"Social Determinants of School Continuation in Mexico for cohorts of children born between 1991 and 1993: Evidence using panel data"

Erika Arenas, Luis Rubalcava, Graciela Teruel

Abstract

This paper examines the effect of social programs, socio-economic origin, family structure, and individual characteristics on school continuation decisions (i.e., transition from elementary to secondary school, and from secondary to high school) in Mexico. Specifically, we ask (a) what are the effects of *Prospera* (before *Oportunidades*), parent and grandparent's education, family structure (i.e. both parents present, father absent due to domestic or international migration, father died, mother absent, both parents absent), gender and indigenous background in transitioning from primary to secondary school, and from secondary to high school?, and (b) are these effects different across transitions?

We take advantage of longitudinal data from three waves of the Mexican Family Life Survey (MxFLS) and use the neo-classical education transitions model proposed by Lucas (2011) to analyze educational transitions of Mexican cohorts born between 1993 and 1995. Preliminary findings indicate (1) there is a positive effect of mother's years of schooling on transitioning from primary to secondary school, and from secondary to high school and these effects are greater on daughters than sons, (2) the effect of mother's education if constant across transitions, (3) father's schooling matters only in the transition from secondary school to high school and the effect is greater on daughters than sons, (4) children residing in families with father absent due to separation or divorce, or due to migration (domestic and international) show lower probabilities of transitioning from primary to secondary school, (5) probabilities of making both transitions are similar for children residing with two parents and those whose father died, (6) the worst outcomes are for those children residing in families where the mother is absent or both parents are absent, (7) number of siblings has a negative impact on the probability of making both transitions, (8) the probability of making the transition

from primary to secondary school is higher for *Prospera* beneficiaries, (9) no direct effects of grandparent's education on children's education were found, and (10) the effect of family structure and the social progam *Prospera* declines across transitions. This paper highlights the importance of modeling later transitions accounting for the selectivity of earlier transitions.

"Social determinants of School Continuation in Mexico: Evidence using panel data"

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1. Introduction

Since the mid-1980s, Mexico has become a rigid society characterized by great social inequality in terms of income, as indicated by high levels and low variation in: (1) the Gini index, which has been around 0.48 between 2000 and 2012 (World Bank), and by (2) the proportion of the population living in food poverty, which represents about 20 percent of the total population since 1992 until 2012 (CONEVAL 2009). Inequality in the income distribution coupled with low social mobility suggests that opportunities for mobility are almost non-existent for Mexicans. Given that human capital formation is one of the most important mechanisms through which individuals in modern societies ascend socially (Treiman 1970), it is crucial to identify which factors foster human capital accumulation. By identifying these factors, we may be able to assess what are the main differences in educational opportunities faced by recent cohorts of young Mexicans.

Educational opportunities depend on the social context, in the socio-economic origin of individuals, family structure, and individual characteristics (e.g., gender, ethnicity). In the Mexican case, social policies focused on the expansion of elementary school (e.g. "The 11th Year Plan"), of secondary school (e.g. the 1993 Constitutional Reform of article 3), and the implementation of social programs focused on investments in human capital (e.g. *Prospera*) are examples of how social context may impact educational opportunities. Educational attainment also depends on social origin. Evidence of Mexican cohorts born between 1928 and 1988 indicates father's education and occupation, rural origin, and ethnic family background influence individuals' educational trajectories (Creighton and Park 2010). Households with one parent absent due to migration, divorce, or separation, increases the odds of dropping out from secondary to high school, and the presence of a

grandparent reduces these odds (Creighton et al. 2009). Finally, individuals' characteristics such as gender and cognitive ability are also likely to have an influence in school progression.

Many educational stratification studies that examine the effect of social background on school continuation use the Model of School Continuation ("MSC") (Mare 1980 1981). This model views educational attainment as a process of completing a sequence of transitions. The MSC analyzes educational attainment as a series of yes/no decisions of continuing school or dropping out of school. One consistent finding of the MSC, across different countries, is that the effect of family background tends to decrease across educational transitions (e.g. Mare 1993; Shavit and Blossfeld 1993). Some researchers argue that the declining importance of family background across educational transitions indicates educational attainment at higher stages is more egalitarian (Stolzenberg 1994). A life course perspective explanation of the declining coefficients suggests that this pattern may reflect that as children become older in each transition, they are less economically and socially dependent on their parents (Muller and Karle 1993). The declining effect of social background across transitions may also reflect the implementation of social policies supporting specific transitions (Hout et al. 1993; Lucas 2001). For example, a social policy targeting the completion of high school may reduce the effect of social background on that transition.

