EDUCATIONAL CHOICES, SUBJECTIVE EXPECTATIONS, AND CREDIT CONSTRAINTS

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ABSTRACT

In this paper we analyze the link between people's "subjective" expectations of returns to schooling and their decision to invest into schooling. We use data from a household survey on Mexican junior and senior high school graduates that elicits their own and their parents' beliefs about future earnings for different scenarios of highest schooling degree. These data allow us to derive measures of expected idiosyncratic returns to schooling as well as measures of individual risk perceptions of earnings and unemployment risk. Therefore we can analyze for two important school attendance decisions, high school and college, whether parents' or youths' expectations matter and whether expected returns or risk perceptions are important for these two decisions. We find that both youths' and parents' expectations matter in terms of the high school attendance decision, while for the college attendance decision the youths' expectations appear to be the relevant ones. These results suggest that youths play an important role in the intra-family decision process about human capital investments. While often neglected in the literature, risk perceptions are important predictors for high school attendance decisions. College attendance decisions on the other hand depend on expected returns to college. Making use of our data on subjective expectations, we provide evidence on the existence of credit constraints based on the argument that credit constraints would break the link between expected returns (or risk perceptions) and schooling decisions. Our results point towards an important role of credit constraints in college attendance decisions and thus provide one explanation for the large inequalities that can be found in particular in higher education in Mexico.

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1 Introduction

The accumulation of human capital has been perceived as a fundamental component of the development process. And yet, for many countries in the developing world, the stock of human capital has grown at a painfully slow pace. Improvements in schooling and education have been particularly slow in Latin America, compared to other countries and regions with similar levels of income and development. Moreover, the distribution of years of schooling and, more generally of human capital, is extremely unequal in the region. Access to higher education, and in particular, college, remains very low among youths from poor families, although the returns to college education, as measured by the difference in compensation of individual with college education relative to individuals with less than college, are extremely high and have been increasing in recent years.

There might be many reasons for the low level of schooling and in particular college enrolment in Latin America. One hypothesis that is often mentioned is the presence of binding constraints that prevent the access to credit to finance higher education on the part of poor families. And yet, in the literature, there is very limited direct evidence of the relevance of credit constraints in schooling decisions in Latin America.

For the U.S, many papers have investigated the importance of credit constraints in higher education. Cameron and Heckman (1998), Cameron and Heckman (2001) and Carneiro and Heckman (2002), for example, come to the conclusion that differences in college attendance rates between poor and rich in the U.S. can be attributed to differences in "college readiness". As stated in Carneiro and Heckman (2002), "most of the family income gap in enrollment is due to long-run factors that produce abilities needed to benefit from participation in college." These papers argue that, in the U.S., credit constraints are relatively unimportant by showing that once one controls for ability and parental background measures (which proxy for returns to college and preferences), parental income ceases to have a significant effect on college attendance.

The reality of developing countries, however, might be quite different. One important difference between Mexico and the U.S., for instance, might be the wider availability of scholarships and student loans in the U.S., which can not be found in Mexico for higher education.[1] It is possible that credit constraints might play a more important role in determining human capital investment choices in developing countries, although alternative explanations are possible. In this paper we provide direct evidence on the importance of liquidity constraints in determining human capital investment choices in the context of a developing country.

One important aspect in which poor and rich households might differ is in their expectations about their own future returns to schooling and in their perceptions about future earnings and employment risk. Differences in expected returns or perceived risk might be justified ex-post and, if correlated with parental income, could lead to a spurious positive correlation between parental

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[1]The conditional cash transfers, such as PROGRESA/Oportunidades, that have received much attention are only available until the end of high school.

income and school attendance decisions. Having data on each individual's distribution of future earnings for different schooling scenarios would enable one to address this concern directly.

In this paper, we use a unique data set from Mexico to provide direct evidence on the role that expected returns to education have on education choices. We argue that the responsiveness of education choices to its expected return provides evidence on the relevance of credit constraints: a possible definition of credit constraints is the existence of an investment opportunity with a return higher than the 'market' rate of return that is not exploited and acted upon.

Our data set is unique in several dimensions. First, it contains information on subjective expectations elicited directly from respondents that allows us to derive the entire probability distribution of future earnings under a number of alternative scenarios for education investment. Second, we observe education choices for the same individuals whose subjective expected returns to education were elicited. This allows us to model education investment as a function of expected return to education as well as other moments of the subjective probability distribution. Third, we observe expectations held by both mothers and youths. Fourth, our sample, being made of beneficiaries of a welfare programme, is composed of youths from very poor households, who are the most likely to be affected by credit constraints. Finally, our data on expectations and education choices are also complemented by a wealth of data on a wide range of variables, from academic achievement to parental background.

In what follows, we model the decision of youths who have just finished junior high school to enroll (or not) in senior high school and that of youths who have completed senior high school to enroll (or not) in college. We use our subjective expectations data to construct measures of expected returns to education and study the extent to which these expectations affect education choices.

Most papers in the literature neglect the importance of risk as a determinant of educational choice and assume no uncertainty or certainty equivalence (see, e.g., Cameron and Taber (2004) and Carneiro, Heckman, and Vytlacil (2005)). Given the nature of our data, we are able to take into account the perceived risks associated to different investment choices directly and determine whether they affect investment choices. Earnings risk might be particularly relevant for the credit constraints issue, as it might, for example, not be optimal for poor individuals to attend college despite high expected returns, if they face particularly risky college earnings. It should be stressed that our data on people's subjective distribution of future earnings allow us to derive measures of risk perceptions that do not confound "true" risk with unobserved heterogeneity (as would be the case using earnings realizations) and to take into account that ex-ante perceptions matter.

