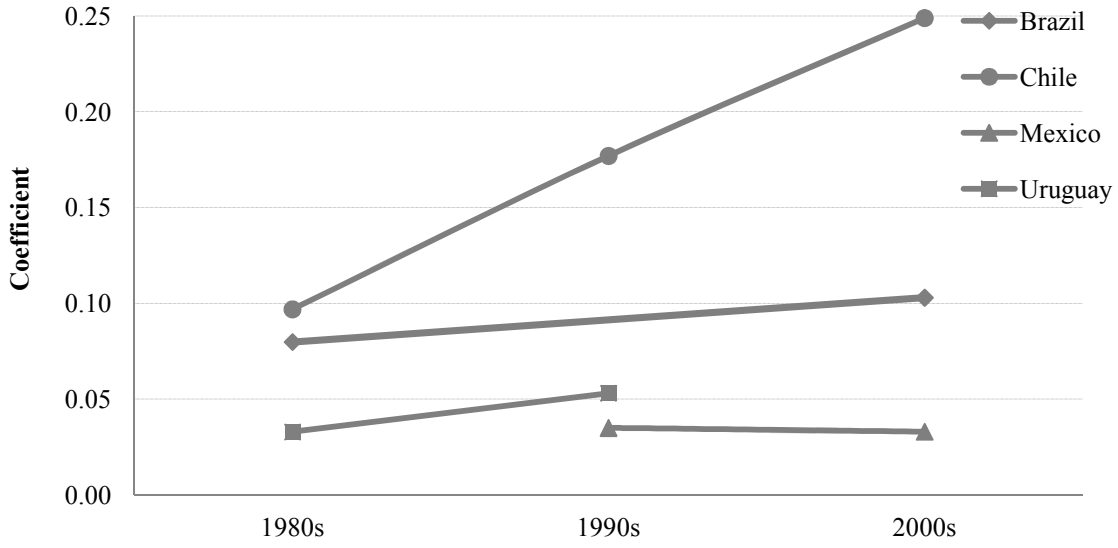


Figure 4. Association between Social Origin and Adolescents' Enrollment in Private School in the 1980s, 1990s and 2000s Brazil, Chile, Mexico and Uruguay



Appendix A

Table A.1. School Enrollment by Country and Year (15–18 Children of the Head of the Household): Brazil, Chile, Mexico and Uruguay (Robust Standard Errors in Parentheses)

	BRAZIL			CHILE			MEXICO			URUGUAY		
	1982	1992	2007	1987	1992	2009	1984	1992	2008	1986	1991	2009
Age	-0.225***	-0.227***	-0.490***	-0.390***	-0.372***	-0.596***	-0.298***	-0.296***	-0.319***	-0.291***	-0.303***	-0.385***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.03)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Female	0.167***	0.347***	0.208***	0.066	0.048	0.087*	0.033	0.114*	0.109**	0.385***	0.419***	0.367***
	(0.02)	(0.02)	(0.02)	(0.05)	(0.04)	(0.05)	(0.09)	(0.07)	(0.04)	(0.05)	(0.05)	(0.04)
Mothers' education	0.143***	0.114***	0.051***	0.084***	0.108***	0.041***	0.094***	0.133***	0.097***	0.100***	0.124***	0.116***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Female-headed household	-0.211***	-0.182***	-0.148***	-0.210***	-0.214***	-0.203***	-0.431***	-0.231**	-0.074	-0.129**	-0.048	-0.220***
	(0.02)	(0.03)	(0.03)	(0.06)	(0.06)	(0.05)	(0.13)	(0.10)	(0.05)	(0.06)	(0.07)	(0.04)
Log of household income per capita	0.201***	0.181***	0.062***	0.054**	0.112***	0.160***	0.291***	0.349***	0.250***	0.469***	0.335***	0.249***
	(0.01)	(0.01)	(0.02)	(0.03)	(0.03)	(0.03)	(0.09)	(0.05)	(0.03)	(0.04)	(0.04)	(0.04)
Urban area	0.562***	0.415***	0.066**	0.808***	0.602***	0.151***	0.368***	0.419***	0.147***	-0.01	0.042	0.056
	(0.02)	(0.03)	(0.03)	(0.05)	(0.05)	(0.05)	(0.10)	(0.09)	(0.05)	(0.05)	(0.05)	(0.04)
Constant	0.961***	0.825***	8.179***	5.621***	4.540***	8.572***	1.963*	-0.357	2.896***	0.183	2.635***	3.845***
	(0.15)	(0.22)	(0.21)	(0.41)	(0.42)	(0.56)	(1.05)	(0.78)	(0.39)	(0.43)	(0.38)	(0.40)
N	36,811	19,884	20,421	5,896	7,863	15,016	1,880	4,015	8,358	3,879	3,652	5,761

Source: PNAD 1982, 1992, and 2007; CASEN 1987, 1992 and 2009; ENIGH 1984, 1992, and 2008; ECH 1986, 1991, and 2009.