However, critics of the MSC argue that the declining coefficients across transitions are an artifact of the model for three reasons. First, the MSC parameters are estimated through a series of logistic regressions where transitioning is explained by a set of social background covariates that do not vary across transitions; the lack of time-varying covariates in the model implies that the only factor inducing differences on the dependent variable across transitions is the error term, which is assumed to follow a logistic distribution (Lucas 2001). This is problematic because the choice of the logistic distribution (which is arbitrary) produces declining coefficients across transitions (Cameron and Heckman 2008). Second, coefficients in each transition equation are scaled relative to the error variance in that equation (i.e., only regression coefficients divided by the error variance are

identified), hence differences in the effects of explanatory variables across transitions might be driven by differences in error variances (Holm and Jaeger 2011). Third, the declining coefficients may reflect selective attrition, which implies that the population "at risk" of making the transition becomes more selective at higher transitions due to unobserved heterogeneity (e.g. Mare 1980; Holm and Jaeger 2011; Lucas 2011).

In response to these critiques, several modifications to the model have been offered. Lucas (2001; 2011) proposed a neo-classical education transitions approach that introduced time-varying covariates in the model, which make possible the identification of coefficients without making assumptions about the distribution probability of the error terms. To deal with selective attrition, Lucas (2011) and Holm and Jaeger (2011) propose a bivariate probit selection model that allows unobserved variables that affect the probability of making the lower educational transitions, to be correlated with unobserved variables that affect the probability of making higher educational transitions. To deal with the scaling problem of the coefficients, Lucas (2011) proposes the comparison of y-standardized coefficients across transitions to discern, at least, the direction of the differences in the coefficients.

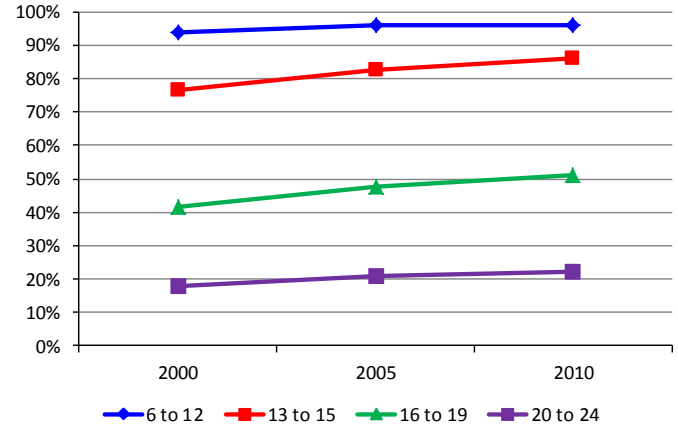
In this paper, we examine the effect of social programs, socio-economic origin, and family structure on school continuation decisions. We focus on transitions from elementary to secondary school, and from secondary to high school of Mexican cohorts born between 1993 and 1995. We take advantage of three waves of panel data from the Mexican Family Life Survey (i.e., 2002, 2005, 2009) and apply the neo-classical education transitions approach proposed by Lucas (2011) to examine the impact of social origin on school continuation.

2. The study site: Mexico

The educational system in Mexico is divided in four levels of schooling: preschool, compulsory basic education (6 years of primary school plus 3 years of secondary school), high

school (3 years) and higher education. Primary school was substantially expanded in Mexico between 1959 and 1975; a period in which the Mexican government implemented the 11th Year Plan intended to make primary school available to all children (Creighton and Park 2010). During this period school enrollment increased, a greater number of teachers were trained, and infrastructure was expanded. In 1993, a constitutional amendment extended compulsory school to 9 years (Creighton and Park 2010). Currently the average school years in Mexico are 8.6, indicating compulsory basic education is still not universal. Just recently, in 2012, the federal government made high school education compulsory and established a goal to make it universal by 2022.

Figure 1: Enrollment rates by group of age, 2000-2010

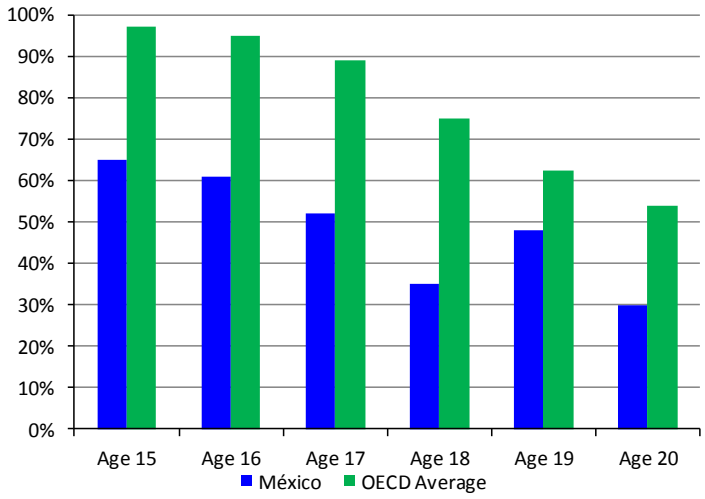


Source: INEGI, census.