The evidence we obtain on the relationship between schooling choices and expected returns to education speaks directly to the importance of credit constraints. If individual households 'react' to expected returns in making their education choices, one would conclude that credit constraints might be playing a relatively minor role: individuals with relatively high expected returns enroll

in school, regardless of their background, maybe because they have enough savings or are able to borrow to cover costs of tuition, transport and costs of living. However, if one were to observe that the only youths for whom there is a positive relationship between expected returns and enrolment decisions, are those living with the less poor parents, then one would conclude that credit constraints might be playing an important role in determining who attends school. Credit constraints break the link between expected returns (or perceived risk) and the attendance decision. In what follows, we formalize this idea by interacting expected returns with different parental income categories and parental income and wealth quartiles. In the presence of credit constraints, subjective expectations should be significant for higher income categories, but not for lower ones.

Our data set also allows us to shed some light on an important aspect of intra-household decision processes, that is whose expectations (if any) about future outcomes determine investment decisions. In particular, we analyze this question in the context of secondary and post-secondary schooling choices. Especially in the case of older children, it is quite likely that parents are not the only ones who have a say in education investment decisions. Older children are likely to have better earning opportunities and are more likely to be autonomous from parents. Whether and at which age children should be considered as economic agents in household decisions is an empirical issue which we try to settle in what follows. This is an important question to address, as not taking into account that children might be playing a role in household decisions –when they actually do– could lead to deficient explanations of investment into higher education if expectations of parents and children differ systematically. This issue may also have important implications for the design of public policy: the program *Oportunidades*, for instance, is considering the possibility to pay part of their schooling grants directly to the youths.

Investigating the link between expectations and investment into schooling, we find that measures of individual subjective expectations of earnings help to predict school attendance decisions: perceptions of future earnings and employment risk are relevant to predict high school attendance decisions, while expected returns to college help to predict college attendance decisions. As for whose expectations matter, we first find that mothers' and youths' expectations about future earnings are systematically different. Moreover, we find that for high school attendance decisions, both parents' and youths' expectations seem to play a role, while for the college attendance decision only youths' expectations seem to matter.

Concerning the relevance of credit constraints we find that parental income, wealth and father's occupation remain significant determinants of college attendance decisions even after controlling for perceived returns and earnings and employment risk. Furthermore we find that subjective expectations are significant predictors for less poor individuals but not for those at the bottom of the income and wealth distribution in our sample. Thus our results consistently point towards the importance of credit constraints in college attendance decisions. The picture that emerges for high school decisions is less clear. Parental resources, for instance, do not seem to be very important.

We conclude that liquidity constraints are probably less important for the subsample of youths choosing whether to attend senior high school or not, which is consistent with lower costs and higher availability of fellowships and loans for senior high school than for college.

Our paper is part of a recent literature studying data on individual's "subjective" expectations, whose use has been eloquently advocated by Manski (2004). There is a growing literature using subjective expectations in developing countries, for example in the areas of household income expectations by Attanasio, Meghir, and Vera-Hernandez (2005) on Colombia, on risk perceptions of HIV/Aids by Delavande and Kohler (2008), on farmers' expectations regarding the timing of the onset of the monsoon by Giné, Townsend, and Vickerey (2008) and on migration by McKenzie, Gibson, and Stillman (2007) (for recent surveys, see Attanasio (2009) and Delavande, Giné, and McKenzie (2009)). A paper that has looked at expectations of the return to education is Dominitz and Manski (1996). They illustrate for a small sample of Wisconsin high school and college students that people are willing and able to answer subjective expectations questions in a meaningful way.

The three papers closest to ours are Jensen (2008), Kaufmann (2009) and Nguyen (2008). Jensen (2008) investigates the link between perceived returns to education and investment into schooling using data from the Dominican Republic. He finds that the students in his sample of 8th graders significantly underestimate returns to schooling. Informing a random subset of them about higher measured returns leads to a significant increase in perceived returns and in attained years of schooling among these students. Nguyen (2008) finds that informing a random subset of a sample of students in Madagascar about high returns to schooling increases their attendance rates and their test scores. Kaufmann (2009) uses subjective expectations to analyze the importance of credit constraints in college attendance decisions in a more structural setting. She finds that poor individuals require significantly higher returns to be induced to attend college and shows how data on expected returns and attendance choices allow to get direct estimates of the cost distributions that people face. She tests implications of a school choice model in the presence of credit constraints and evaluates potential welfare consequences of introducing a governmental student loan or fellowship program (using a Local Instrumental Variables approach by Heckman and Vytlacil (2005)). Her results suggest that credit constraints play an important role in college attendance decisions, for example in that "marginal" expected returns are higher than average returns of people who already attend college, and that student loan programs could be welfare improving.

Two papers that take into account risk as a determinant of education choices are Padula and Pistaferri (2001) and Belzil and Hansen (2002). Only the former employs subjective expectations but aggregates perceived employment risk for education groups to analyze whether the implicit return to education is underestimated when not taking into account effects of different schooling levels on later earnings and employment risk.

The rest of the paper is organized as follows: section 2 presents a basic model of education

choices. Section 3 describes in detail the data and presents some summary statistics on attendance rates and a variety of background variables. Section 4 provides evidence on the quality of the data on subjective expectations. In particular it analyzes how earnings expectations vary with youths' characteristics and average earnings in the municipality of residence. In addition, this section also tackles the issue that, for some individuals in the sample the expectation question was answered by the youth, while in other cases, it was answered by the mother. Section 5 analyzes, whether expected returns to schooling and perceptions of earnings and employment risk are important determinants of senior high school and college attendance choices and whose expectations matter, the ones of the mother or of the youth herself. Section 6 provides evidence on the importance of credit constraints in schooling choices in Mexico. Section 7 concludes.