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

Also controlled for region in the models for Brazil and Mexico.

Table A.2. Unconditional and Conditional Completion of Primary Education and Transition to High School by Year: Brazil, 15–18 Children of the Head of the Household (Robust Standard Errors in Parentheses)

	Unconditional transitions						Conditional transitions					
	1982		1992		2007		1982		1992		2007	
	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS
Age	0.346***	0.496***	0.321***	0.481***	0.382***	0.647***	0.351***	0.459***	0.328***	0.469***	0.384***	0.657***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Female	0.304***	0.330***	0.380***	0.389***	0.487***	0.492***	0.293***	0.191***	0.368***	0.224***	0.499***	0.342***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.04)	(0.02)	(0.03)
Mothers' education	0.127***	0.107***	0.108***	0.103***	0.085***	0.075***	0.124***	0.052***	0.106***	0.059***	0.086***	0.046***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)
Female-headed household	-0.144***	-0.144***	-0.175***	-0.151***	-0.157***	-0.178***	-0.138***	-0.084	-0.175***	-0.051	-0.155***	-0.149***
	(0.03)	(0.04)	(0.03)	(0.04)	(0.02)	(0.03)	(0.03)	(0.05)	(0.03)	(0.06)	(0.02)	(0.03)
Urban area	0.466***	0.419***	0.351***	0.332***	0.130***	0.117***	0.439***	0.062	0.339***	0.067	0.137***	0.028
	(0.03)	(0.04)	(0.04)	(0.05)	(0.03)	(0.03)	(0.03)	(0.07)	(0.04)	(0.08)	(0.03)	(0.04)
Log of household income per capita	0.496***	0.526***	0.395***	0.351***	0.268***	0.269***	0.489***	0.314***	0.391***	0.150***	0.281***	0.189***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Constant	-12.10***	-15.47***	-11.85***	-14.54***	-7.99***	-13.08***	-12.07***	-11.27***	-11.86***	-10.30***	-8.08***	-12.05***
	(0.22)	(0.28)	(0.29)	(0.38)	(0.19)	(0.22)	(0.22)	(0.39)	(0.29)	(0.50)	(0.20)	(0.27)
N	36,811	36,811	19,884	19,884	20,421	20,421	33,751	8,094	18,768	5,263	19,903	12,912

Source: PNAD 1982, 1992, and 2007.

*** p<0.01, ** p<0.05, * p<0.1

Also controlled for region: North, Northeast, South, Southeast, Center-West.

Table A.3. Unconditional and Conditional Completion of Primary Education and Transition to High School: Chile, 15–18 Children of the Head of the Household (Robust Standard Errors in Parentheses)

	Unconditional transitions						Conditional transitions					
	1987		1992		2009		1987		1992		2009	
	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS
Age	0.165***	0.384***	0.276***	0.506***	0.276***	0.612***	0.190***	0.492***	0.304***	0.535***	0.356***	0.688***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)
Female	0.184***	0.158***	0.201***	0.222***	0.305***	0.258***	0.177***	0.083	0.200***	0.182***	0.377***	0.184***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Mothers' education	0.098***	0.084***	0.090***	0.079***	0.027**	0.029***	0.101***	0.050***	0.095***	0.052***	0.033**	0.025**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Female-headed household	-0.149***	-0.180***	0.070	0.043	-0.177***	-0.124***	-0.128**	-0.169**	0.054	0.012	-0.101	-0.057
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)	(0.07)	(0.07)	(0.07)	(0.06)	(0.05)
Urban area	0.816***	0.715***	0.426***	0.555***	0.195***	0.118**	0.834***	0.239***	0.455***	0.465***	0.173***	0.052
	(0.05)	(0.05)	(0.05)	(0.05)	(0.07)	(0.05)	(0.05)	(0.07)	(0.05)	(0.06)	(0.06)	(0.05)
Log of household income per capita	0.108***	0.111***	0.123***	0.116***	0.195***	0.121***	0.112***	0.086***	0.119***	0.091***	0.258***	0.065**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)
Constant	-4.24***	-8.23***	-5.98***	-10.40***	-6.03***	-11.35***	-4.69***	-8.57***	-6.41***	-9.95***	-8.04***	-11.56***
	(0.38)	(0.38)	(0.47)	(0.42)	(0.71)	(0.50)	(0.38)	(0.52)	(0.48)	(0.50)	(0.71)	(0.50)
N	5896	5896	7863	7863	15016	15016	5821	4259	7793	6167	14851	13629

Source: CASEN 1987, 1992, and 2009.