Based on Census data, as of 2010 enrollment in primary school was almost universal. Secondary school enrollment rates increased from about 80 to 90 percent between 2000 and 2010. (see Figure 1). A similar trend is found in most Latin America countries. However, individuals between 16 to 24 years old -expected to attend high school and higher education- lagged behind in terms of enrollment rates. According to the OECD, the 2012 enrollment rate of Mexican teenagers between 15 to 19 years old was about 53 percent. This is one of the lowest rates for OECD countries, only out placed by Colombia and China, with 43 percent and 34 percent, respectively. Mexico has turned into the only OECD country in which 15 to 20 year-olds are expected to work instead of

studying, making them a vulnerable group for disengagement on education (OECD 2014) (see Figure 2).

Figure 2: Participation in Education among 15-20 year-olds, 2012



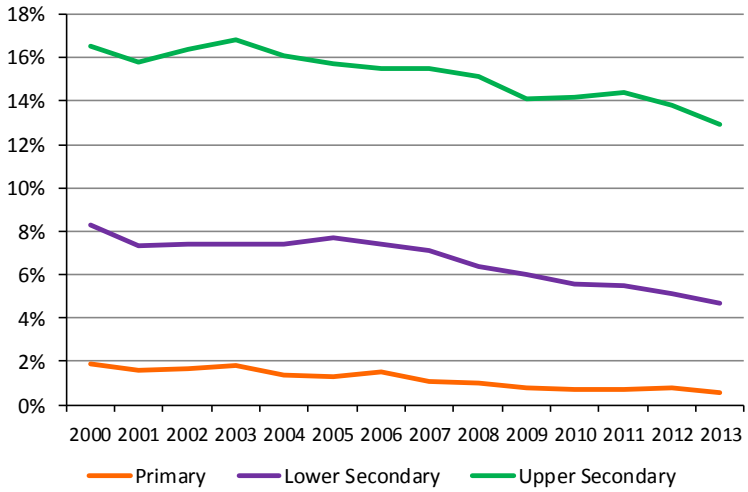
Source: OECD Country Report 2014.

In recent decades, to increase enrollment rates the federal government implemented several initiatives, such as *Prospera (*before *Oportunidades)*, and *Escuelas de Calidad*. *Prospera* was introduced on 1997 as a conditional cash transfer program targeting poor families. The program conditions the transfers in children's enrollment and regular attendance to school, clinic attendance, in-kind health benefits, and nutritional supplements for children up to age five (Parker et al. 2007). Originally the program provided educational grants for children between third and ninth grade and higher grants were given to girls than to boys (Parker et al. 2007). Since 2001 grants were extended to children in high school, yet impacts of the program on enrollment rates are concentrated in the transition from primary to secondary school (Schultz 2004). *Escuelas de Calidad* focuses on the supply of schooling by improving infrastructure and lengthening the school day in low performing primary schools.

Dropout rates in Mexico have decreased in primary, secondary, and high school. Yet, these rates vary widely across different educational levels. While the dropout rate from primary school is

about 0.6%, it is about 4% in secondary school, and 13% for high school. The higher dropout rates observed at the high school level prompted the implementation of a new strategy (i.e., the National System of Upper Secondary Education) by the federal government that is intended to increase the education supply of high school education.

Figure 3: Dropout rates by education level, 2000-2013



Source: SEP.

National trends in enrollment and dropout rates are likely to be also associated with individual characteristics (e.g. cognitive ability), social background (e.g. parents' education), family structure (e.g., single parenthood), and community characteristics. Examining the impact of social factors on school continuation in a country like Mexico is interesting because of the social changes the country has experienced in the last decade. Specifically the country has experienced an educational expansion reflected in improvements in women and men's average years of schooling. Census data shows average completed years of schooling increased from 6.6 in 1990 to 8.6 in 2010. For women this increase was from 6.3 to 7.9 years of schooling and for men was from 6.9 to 8.4 (INMUJERES 2009). Between 1970 and 2010 the percentage of women that completed secondary education increased from 2.6% to 41.2% (Esteve et al. 2012).