2   School Choice and Earnings Expectations

The main purpose of this paper is to model schooling decisions of young poor Mexicans and show how they relate to their expectations on the return and risk to that investment. One possible approach would be the construction of a full dynamic optimization model where individuals choose current activities taking into account current and future benefits and costs of the alternative choices. This type of models has been proposed, for instance, by Keane and Wolpin (1997) and used in a variety of contexts (see, for instance, Attanasio, Meghir, and Santiago (2005)). In this paper, rather than following this route, we present probit regressions that relate the probability of enrolment to several control variables and subjective expectations. In a structural framework, the entire probability distribution of future earnings under alternative scenarios determines schooling decisions. Here we assume that the effect of this distribution can be summarized by a few moments of the distribution of earnings at age 25. In addition, we control for current labour market conditions through state dummies and for family background and ability through several variables we observe in our data set.

The reduced form probit regressions we present are informative about three sets of issues. First, they establish the relationship between schooling decisions and subjective expected returns and subjective measures of risk (such as the variance of future earning and the probability of unemployment). Second, they shed light on the issue of whose expectations are relevant for schooling decisions. Finally, the analysis of the role of expectations for different income/wealth groups can be informative about the relevance of liquidity constraints.

In this section, we present our empirical specifications and discuss their usefulness. We start with a basic model, to move to the issue of who makes decisions and, finally, to the consideration of liquidity constraints.

2.1 A Basic Model

To model the decision to enroll in senior high school, having completed junior high, we use a latent index model to be estimated on the sample of junior high school graduates. Denoting with S the enrolment decision ($S = 1$ if the individual decides to attend and $S = 0$ otherwise) we have:

$$S = 1 \Leftrightarrow S^* = \alpha + \sum_{z=1}^{3} \beta_z * Exp \log Earn_z + \sum_{z=1}^{3} \gamma_z * Var \log Earn_z + \sum_{z=1}^{3} \delta_z * Prob\ of\ Work_z + X'\theta + U > 0. \quad (1)$$

where $z = 1, 2, 3$ denotes junior high school, senior high school and college, respectively. The vector X contains a number of control variables that are likely to affect the schooling decision, ranging from measures of individual ability to parental background and θ denotes the corresponding parameters. $Exp \log Earn_z$ is the expected value of the distribution of (log) earnings at age 25 for the scenario that degree z ($z = 1, 2, 3$) is the highest completed by the youth.

In addition to the expected value of earnings, we also want our empirical model to take into account the possibility that the riskiness of a given investment might affect schooling decisions. For this reason, we enter, as determinants of the schooling decision, the variances of the future earnings under different schooling scenarios $Var \log Earn_z$. As the questions on future expected earnings are conditional on working, we enter the subjective probability of employment under different scenarios, $Prob\ of\ Work_z$.

One would expect a high perceived earnings risk with a junior high school degree to have a positive effect on the probability of continuing to senior high school, and a high variance of log earnings with a senior high school degree to have a negative effect. On the other hand, for the decision to continue to senior high school, a high variance of log earnings after *college* increases the option value of continuing to senior high school. By enroling in senior high school, one can wait for additional information while still having the option to go to college. The specification in equation (1) is flexible enough to be able to capture these aspects.

Obviously, alternative specifications are possible. One might want, for instance, to consider different moments of the probability distribution of future earnings. Another attractive possibility, which we entertain in some specifications we estimate below, is to consider expected returns, rather than expected earnings. Expected returns to college (over high school) would be defined as the expected value of the difference of log earnings with a college degree and log earnings with a senior high school degree. Analogously, the return to high school would be log earnings with a senior high school minus log earnings with a junior high school degree.

An equation analogous to (1) can be used to model the decision to enroll in college taken by youths who have just completed senior high school. The only modification we need to make is that we consider only the distributions of earnings under the two relevant scenarios in terms of completed schooling, senior high school and college ($z = 2, 3$). This gives us:

$$S = 1 \Leftrightarrow S^* = \widetilde{\alpha} + \sum_{z=2}^{3} \widetilde{\beta}_z * Exp \log Earn_z + \sum_{z=2}^{3} \widetilde{\gamma}_z * Var \log Earn_z + \sum_{z=2}^{3} \widetilde{\delta}_z * Prob \ of \ Work_z + X'\widetilde{\theta} + V > 0. \quad (2)$$

In addition to expected returns and perceived risk, we control for individual and family background characteristics and for state fixed effects. In conventional approaches, proxies for ability, such as GPA and parental education, are supposed to capture differences in psychological costs of attending college as well as in the ability to benefit from high school or college through higher expected returns.[2] One advantage of being able to control for expected returns directly is due to the multi-dimensionality of skills that can hardly be captured even with good data on test scores, while the individual has idiosyncratic knowledge about these skills. More importantly, what matters for the individual's decision is her perception of her skills and her beliefs about how they affect future earnings, conditional on her information set at the time of the college attendance decision. This provides a strong rationale for using "perceived" returns and "perceived" risk. We control for GPA and parental education to proxy for the probability of completing senior high school or college and to control for preferences for education, both of which turn out to be very important determinants of the two schooling decisions.

Apart from parental income and wealth, we also control for fathers' occupation, as this could have an effect on the ability of families to finance their children's education that is independent of its' effect on the level of family income and wealth. The coefficients on these variables will provide first evidence on the importance of credit constraints in high school and college attendance decisions.

2.2 Whose Expectations Matter for Schooling Decisions, Mothers' or Youths'?

In the context of schooling decisions, it is interesting and important to learn more about the decision-making process within the household. Dauphin, Lahga, Fortin, and Lacroix (2008) are among the few who address the question in how far children are involved in household decision processes. Whose expectations matter for education choices is likely to depend on the age of the child/youth. One is therefore likely to obtain different results when modeling the decision to attend primary, secondary and higher education. Especially for youths who have finished high school and are deciding whether to enrol in college, the assumption that all decisions are taken by parents might be too strong. This is relevant from a policy perspective, for example, as it could affect who should receive scholarship money.

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[2]For example, Cameron and Heckman (1998) and Cameron and Heckman (2001) address the question of credit constraints in college attendance decisions in the US by controlling for ability measures, such as AFQT score and parental education, that are supposed to capture differences in how much people can benefit from attending college. They show that as a result parental income loses significance, which they interpret as evidence against credit constraints in higher education in the US.