*** p<0.01, ** p<0.05, * p<0.1

Table A4. Unconditional and Conditional Completion of Primary Education and Transition to High School: Mexico, 15–18 Children of the Head of the Household (Robust Standard Errors in Parentheses)

	Unconditional transitions						Conditional transitions					
	1984		1992		2008		1984		1992		2008	
	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS
Age	-0.044	0.290***	0.026	0.383***	0.035	0.601***	-0.022	0.220***	0.011	0.338***	0.082**	0.602***
	(0.05)	(0.05)	(0.04)	(0.04)	(0.03)	(0.02)	(0.05)	(0.07)	(0.04)	(0.04)	(0.04)	(0.03)
Female	-0.052	-0.130	0.099	0.297***	0.153*	0.264***	-0.055	-0.158	0.101	0.187**	0.166*	0.173***
	(0.11)	(0.13)	(0.09)	(0.08)	(0.08)	(0.05)	(0.11)	(0.15)	(0.09)	(0.09)	(0.09)	(0.05)
Mothers' education	0.149***	0.122***	0.138***	0.099***	0.084***	0.081***	0.133***	0.092***	0.136***	0.078***	0.089***	0.058***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.03)	(0.02)	(0.01)	(0.01)	(0.01)
Female-headed household	-0.132	-0.414**	-0.137	-0.035	-0.208**	-0.121**	-0.070	-0.508**	-0.089	0.003	-0.205*	-0.065
	(0.18)	(0.18)	(0.12)	(0.10)	(0.10)	(0.06)	(0.20)	(0.22)	(0.13)	(0.12)	(0.11)	(0.06)
Urban area	0.565***	0.243*	0.416***	0.474***	0.089	0.102*	0.532***	-0.015	0.427***	0.257*	0.063	0.061
	(0.12)	(0.13)	(0.11)	(0.12)	(0.09)	(0.06)	(0.13)	(0.18)	(0.11)	(0.15)	(0.10)	(0.07)
Log household income per capita	0.296***	0.368***	0.445***	0.349***	0.293***	0.207***	0.299***	0.432***	0.377***	0.268***	0.271***	0.168***
	(0.10)	(0.10)	(0.07)	(0.05)	(0.06)	(0.04)	(0.11)	(0.12)	(0.07)	(0.07)	(0.07)	(0.04)
Constant	-2.09	-10.28***	-6.03***	-12.46***	-1.88***	-12.63***	-2.32*	-8.50***	-4.73***	-9.58***	-2.37***	-11.76***
	(1.29)	(1.40)	(1.02)	(0.96)	(0.67)	(0.46)	(1.37)	(1.68)	(1.06)	(1.17)	(0.73)	(0.52)
N	1,880	1,880	4,015	4,015	8,358	8,358	1,833	812	3,900	1,985	8,290	6,195

Source: ENIGH 1984, 1992, and 2008.

*** p<0.01, ** p<0.05, * p<0.1

Also controlled for Mexico's 7 main regions.

Table A5. Unconditional and Conditional Completion of Primary Education and Transition to High School: Uruguay, 15–18 Children of the Head of the Household (Robust Standard Errors in Parentheses)