Moreover, in the last four decades Mexican households have experience changes in terms of family structure: (1) increases in divorce rates, (2) increases in the proportion of single mothers, and

(3) increases in the likelihood of co-residing with grand-parents. Divorce rates in Mexico have increased from 4% to 16% between 1980 and 2010 (INEGI), hence children are more likely to reside with a separated or divorced mother. Between 1975 and 1995, the percentage of children residing with divorced or separated mothers remained fairly constant between 1975 and 1995 at a level around 4%; however, this rate increased to about 5% by 2010 (Nobles 2013). Moreover, the higher proportion of single mothers in Mexico (Esteve et al. 2012) has led to an steadily increased in the percentage of children living with never married mothers from about 1.5% to 3% between 1975 and 2010 (Nobles 2013). In addition, the absence of the father due to migration (either domestic or international) has increased the percentage of children residing only with their mother from 1.5% to 9% between 1976 and 2005 (Nobles 2013). Finally, the fact that Mexico is experiencing an accelerated growth in their elderly population (the share of individuals aged 65 and over is projected to increase from 4.2% to 12% between 1995 and 2030 (Ordorica 1997)), and considering that in this country the elderly population usually co-resides with their offspring (Herrera et al. 2008), new cohorts of Mexican children are more likely co-reside with their grandparents.

Considering all this changes in the social context, in this paper, we examine the effect of social programs, socio-economic origin and family structure on school continuation decisions of Mexican cohorts born between 1993 and 1995. Specifically, we asked the following research questions:

a. What are the effects of *Prospera* in transitioning from primary to secondary school, and from secondary to high school?
b. What are the effects of family structure (i.e. parents present, father absent due to domestic or international migration, father died, mother absent, and both parents absent) in transitioning from primary to secondary school, and from secondary to high school?
c. What are the effects of parent and grandparent's education in transitioning from primary to secondary school, and from secondary to high school?

d. What are the effects of gender and indigenous background in transitioning from primary to secondary school, and from secondary to high school?

e. Are these effects different across transitions?

3. Previous Research

In modern societies, educational attainment has become the most important factor that determines labor market success and social mobility across generations. The role of parent's education on offspring's education is central to understand the mechanisms underlying social mobility and the reproduction of inequality. Empirical evidence shows that higher parental education is associated with more years of schooling of children (see Haveman and Wolfe 1995 for a review of the literature). This high correlation may be explained by several mechanisms. First, higher-educated parents are better able to provide to their offspring the resources needed to finance their education. Second, higher-educated parents are more likely to spend more quality time with their children compared to lower-educated parents (e.g. Guryan et al. 2008). Evidence from the U.S. shows that employed mothers engage in reading and homework activities more often that non-employed mothers, and father's engagement in these activities is greater when the mother is employed. Greater parental involvement in children activities reduces children behavioral problems and improves grades (Zick et al. 2001). Third, parent's aspirations for their offspring's socioeconomic achievements may be heavily conditioned by their own accomplishments. In a context of educational expansion, aversion to downward mobility may induce parents to assure that their offspring at least attain the same educational level than them. Evidence from Taiwan and the U.S. shows that whether offspring make a given school transition depends on whether their mothers and fathers have made that transition (Mare and Chang 2003). In Latin American countries, some evidence shows that children consistently surpassed the educational attainment of their parents (Behrman et al. 2001; Torche *forthcoming*). Finally, the parent-child educational attainment correlation may be a reflection of the parent-child ability correlation associated with inheritance of genetic endowments (Bowles

and Gintis 2002). Recent research trying to establish a causal effect of parental education on children's education finds that, after controlling for parental unobserved ability (based on within-twin models) mother's education has little or no effect on offspring education, yet father's education continues to have a positive effect (Ermisch and Pronzato 2010). Other studies find that both have an impact, but that mother's education has the strongest (see Holmlund et al. 2008 for a review of the literature).

Only few studies of the effect of parental education on offspring's schooling exist for Latin America due to the lack of data with information of multiple generations of the same family. Some studies using cross-sectional and retrospective data find that in urban areas in Brasil, Mexico and Peru, parent-offspring educational correlation is about 0.7 in the former, and of 0.5 in latter two countries (Behrman et al. 2001; Binder and Woodruff 1999). Additionally, they find a higher correlation for women than for men in Mexico and Peru, implying higher rates of mobility among men (Behrman et al. 2001; Binder and Woodruff 1999). Evidence from Latin America shows returns to schooling increase with parental schooling, which implies that parental background has an impact in intergenerational mobility of socio-economic status in the region (Behrman et al. 2001).