Of course, if youths' and parents' expectations were fully rational and based on the same information, they would coincide. However, if either the information set or the way it is processed differ, subjective expectations of the different actors might differ. One goal of this paper is to shed some light on one aspect of the decision process, which is whose expectations matter in schooling decisions. In the process of doing so, we also show that parents' and youths' expectations differ.

If one had data on both parents' and youths' expectations one could address this question from an empirical point of view. In particular, neglecting the variance terms, the model we would want to estimate for both school attendance decisions is as follows:

$$S = 1 \Leftrightarrow S^* = \alpha + X'\beta + \gamma_P * Parents'Expectations + \gamma_A * Youths'Expectations + W > 0. \quad (3)$$

Obviously the parameters γ_P and γ_A are separately identified only if the two sets of expectations differ. In what follows we will show that this is the case in our data. As we discuss below, our data does contain some information on the subjective expectations held by mothers.[3] As this information is not as complete as for youth expectations, the estimation of equation (3) involves the solution of a number of econometric problems we discuss below.

2.3 Liquidity Constraints

As we mentioned in the introduction, the presence of binding liquidity constraints is often mentioned as a plausible explanation of the slow accumulation of human capital among the poor in developing countries. We aim at providing some evidence on the plausibility of this explanation. One possible definition of liquidity constraints is that individuals do not act to exploit an investment opportunity with a high rate of return. Therefore, if we were to find that individuals' schooling decisions are insensitive to the expected return to schooling, this would constitute evidence that liquidity constraints could be important. An alternative explanation, of course, could be that the data on expected returns are just too noisy to measure anything meaningful.

If we were to find that expectations are important determinants of investment only for some groups of the population and these groups happen to be those that are least likely to be liquidity constraints, then we would have reasonably strong evidence that liquidity constraints are indeed an issue for the education investment of these individuals. For this reason, we also estimate versions of equations (1) and (2) allowing the effect of expected returns to be different for youths with different parental background.

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[3]Of course, fathers' expectations could also be important and possibly more important than mothers' expectations. Moreover, it is possible that they are completely different from those held by mothers. We cannot investigate this issue given the absence of data on this phenomenon, but we think that investigating the role played by mothers' expectations vis-a-vis youths' expectations gives some interesting new insights and points to the importance of further research on this question.

3 Data

The conditional cash transfer program *Oportunidades,* previously known as PROGRESA, has been associated since its inception with attempts to evaluate its impacts. In this spirit, when the program introduced in 2002/3 a new component known as *Jovenes con Oportunidades,* an evaluation aimed at measuring its impact was started. The data we use was collected in 2005 as part of that evaluation. As we discuss below, in addition to standard variables, the survey contained a detailed subjective expectation module which we use extensively. In this section, we describe the data and its structure. We also describe in some detail the module used to elicit information on subjective expectations and report some evidence on the quality of these data.

3.1 The Survey

The survey "Jovenes con Oportunidades" was conducted in fall 2005 on a sample of about 23,000 15 to 25 year old youths in urban Mexico. The sample was collected to evaluate the component *Jovenes con Oportunidades* of the main conditional cash transfer program in Mexico. *Jovenes con Oportunidades* provides an additional grant to youths in the last three years of high school (preparatoria). This grant is deposited into a bank and can be accessed only upon graduation, if the recipient engages in one of several activities (such as going to college or starting a micro enterprise). Alternatively, the recipient has to wait for a year during which time the amount, about US$300, accumulates at the market interest rate.

The primary sampling units of the evaluation survey are individuals who have just graduated from senior high school or from junior high school and who are eligible for *Jovenes con Oportunidades.* There are three eligibility criteria: being in the last year of junior high school (9th grade) or attending senior high school (10 to 12th grade), being younger than 22 years of age, and being from a family that benefits from Oportunidades.

The survey consists of a family questionnaire and a youth questionnaire administered to each household member aged 15 to 25. As a consequence, the youths for whom we have data are not only the primary sampling units but also their siblings, provided they are aged 15 to 25.

The survey provides detailed information on demographic characteristics of the young adults, their schooling levels and histories, their junior high school GPA, and detailed information on their parental background and the household they live in, such as parental education, earnings and income of each household member, assets of the household and transfers/remittances to and from the household. The youth questionnaire contains a section on individuals' subjective expectations of earnings as discussed next.

3.2 The Expectations Module

The subjective expectations module was designed to elicit information on the individual distribution of future earnings and the probability of working for different scenarios about the highest completed school degree. The module starts with a simple explanation of probabilities. In particular, individuals are shown a ruler, graded from zero to one hundred, which is then used to express the probability of future events. The example that is used to illustrate the concept of probability is the event of rain the following day.

After explaining the use of the ruler to express probabilities and having practised that with the rain example, the interviewer moves on to discuss future earnings and the probability of working under different schooling scenarios. The scenarios differ for students graduating from junior high school and those graduating from senior high school. For the former, the interviewer asks to consider three different possibilities: that the student stops after junior high, that the student goes on to senior high, completes it and stops and that the student goes on to college and completes it. For the latter, only two scenarios are considered: that the students stops at senior high school and that the student goes on to college and completes it.

For each of the relevant scenarios, the youth is then asked questions about the probability of working at the age of 25 and about future earnings at age 25. For example, in the case of the last scenario for a senior high school student, the questions are:

1. *Assume that you complete College, and that this is your highest schooling degree. From zero to one hundred, how certain are you that you will be working at the age of 25?*

2. *Assume that you complete College, and that this is your highest schooling degree. Assume that you have a job at age 25.*

   (a) *What do you think is the maximum amount you can earn per month at that age?*

   (b) *What do you think is the minimum amount you can earn per month at that age?*

   (c) *From zero to one hundred, what is the probability that your earnings at that age will be at least x?*

   where x is the midpoint between maximum and minimum amount elicited from questions (a) and (b) and was calculated by the interviewer and read to the respondent.