	Unconditional transitions						Conditional transitions					
	1986		1991		2009		1986		1991		2009	
	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS	Completed Primary	Transition to HS
Age	0.0314	0.527***	0.095***	0.558***	0.022	0.623***	0.032	0.612***	0.089**	0.680***	0.027	0.669***
	(0.03)	(0.02)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)
Female	0.175**	0.467***	0.444***	0.342***	0.299***	0.408***	0.189**	0.362***	0.436***	0.133**	0.323***	0.281***
	(0.07)	(0.05)	(0.08)	(0.05)	(0.08)	(0.04)	(0.08)	(0.06)	(0.08)	(0.06)	(0.08)	(0.05)
Mothers' education	0.070***	0.094***	0.102***	0.083***	0.067***	0.105***	0.077***	0.057***	0.10***	0.052***	0.064***	0.065***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
Female-headed household	-0.282***	-0.049	-0.015	0.004	-0.194**	-0.278***	-0.223**	0.031	-0.038	-0.020	-0.212***	-0.165***
	(0.09)	(0.07)	(0.10)	(0.07)	(0.08)	(0.04)	(0.10)	(0.09)	(0.10)	(0.09)	(0.08)	(0.06)
Montevideo vs. other areas +	0.483***	0.350***	0.356***	0.224***	0.354***	0.299***	0.491***	0.079*	0.354***	0.010	0.362***	0.100**
	(0.05)	(0.04)	(0.06)	(0.04)	(0.06)	(0.04)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.04)
Log household income per capita	-0.236***	-0.112**	-0.106	-0.410***	-0.188**	-0.148***	-0.174**	0.041	-0.116	-0.391***	-0.219***	-0.043
	(0.08)	(0.05)	(0.08)	(0.05)	(0.08)	(0.04)	(0.09)	(0.07)	(0.08)	(0.07)	(0.08)	(0.05)
Constant	-3.51***	-13.24***	-2.49***	-11.74***	-1.95***	-14.38***	-3.52***	-11.28***	-2.35***	-11.76***	-2.03***	-12.47***
	(0.65)	(0.51)	(0.60)	(0.44)	(0.70)	(0.45)	(0.71)	(0.68)	(0.61)	(0.55)	(0.70)	(0.56)
N	3,879	3,879	3,652	3,652	5,761	5,761	3,827	2,093	3,645	2,105	5,756	3,440

ECH 1986, 1991, and 2009.

*** p<0.01, ** p<0.05, * p<0.1

+ Urban area refers to Montevideo. Other urban areas refer to urban areas with more than 5000 inhabitants, with the exception of Montevideo.

Table A.6. Enrollment in Private School by Country and Year[1] (Robust Standard Errors in Parentheses)

	BRAZIL[2]		CHILE						MEXICO[2]		URUGUAY	
			Semi-public	Private	Semi-public	Private	Semi-public	Private				
	1982	2007	1987		1992		2009		1992	2008	1986	1991
Age	0.134***	0.146***	0.013	0.090*	-0.050*	0.296***	-0.044*	0.066	0.123***	0.160***	-0.237***	-0.238***
	(0.01)	(0.02)	(0.03)	(0.05)	(0.03)	(0.04)	(0.03)	(0.07)	(0.04)	(0.03)	(0.04)	(0.03)
Female	0.081***	0.196***	0.108	-0.116	-0.007	0.018	0.134**	0.024	0.277***	0.042	0.162**	0.108
	(0.02)	(0.03)	(0.07)	(0.10)	(0.06)	(0.09)	(0.05)	(0.15)	(0.10)	(0.07)	(0.08)	(0.07)
Mothers' education	0.080***	0.103***	0.037***	0.097***	0.032***	0.177***	0.044***	0.249***	0.035**	0.033***	0.033***	0.053***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
Female-headed household	-0.060	-0.060	-0.122	-0.136	-0.184*	-0.620***	-0.082	-0.024	-0.030	0.031	-0.095	-0.149
	(0.04)	(0.04)	(0.09)	(0.14)	(0.09)	(0.15)	(0.06)	(0.17)	(0.15)	(0.07)	(0.13)	(0.11)
Log of household income per capita	0.328***	0.792***	-0.021	0.720***	0.077*	0.754***	0.296***	1.239***	0.508***	0.492***	0.828***	0.675***
	(0.02)	(0.03)	(0.04)	(0.07)	(0.04)	(0.07)	(0.04)	(0.11)	(0.07)	(0.05)	(0.07)	(0.07)
Urban area	0.003	0.315***	0.744***	0.749***	0.573***	0.830***	0.374***	0.748***	0.193	0.252**	0.651***	0.421***
	(0.04)	(0.07)	(0.09)	(0.20)	(0.09)	(0.20)	(0.07)	(0.20)	(0.20)	(0.11)	(0.09)	(0.08)
Constant	-6.45***	-9.53***	-1.50**	-10.99***	-1.05*	-16.56***	-3.66***	-22.29***	-10.90***	-8.83***	-6.15***	-1.88***
	(0.23)	(0.30)	(0.58)	(0.98)	(0.61)	(0.99)	(0.62)	(1.89)	(1.10)	(0.66)	(0.81)	(0.60)
N	19,544	16,582	4345	4345	5623	5623	12094	12094	1,766	5,195	2,530	2,521

Source: PNAD 1982 and 2007; CASEN 1987, 1992, and 2009; ENIGH 1992 and 2008; ECH 1986 and 1991.

*** p<0.01, ** p<0.05, * p<0.1

1. There is no data available on school sector for: Brazil 1992, Mexico 1984, and Uruguay 2009.

2. Also controlled for region in the models for Brazil and Mexico