Recently, research on social mobility has broadened to include, not only the effects of parental schooling in offspring's education, but also effects from grandparents on children's outcomes (Mare 2011, Mare 2014). Improvements in life expectancy in most regions of the world have increased the opportunity of interaction between grandchildren and grandparents. Greater contact with grandparents may influence children's outcomes through the transmission of economic, social and cultural resources. The presence of educated grandparents in the family may foster a favorable environment for the children's cognitive ability development. Grandparents may share the role or caregivers of their grandchildren with important involvement in activities such as reading, providing assistance to do homework, and other related activities that may enhance children's academic performance. In social contexts in which the role of extended family is more prominent,

such as in Latin American or Asian societies, examining the influence of grandparents on children's outcomes becomes relevant. Evidence from rural China shows that co-residence combined with grandparents characteristics affect grandchildren's' educational attainment, but non-coresident and deceased grandparents does not have any effect (Zeng and Xie 2014). Moreover, living with grandparents reduces the likelihood of dropping out from school, but the effect varies with the education of co-resident grandparents (Zeng and Xie 2014). The presence of grandparents increases the probability of attending middle school (Conelly and Zhen 2003). Evidence from Taiwan shows that the impact of grandparents' education is the strongest when they co-reside with their offspring for longer terms in households in which both parents are absent (Pong and Chen 2010). Furthermore, grandparents' years of schooling increase the probability of attending high school or more, only for students with parents with high levels of education. Yet, grandparents' education does not have an impact when parents have middle or low levels of education (Chiang and Park 2015). This finding suggests that higher-educated parents are more effective in using grandparents' resources to boost children's education. By contrast, evidence from the U.S. shows an opposite pattern, that grandparents' education compensates for parents' low levels of education to enhance grandchildren's education (Jaeger 2012). Different findings are likely to depend upon the configurations of families and extended families across national contexts. Even though, some evidence shows positive grandparent's effects on children outcomes, it is possible that having grandparents co-residing in the household may increase competition for family resources, which ultimately may have negative impacts on children's school continuation. Evidence from 32 OECD countries shows a negative association between co-residing grandparents and the educational performance of grandchildren (Marks 2007).

Clearly family structure is a key important feature shaping children's experiences in their process of educational attainment. The absence of a parent may have important negative consequences in school progression. Literature on single parenthood shows children living in single-

parent families due to separation or divorce present worse educational outcomes compared to those living in two-parent families (e.g. McLanahan and Sandefur 1994; McLanahan et al. 2013; Gibbs and Heaton 2014). Moreover, children raised in single mother families due to the death of the father present better outcomes compared to children rose in divorced single-mother families (Biblarz and Gottainer 2000). And children rose in families in which the father is absent due to migration show better educational outcomes compared to children in separated or divorced families (Nobles 2013). Among the explanations of why children from single parent families due to separation or divorce fare worse in terms of children outcomes the literature suggest that this may be a consequence of: (1) a decrease in income and wealth, (2) higher economic insecurity faced by single mothers, (3) access to lower wages faced by single mothers, (4) children experience of parental conflict, (5) less involvement in activities that enhance academic performance, and (6) lower supervision. Even though, divorced or separated single mothers share the same basic structure as widowed single mother families, research from the U.S. shows that children from widowed single-mother households are not different from two-biological parent families in terms of attending college or college completion, yet they show slightly lower odds of completing high school (Biblarz and Gottainer 2000). This result can be explained by the fact that widows may be eligible to receive economic support from social programs. Similarly, in Malaysia children of divorced mothers, but not of widowed mothers, show lower school participation rates compared to two-parent families. In this case, widows receive support from extended family in a social context in which the role of extended kinship is very important (Buchnman and Hannum 2001). This difference may be also due to the fact that children that experience marital conflict after divorced or separation often develop hostile feelings toward their father (Parish and Kappes 1980), while children who loose their parents because they die are more likely to develop positive constructions of them (Silverman et al. 1992). Parent absence may also be due to migration. Evidence from Mexico shows that children living with their mother and whose father is absent due to migration are at greater risk of dropping out from high

school compared to children living with both parents (Creighton et al. 2009), they show below-age-appropriate grade completion (MacKenzie and Rapoport, 2006), lower educational aspirations (Kandel and Kao 2001; Nobles 2011), and behavioral problems (Heymann et al. 2009). Evidence from Mexico also shows that parental involvement when the father is absent due to migration compared to when the father is absent due to separation or divorce is quite distinct (Nobles 2011): (1) migrant parents are more likely to be involved in schooling and health needs of their children (compared to separated or divorced parents), and (2) children from divorced or separated fathers are more likely to receive investments from fathers if they are male, younger, or if their mother has more education, while migrant fathers do not favor sons over daughters, and investments in their children are not associated with mothers education.