This type of subjective expectations questions has been used extensively in a variety of contexts. In a companion paper (Attanasio and Kaufmann (2008)), we discuss the internal and external validity of the answers to these questions in our survey. In that paper, we show that respondents seem to have understood the questions reasonably well and that the data pass a number of internal and external validity tests. Below, we briefly report some of these results and refer the interested reader to our paper for further details.

In what follows, we relate educational decisions to subjective expectations. This is possible because of the timing of the survey and because of an assumption we make about the accrual of information about future earnings. The Jovenes survey was conducted in October/November 2005, that is two or three months after high school and college had started and enrolment decisions had been made. To use the subjective expectations for the analysis of high school and college attendance decisions, we have to make the assumption that individuals' information sets have not changed during this short period or, if they have changed, that they left expectations about future earnings at age 25 (i.e. seven to ten years later) unchanged. We believe that this is not a very strong assumption.

Students who graduate from junior high school have usually spend three years with their fellow students and then either continue together to senior high school or stop school. For them it is unlikely to learn more about how their own skills (or other factors influencing future earnings) compare to those of the other students in the two/three months after graduation.

As for senior high school graduates deciding about attending college or not, the same assumption can be justified on two different grounds. First, individuals learn about their ability relative to their peers before their attendance decision in July/August, because of entrance tests to college in February/March or in June/July, which individuals have to take to be admitted. Results of these tests are made public before the actual college attendance decision.[4] It is unlikely that individuals will learn significantly more about their ability in the first two or three months at university in addition to what they learned from their relative results at entrance exams. Second, additional learning about future college earnings has been shown to happen in the last year(s) of college (see Betts (1996) for evidence on the US) and not in the first few months. This is supported by evidence from our data: there is no significant difference in the cross-sections of expected returns to college for students, who just started college, compared to the one of students who are in their second year. On the other hand, return distributions are significantly different for students in higher years.

An additional potential concern is the possibility that individuals try to rationalize their choice two or three months later, i.e. individuals, who decided to attend college, rationalize their choice by stating higher expected college earnings (and/or lower expected high school earnings), and those, who decided not to attend, state lower expected college and higher high school earnings. A similar argument can be made for individuals deciding about high school attendance. To address this concern, we use the cross-section of expected returns of a cohort that is one year younger, i.e. just starting grade 12 (or grade 9 in the case of the high school attendance decision) as a counterfactual distribution for the cross-sectional distribution of expected returns of the senior (junior) high school graduate sample before they had to decide about college (high school) attendance. We find no significant differences between the distributions of expected returns, neither for the junior high

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[4]Individuals can and usually do take entrance tests at several universities and if they are not admitted, they can continue to take tests at other universities.

school graduate sample nor for the senior graduates.[5]

3.3 Calculation of Expected Earnings, Perceived Earnings Risk, and Expected Gross Returns to Schooling

The answers to the three survey questions (2(a)-(c)) (see preceding section) are used, with some additional assumptions, to compute moments of the individual earnings distributions (compare Guiso, Jappelli, and Pistaferri (2002)) and expected gross returns to college. As a first step, we are interested in the individual distribution of future earnings $f(Y^z)$ for all three possible scenarios of highest schooling degree, where $z = 1, 2, 3$ denotes having a junior high school degree, a senior high school degree and a college degree, respectively, as the highest degree. The survey provides information for each individual on the support of the distribution $[y_{min}^z, y_{max}^z]$ and on the probability mass to the right of the midpoint, $y_{mid}^z = (y_{min}^z + y_{max}^z)/2$, of the support, $p = Pr\left(Y^z > y_{mid}^z\right)$. Thus we need an additional distributional assumption, $f(\cdot)$, in order to be able to calculate moments of these individual earnings distributions, using the three pieces of information on y_{min}^z, y_{max}^z and p.

In Attanasio and Kaufmann (2008), we use three different distributional assumptions, step-wise uniform, bi-triangular and triangular, where the first and latter two represent relatively extreme cases on a spectrum. The last two give more weight to the middle of the support and less to the extremes. The first, instead, implies a relatively large value for the total variance (we rule out the possibility that the density function is U-shaped, giving more weight to the extremes). In our companion paper, we show that the first moment of the individual distribution is extremely robust with respect to the underlying distributional assumption, while the second moment is obviously larger for the step-wise uniform distribution that puts more weight on extreme values. In this paper we present results based on the triangular distribution, but we perform robustness checks using the other two distributional assumptions and point out differences if they occur.

With an assumption on the functional form of the individual distribution, $f(.)$, we can express expected earnings and variance of earnings for schooling degrees $z = 1, 2, 3$ for *each* individual as follows:

$$
\begin{aligned}
E(Y^z) &= \int_{y_{min}^z}^{y_{max}^z} y f_{Y^z}(y) dy \\
Var(Y^z) &= \int_{y_{min}^z}^{y_{max}^z} (y - E(Y^z))^2 f_{Y^z}(y) dy.
\end{aligned}
$$

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[5]A Kolmogoroff-Smirnov test on equality of the distributions and t-test on means can not reject the null of equality (results from the authors upon request).

We will perform the following analysis in terms of log earnings:

$$E(\ln(Y^z)) = \int_{y_{min}^z}^{y_{max}^z} \ln(y) f_{Y^z}(y) dy$$

$$Var(\ln(Y^z)) = \int_{y_{min}^z}^{y_{max}^z} \left(\ln(y) - E(\ln(Y^z))\right)^2 f_{Y^z}(y) dy$$

and we can thus calculate expected (gross) returns to senior high school ($z = 2$) and college ($z = 3$) as:

$$\rho^z = E(\ln(Y^z)) - E(\ln(Y^{z-1})).$$

3.4 Mother and Youth Expectations

To estimate an equation like (3) in Section 2.2 and determine whose expectations matter for enrolment decisions, one would need data on both parents' and youths' expectations. The former will be approximated with data on mothers' expectations, as we lack fathers' expectations data.[6]

Unfortunately, the questions on the subjective distributions of earnings were not asked to both mother and children at the same time. However, for all surveyed families mothers were asked a differently phrased question on expected future earnings of her children.In particular, the question always directed to mothers about the future earnings of her children was phrased in the form of point expectations:

Assume that the child finishes Junior High School (Senior High School/College), and that this is his/her highest schooling degree. Assume that he/she has a job at age 25.
What do you think can he/she earn per month at that age?

While this information is certainly useful, the fact that the question is framed in a completely different way from the questions asked to the youth raises a number of issues. First, one has to rely on the point expectation without being able to compute any moment of the distribution. Second, one is not even sure which measure of location of mothers' earning distributions this question answers and how it relates to the mean. However, an additional feature of the data allows us to address, to a certain degree, this second issue.

The interviewer visited the primary sampling units and their families in October and November 2005 and interviewed the household head or spouse using the family questionnaire and youths between age 15 and 25 using the "Jovenes" (youth) questionnaire. If a youth was not present, the household head or spouse answered the Jovenes questionnaire as well. As a result, for almost half the sample, the questions on the subjective distribution of future earnings were not answered by the youth herself. Instead mothers stated their expectations about future earnings of her child(ren) that are not present during the interviewer's visit. For this part of the sample, therefore, we have

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[6]Fathers' expectations could be as important, if not more important than mother expectations. Moreover, it is possible that they are completely different from those held by mothers.

both point expectations and the probability distribution of future earnings perceived by the mother. In a companion paper (Attanasio and Kaufmann (2008)) we study extensively how mothers' points expectations of future earnings relate to mothers' expected earnings as derived from the subjective probability distribution. Here, we report some evidence on this issue in Section 4.2.

The fact that for half the sample the earnings expectations questions were answered by youths, while for the other half the questions were answered by the mother allows to address another important issue. If subjective expectations of mothers and youths were objective and rational expectations based on the same information, it would not matter who would answer (and the issue of whose expectations matter would be a moot one). It is therefore interesting to establish, whether the expectations of future earnings are systematically different depending on who answered the question.

In Section 4, we compare the expectations of mothers and youths (both asked in the form of a distribution of earnings). A straight comparison shows that these expectations are systematically different. Given the structure of the data, these differences can arise either because the questions answered by the mother and by the youth are measuring two different and distinct objects (the subjective probability held by the mother and the subjective probability held by the youth) or because the sample of youths absent from the interview (and for whom the question is answered by the mother) is systematically different from those present during the visit.

As discussed above, we want to establish whether the subjective expectations of youth and their mothers are systematically different. To correct for the possibility that the observed differences are due to sample selection we use a standard Heckman two-step approach (see Heckman (1979)). To achieve non-parametric identification of such a selection model, we need one or more variables that determine whether the question is answered by the youth rather than the mother and that, plausibly, do not affect the expectations directly. In our context we have a set of such variables that capture the timing of the interview (week of the year, day of the week and time of the day). These variables are strongly significant determinants of who is the respondent (see Table 14 in Appendix B).

3.5   Some Descriptive Statistics

Table 1 reports summary statistics of individual and family background characteristics. We present results separately for the two samples of mother and youth respondents to investigate whether there are potential sample selection problems, and also separately for the two cohorts of junior and senior high school graduates.

79% of youth with a junior high school degree decide to enroll in senior high school, while around 29% of senior high school graduates decide to enroll in college. Only in the latter case are there significant differences between the sample of mother and youth respondents. Enrollment rates for the mother sample are around 36% compared to 23% for the youth sample, as youths who

enroll in college are significantly less likely to be at home when the interviewer arrives to conduct the survey.

About 53% of the youths are female and females are particularly over-represented among youth respondents, i.e. they are more often at home during the interviewer's visit and can thus answer the youth questionnaire themselves.

In what follows, we make use of data on GPA (grade point average between 0 and 100) of junior high school as a proxy for academic achievement Table 1 shows that individuals of the older cohort have a higher GPA than those of the young cohort, possibly reflecting the fact that the senior high school graduates ("old" cohort) are a self-selected sample compared to the junior high school graduates ("young" cohort) who might or might not attend and finish senior high school. In the case of the young cohort, there are significant but small differences between the sample of mother and youth respondents with higher GPA for the "mother sample".

We create three per capita income categories, where the thresholds are equal to twice and four times the minimum wage and thereby correspond to eligibility criteria for fellowships.[7] About half the sample is in the lowest income category and thus relatively poor –reflecting the fact that our sample only consists of Oportunidades families–, while 30% are in the second highest and the remaining 20% in the top income category. For the old cohort the sample of mother respondents is slightly less poor.

To control for parental education as one of the most important determinants of children's schooling choices, we use information on parents' years of completed schooling in the form of four education dummies for both mother and father (unless the household is single headed): for primary education, junior and senior high school and university. About 70 to 80% of mothers and fathers have only some primary education, while around 20% have attended junior high school. Fathers' education is slightly higher than that of mothers: about 5-6% have attended senior high school (3% for mothers) and 1-2% have some university education (less than 1% for mothers). Comparing the youth and the mother sample, parents are slightly more highly educated in the youth sample.

In terms of father's occupation, 38% of fathers are unskilled workers, another 36% employees and around 22% are self-employed. 3% of fathers are family workers and 1% are employers. Fathers in the youth sample are significantly less likely to be unskilled workers or self-employed and more likely to be employees.

To conclude: the features of the sample reflect that we are working with families that are beneficiaries of a welfare program targeted to the poorest sector of Mexican society. There are some (usually small but) significant differences in individual characteristics and family background variables between the subsample where the earning expectations questions were answered by the youth and the subsample where they were answered by the mother. This finding points towards a

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[7]See Appendix B for a detailed description of which income measures we use and how and why we constructed the described per capita income categories. In addition we use an index created from information on family income and wealth (see Appendix B).

potential sample selection in our analysis of these questions which we address as discussed in the previous section. We now turn to differences in subjective expectations.