In addition to parent's and grandparent's education, and family structure, previous research has examined the influence of family size and indigenous background on educational outcomes. Several studies in the U.S. and some developing countries find a negative relationship between number of siblings and educational attainment (see Buchmann and Hannum 2001 for a review in LDC; Binder and Woodruff 1999). Usually this negative association is interpreted as indicating that with additional children household resources and parental attention is diluted. Yet, in some developing countries the association disappears, and in some regions of Africa this association becomes positive (Buchmann and Hannum 2001). In the case of Mexico, possible impacts of *Prospera* on fertility rates and school enrollment may imply a positive association between school enrollment and number of children. Alternatively, rather than dilution of resources the negative relationship between fertility and school enrollment may reflect preferences for lower fertility and higher investments in offspring's education (Caldwell 1980). Indigenous background populations in Latin America often show an educational disadvantage compared to indigenous populations (e.g. McEwan (2004) for Bolivia and Chile). Evidence from Mexico shows the indigenous disadvantage in terms of entering primary school was eliminated for recent cohorts born between 1970 and 1989.

However, the indigenous disadvantage persists for entry into lower-secondary school, despite overall improvements in the probability of successfully transitioning (Creighton 2013).

Community characteristics are likely to affect school continuation. Children in rural communities usually attain lower levels of education compared to children in urban areas. Evidence from Mexico shows that about 90% of the children age 15 to 19 completed some primary school compared to 96.2% in urban areas; 58.7% of rural children age 20 to 24 complete lower secondary school compared to 81.7% in urban areas (Creighton et al. 2009).

In sum, previous literature indicates that social programs, socio-economic background, family structure, individual characteristics, and community characteristics are likely to have an influence on school continuation.

4. Data and Methods

Data

This paper use data from three waves of the Mexican Family Life Survey fielded in 2002 (MxFLS-1), in 2005 (MxFLS-2), and in 2009-2011 (MxFLS-3). The MxFLS is a longitudinal, multi-dimensional survey, representative of the 2002 Mexican population at the national, urban/rural, and regional level. The sample includes 8,400 households, 150 communities, and about 35,000 individuals (Rubalcava and Teruel 2006). Response rates by the second and third wave of the survey were about 90% at the household level, and about 80% at the individual level in both waves. The MxFLS is well suited for this study for four reasons. First, it collects a wide array of socio-economic information such as parent and grandparent's education, family structure, access to social programs, household expenditure, and dwelling characteristics. Second, given that the MxFLS is a panel survey it is possible to observed measures such as cognitive ability and family structure in different time periods. This allows the construction of key independent variables in our analysis using the level observed right before the first transition occurred. Third, the MxFLS applies cognitive ability tests (i.e., Raven tests) to children between 5 and 12 years old, and to adults

between 13 and 64 years old. We include these tests as time varying covariates to identify the parameters of the model. Fourth, the multi-dimensional nature of the survey allows including a wide array of characteristics that may influence school decisions, which are regularly omitted in other studies.

Our eligible sample includes children born between 1991 and 1993 (children that were between 16 and 18 years old in 2009) for two reasons: (1) population of 16 or more is the population "at risk" of having completed the transitions were are interested in study (transition up to high school), (2) for these cohort the data includes social background and cognitive ability measures before the transitions are made which actually reflect the relevant socio-economic circumstances that may affect the odds of continuing or dropping out from school.

Methods

We follow Lucas (2011) neoclassical approach to study school transitions; specifically we estimate a bivariate probit model with sample selection. The dependent variable in our analysis is making a transition. We focus on the transition from elementary to secondary school and from secondary to high school school. To identify the selection process we use two instrumental variables (1) the percentage of families enrolled in *Prospera* in 2002, and the year of enrollment of the locality in *Prospera.* These variables come from administrative data from the program *Prospera.* We include one time-varying covariate to identify the model: raven tests taken before each transition. To answer our research questions we include a set of fixed characteristics measured before the first transition occurred: parent and grandparent's education, family structure (i.e. both parents present, father absent due to domestic or international migration, father died, mother absent, both parents absent), number of siblings, presence of grandparents, gender, indigenous background, and whether the household is enrolled in *Prospera.* We include a set of controls for household socioeconomic status such as dwelling characteristics, log expenditure in 2002, and rural residence. At the community

level we include the index of social under-development provided by the Social Development Ministry of Mexico (SEDESOL) and we include fixed effects at the state level.