4   Subjective Expectations

Before using the data on subjective expectations to model schooling choices, we describe the general patterns and provide some evidence on their quality.   Further details on internal and external validity checks are contained in the companion paper Attanasio and Kaufmann (2008).

We start with some summary statistics of our expectations data, including a comparison between mother and youth expectations. We also compare two different expectation measures (the one derived from subjective earnings distributions and the point estimates) to data on Census earnings. We then move on to test how expectations vary with individual and family background characteristics and with average earnings in the municipality of residence. Finally, we regress mothers' expectations from the questions on individual distributions on mothers' point expectations and again an extensive set of controls to compare the two different ways of asking expectations questions.

4.1   Subjective Expectations: Descriptive Statistics

Table 2 presents summary statistics for the variables derived from the subjective expectations questions. The top panel of the Table reports expected log earnings and expected (gross) returns. The bottom panel, instead, focuses on perceived earnings and employment risk for three different schooling degrees, junior and senior high school and college as well as the skewness of the individual distributions. We summarize these measures separately for the two cohorts of junior and senior high school graduates, and separately for mother and youth respondents. While the first four columns refer to the main sampling unit, the last column also includes their siblings aged 15 to 25, for whom we have information.

Not surprisingly, but reassuringly, expected log earnings increase in schooling level. Gross returns to schooling –measured as difference between expected log earnings of two consecutive schooling degrees– are large and larger for college than high school (see Table 4 for a comparison with Census earnings).

In what follows we will explore whether mother or youth expectations are relevant for school choices. For this question to have content, it is necessary that the expectations of mothers and youths are indeed different. The third and sixth column of Table 2 report the P-value of the test of equality between the two means. Mother's expectations about future earnings of her children are significantly higher than the expectations for the youth sample. However, mothers' and youths' responses are only significantly different for returns to senior high school. We will return to these differences below.

Standard deviations of log earnings are one possible measure of (perceived) earnings risk and

commonly used for measuring risk in the case of observed earnings. It is important to point out that having information on the individual earnings distributions (e.g. in the form of minimum, maximum and probability above the midpoint) allows us to derive a measure of "true" risk, as perceived by the individual, while using the variability of observed earnings data will confound risk with unobserved heterogeneity. Moreover, observed variability will not distinguish between predicted and unpredicted changes.

Perceived earnings risk, as measured by the standard deviation of logs, decreases with education and is lowest for the expectations of earnings conditional on having a college degree. At the same time the probability of work increases with education. Thus lower income risk could be another important motivation, in addition to higher expected earnings, for achieving higher schooling.

Turning to the comparison between mother and youth responses we find that perceived risk is, by and large, higher for youths than for mothers, and significantly so in the cases of junior and senior high school earnings. Again there are significant but small differences between youths and mothers (less than 2 percentage points) in the probability of work.

Lastly we summarize skewness of the individual earnings distributions: On average individual earnings distributions are left-skewed (i.e. the probability to have earnings above the midpoint is larger than 0.5) and increasingly left-skewed with increasing schooling level. The only significant difference between mother and youth respondents is for junior high school earnings.

Note that there is a considerable amount of heterogeneity in expectations, as reflected by standard errors in brackets. This still holds after controlling for an extensive set of individual and family background characteristics (see Tables 6 and 7) reflecting the importance of unobserved heterogeneity in cognitive and social skills and differences in information sets e.g. about skill prices.[8]

The differences between youth and mother expectations will be important for our analysis. Table 1 suggests that the subsample of individuals for whom the questions were answered by the mother is significantly different in some important dimensions. For instance, the youths who answered the subjective expectations questions (because they were present at the moment of the interview) are more likely to be females and have a lower GPA. An interesting and, for our analysis, important question, therefore, is whether the observed differences in expectations are completely explained by differences in both observed and unobserved factors between the two subsamples, or whether they reflect genuine differences in subjective expectations between youths and mothers.

To shed light on this question, we perform a test of the difference in expectations, controlling for selection. This is done with a model a la Heckman and using the timing of the interview as an instrument for who answers the questionnaire. In particular, we assume that selection into the subsamples where the mother or the youth answers the expectations questions is determined by the

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[8]An alternative explanation is that the remaining "heterogeneity" reflects noise. But we show that subjective expectations are able to predict schooling choices even after controlling for an extensive set of individual and family background characteristics. This suggests that at least part of the heterogeneity captures factors, such as skills, which influence expected earnings.

following equation that determines, whether the respondent is the youth ($R = 1$) or not, ($R = 0$):

$$R = 1 \Leftrightarrow R^* = \delta + X'\kappa + Z'\lambda + \epsilon \geq 0, \tag{4}$$

where the vector of variables Z reflects a set of variables (week of the year, day, time of the day and interactions between day and time of the day when the interview was conducted), which are strong and significant predictors of who is the respondent (see Table 14 in Appendix B) and are assumed not to have a direct effect on expectations.

Table 3 presents results of the differences in mothers' and youths' expectations after controlling for self-selection both unconditionally and controlling for differences in the composition of the two subsamples.

Mother's expectations about future earnings of her children are still significantly higher than the expectations for the youth sample (compare Table 3 to Table 2). In terms of returns only the ones for senior high school are significantly different.

For the young cohort youths perceive a slightly higher earnings risk than mothers, while differences are not significant for the older cohort. After controlling for self-selection we now find significant differences in the probability of working with a senior high school and a college degree, but, once again, only for the young cohort.

The results in Table 3 suggest that differences in mothers' and youths' expectations are indeed genuine and not (entirely) driven by sample selection. This underlines the importance of understanding whose expectations are relevant for school choices, the ones of the mothers or the ones of the youths themselves. We pursue this issue in Section 5, after presenting some results to support the validity of the expectation data that we use in the rest of this paper.