5. Preliminary results

Preliminary findings indicate (1) there is a positive effect of mother's years of schooling on transitioning from primary to secondary school, and from secondary to high school and the effect is greater on daughters than sons, (2) the effect of mother's education if fairly constant across transitions, (3) father's schooling matters only in the transition from secondary school to high school and the effect is greater on daughters than sons, (4) children residing in families with father absent due to separation or divorce, or due to migration (domestic and international) show lower probabilities of transitioning from primary to secondary school, (5) probabilities of making both transitions are similar for children residing with two parents and those whose father died, (6) the worst outcomes are experienced by those children residing in families where the mother is absent or both parents are absent, (7) number of siblings has a negative impact on the probability of making both transitions, (8) the probability of making the transition from primary to secondary school is higher for *Prospera* beneficiaries, (9) there are no direct effects of grandparent's education on children's education, and (10) the effect of family structure and the social progam *Prospera* declines across transitions. Our paper highlights the importance of modeling later transitions accounting for the selectivity of earlier transitions.

6. References

Bherman, Jere R., Alejandro Gavira, and Miguel Székely.2001. "Intergenerational Mobility in LatinAmerica", Inter-American Development Bank, No. 452

Biblarz, Timothy J. and Greg Gottainer.2000. "Family Structure and Children's Success: A Comparison of Widowed and Divorced Single-Mother Families", *Journal of Marriage and Family*, 62(2) 533-548

Bowles S and Gintis H. 2002. "The Inheritance of Inequality", *Journal of Economic Perspectives*, 16: 3 -30

Buchman, Claudia and Emily Hannum. 2001. “Education and Stratification in Develpoing Countries: A Review of Theories and Research”, *Annual Review of Sociology,* 27(2001)77-102

Cameron, Stephen V., and James J. Heckman. 1998. "Life Cycle Schooling and Dynamic Selection Bias:Models and Evidence for Five Cohorts of American Males." *Journal of Political Economy*, 106:262-333

Chiang Yi-Lina and Hyunjoon Park. 2015. “Do grandparents matter? A multigenerational perspective on educational attainment in Taiwan”, *Social Science Research*, 51(2015) 163-173

Connelly, Rachel, and Zhenzhen Zheng. 2003. “Determinants of school enrollment and completion of 10 to 18 year olds in China”, *Economics of Education Review,* 22(2003) 379-388

Creighton, M. and H. Park. 2010. “Closing the gender gap: Six decades of reform in Mexican education”. *Comparative Education Review* , 54 (4), 513-537

Creighton, M. J., Park, H., & Teruel, G. M. (2009). The Role of Migration and Single Motherhood in Upper Secondary Education in Mexico. Journal of Marriage and Family 71, 1325-1339.

Ermisch, John, and Chiara Pronzato. 2010. “Causal Effects of Parents’ Education on Children’s Education”, Institute for Social and Economic Research, No. 2010-16

Esteve, Albert, Joan Garcia-Roman, Ron Lesthaeghe. 2012. “The Family Context of Cohabitation and Single Motherhood in Latin America”, Population and Development Review 38(4):707-727

Gibbs, B. G., & Heaton, T. B. (2014). Drop out from Primary to Secondary School in Mexico: A Life Course Perspective. *International Journal of Educational Development* 3, 63-71.

Guryan, Jonathan, Erik Hurst and Melissa Kearney. 2008. “Parental education and parental time with children.” *Journal of Economic Perspectives* 22(3):23-46.

Haveman, Robert and Barbara Wolfe. 1995. “The Determinants of Children Attainments: A Review of Methods and Findings”, Journal of Economic Literature 33:4, pp. 1829-1878.

Herrera, Elena Zuñiga, Juan Enrique García. 2008. “El envejecimineto demografico en Mexico. Principales tendencias y caracteristicas”, *Horizontes, 13,* Consejo de Poblacion del Estado de Mexico, http://www.portal.conapo.gob.mx/publicaciones/sdm/sdm2008/06.pdf

Holm Anders and Mads Meier Jæger. 2011. “Dealing with selection bias in educational transition models: The bivariate probit selection model”. *Research in Social Stratification and Mobility*. Volume 29, Issue 3, September 2011, Pages 311–322

Holmlund Helena, Mikael Lindahl, and Eriks Plug. 2008. “The Causal Effect of Parent’s Schooling on Children’s Schooling: A Comparison of Esimation Methods”, Institute for the study of Labor, IZA DP No. 3630

Hout, Michael, Adrian E. Raftery,and Eleanor O. Bell. 1993. "Making the Grade: EducationalStratification in the United States, 1925-1989." Pp. 25-49 in Persistent Inequality: Changing Educational Attainment in Thirteen Countries, edited by Yossi Shavit and Hans-PeterBlossfeld.Boulder,Colo.:WestviewPress.

Jæger, M.M., 2012. “The extended family and children’s educational success”, American Sociological Review, 77, 903–922.

Lucas, Samuel R. 2001. “Effectively Maintained Inequality: Education Transitions, Track Mobility, and Social Background Effects”, *The American Journal of Sociology*, Vol. 106, No. 6 (May, 2001), pp. 1642-1690

Lucas, Samuel R., Phillip N. Fucella, and Mark Berends. 2011. “A Neo-Classical Education Transitions Approach: A Corrected Tale for Three Cohorts.” *Research in Social Stratification and Mobility* 29: 263-285.

Mare, R. D. 1993. "Educational Stratification on Observed and Unobserved Components of Family Background." Pp. 351-76 in Y. Shavit and H.-P. Blossfeld (eds.), Persistent Inequality: Changing Educational Attainment in Thirteen Countries. Boulder, CO: Westview Press.

Mare, R. D. 2011. “Introduction to Symposium on Unmeasured Heterogeneity in School Transition Models.” *Research in Social Stratification and Mobility* 29: 239-45.

Mare, Robert, and Huey-Chi Chang. 2003. “Family Attainment Norms and Educational Stratification: The Effects of Parents’ School Transitions”, CCPR-015-05, California Center of Population Research

Mare, Robert. 1980. “Social Background and School Continuation Decisions”, *Journal of the American Statistical Association*, 75(370)295-305

Mare, Robert. 2014. “Multigenerational Aspects of Social Stratification: Issues for Further Research”, *Research on Social Stratification and Mobility*, 35(2014)121-128

Marks, Gary N. 2007. “Detrimental Effects of Living with a Grandparent: Cross-National Evidence”, *Journal of Comparative Family Studies*, 38(1), 169-177

McKenzie, D., & Rapaport, H. (2011). Can migration reduce educational attainment? Evidence from Mexico. *Journal of Population Economics* 24, 1331-1358.

McLanahan, S., and Sandefur, G. 1994. Growing up with a single parent: What hurts, what helps? Cambridge, MA: Harvard University Press.

McLanahan, S., Tach, L., & Schneider, D. (2013). The Causal Effect of Father Absence. *Annual Review of Sociology* 39, 399-427.

Müller, Walter and Wolfgang Karle (1993): "Social Selection in Educational Systems in Europe". *European Sociological Review*, 9(1): 1-23.

Nobles, Jenna. 2011. “Parenting from Abroad: Migration, Non-resident, Father Involvement, and Children’s Education in Mexico”, *Journal of Marriage and Family*, 73,729-746

Nobles, Jenna. 2013. “Migration and Father Absence: Shifting Family Structure in Mexico”, *Demography*, 50(4): 1303-1314

Ordorica, Manuel. 1997. “Cambios en la Estructura Por Edad de la Poblacion [Changes in the Population Age Structure by Age]” DEMOS 12:8-10.

Parker, Susan, L Rubalcava, G Teruel. 2007. “Evaluating conditional schooling and health programs”. Handbook of development economics

Pong, S., & Chen, V. W. 2010. “Co-resident Grandparents and Grandchildren’s Academic Performance in Taiwan”. Journal of Comparative Family Studies, 41(1), 111–.

Schultz, T. Paul. 2004. “School subsidies for the poor: evaluating the Mexican Progresa poverty program”, Journal of Development Economics, Volume 74, Issue 1, June 2004, Pages 199–250

Shavit, Yossi, and Hans-Peter Blossfeld (Eds.). 1993. Persistent Inequality: Changing Educational Attainment in Thirteen Countries. Boulder (Colorado): Westview Press.

Stolzenberg, Ross M. 1994. “Educational Continuation by College Graduates”, *American Journal of Sociology*, Vol. 99, No. 4 (Jan., 1994), pp. 1042-1077

Torche, Florencia. "Intergenerational Mobility and Gender in Mexico" forthcoming in *Social Forces*.

Treiman, Donald J. 1970. "Industrialization and Social Stratification." Pp. 207-234 in SocialStratification: Research and Theory for the 1970s, edited by Edward O. Laumann. Indianapolis:Bobbs-Merrill

Woodruff, Christopher M. and Binder, Melissa.1999. Intergenerational Mobility in Educational Attainment in Mexico (May 15, 1999). Available at SSRN: http://ssrn.com/abstract=166388 or http://dx.doi.org/10.2139/ssrn.166388

Zeng Zhen and Yu Xie. 2014. “The effects of grandparents on children’s schooling: Evidence from Rural China”, *Demography*, 51(2): 599-617

Zick, Cathleen, W. Keith Bryant, and Eva O¨ sterbacka. 2001. ‘‘Mother’s Employment, Parental Involvement, and the Implications for Children’s Behavior.’’ *Social Science Research* 30(1):25–49.