4.2 Earnings Expectations Based on Different Ways of Eliciting Expectations and Observed Census Earnings

Validating the expectations questions is beyond the scope of this study and is done in a companion paper. In Table 4, however, we compare expected earnings derived from the subjective expectations questions with earnings data from the Census. We also compare our measures of expectations with the mothers' point expectations about the future earnings of her children.

We have already discussed how we compute expected (log) earnings and the nature of the question on mothers' expectations. We use Census data of the year 2000 and compute average log earnings (by gender and by schooling degree) in the municipality of residence for each youth in the sample. While the expectations questions refer to earnings at age 25, we use earnings of individuals who are between 25 and 30 years old to get a sufficiently large sample size (for each municipality).

While the comparison between the subjective expectations data and the Census data is certainly informative, if nothing else to check whether the subjective expectations data are roughly of the same order of magnitude, a direct comparison and a formal test of equality between the two would

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be misleading. There are many reasons why the Census data and the subjective expectations would be different. First, the former refer to a specific year (2000) and are therefore affected by specific aggregate shocks that might have been relevant in that year. To test some version of Rational expectations, one would need several years of realizations to average out aggregate shocks. Second, the data refer to individuals who were between 25 and 30 in 2000 and therefore belong to a different cohort from the individuals whose expectations were elicited in our survey. Finally, the Census data report realizations for individuals who self-selected into a specific education level and do not contain "counterfactual" earnings, which are instead elicited in the expectations questions. If more able individuals select into education, one would expect returns to education to be higher in the Census than in our expectations data.

From these considerations, it should be clear that to establish whether the elicited expectations are 'rational' is probably impossible. And, in a sense, it is not too important: for modeling education choices what matters is whether the elicited expectations reflect the subjective expectations that people base their decisions on.

Table 4 shows that average log Census earnings for junior high school lie in the interval between mothers' point expectations and those based on the distribution of earnings, where the former are significantly larger than the latter. Expected log senior high school earnings based on distributions are similar to observed earnings, while those based on point estimates are larger. Independent of the measure of expectations, mother and youth respondents expect college earnings to be considerably higher in the future than the figures from the Census. The expected returns to education implied by the subjective expectations data are much higher than those observed in the Census, especially for the returns to senior high school.

As for the different measures of subjective expectations, Table 4 shows that there are large level differences between expectations based on point estimates and those that are based on the earnings distributions, in particular for lower schooling levels. Implied returns to high school and college are smaller when based on expectations from point estimates and in this case are relatively close to observed returns.

Nevertheless, it is worrisome that expectations differ quite substantially depending on how the questions were asked. Yet if this only represents a shift in the level, but both measures capture unobserved heterogeneity in expectations (e.g. due to unobserved skill differences and heterogeneity in information sets) in a similar way, then this does not pose a major problem for our analysis of the role of expectations in schooling choices. The correlation coefficient between expected earnings derived from the subjective expectations questions and the point expectations is equal to 0.47 for the sample where both questions were answered by the mother (and is basically the same for both young and old cohort and for expectations for all three completed schooling degrees).

To analyze this relationship further, in Table 5, we report the coefficients of a regression of mother's expected earnings (derived from the elicited probability distribution) on her point expec-

tations as well as on average earnings (by gender) in the municipality of residence and an extensive set of individual and family background characteristics. The results show that the two measures of expectations are strongly correlated, even after controlling for all the observable variables we consider. This evidence suggests that both measures capture important unobserved individual differences arising for example from unobserved heterogeneity in skills and information.

4.3 Predictors of Earnings Expectations: Individual and Family Characteristics and Local Earnings.

In this subsection we relate subjective expectations to various observable variables. While the results we obtain are not intended to be interpreted as estimates of a behavioral model of expectation formation, it is of substantive interest to learn how earnings expectations vary with individual attributes. Why should individual characteristics and family background be able to predict expectations? Rational expectations would imply that the same factors that predict actual earnings also predict expectations (conditional on these factors being in the information set of the individual). For example people with higher test scores have been shown to have higher earnings. Thus more able people should also expect higher earnings, if they are rational and know that they are able.

A comparison of the relation between subjective expectations and observable variables on the one hand, and actual earnings and the same set of variables on the other hand, could be seen as a test of rationality. We should remember, however, that a formal test of rationality would be difficult due to the same issues that we discussed when presenting the comparison of average expected earnings to average Census earnings. Moreover, as we mentioned above, subjective expectations do not have to be rational to be valid or useful. Having said this, however, we would expect people to draw inferences about their own potential earnings from what they observe from others. Thus finding that expectations vary with observable characteristics in a way similar to observed earnings lends support to their validity.

To pursue this line of investigation, in Tables 6 and 7 we regress expected individual earnings on a number of individual, household and municipality level variables. Table 6 refers to the young cohort, while Table 7 refers to the older one of youths finishing senior high school. In both Tables we report separate regressions for answers provided by the youth and answers provided by the mother. As discussed above, we correct for the possibility of selection bias using a standard Heckman selection model, with the timing of the interview as exclusion restriction. In Table 6, which refers to the younger cohort, we report the regressions for expected earnings under the three possible scenarios about completed schooling at age 25 for this cohort. In the case of the old cohort, whose results are in Table 7, there are only two possible scenarios, as these youths have just completed senior high school.

The municipality level determinants of subjective expectations we consider in our regression are average (log) Census earnings in the municipality of residence for the three schooling levels

we are considering (junior high school, senior high school and college). These variables are meant to capture local labour market conditions. The individual variables we add to our regression are gender and GPA. Finally, the household level variables we consider are dummies for mothers' and fathers' education, for per-capita income and for fathers' occupation.

Starting with Table 6, we notice that the coefficients have, by and large, the expected sign. Municipality average earnings by education level (and gender) seem to be very important. The fact that the gender dummy is not significantly different from zero in any of the specifications is not surprising in the light of the fact that the average earnings variables we have in the regression are gender specific: a negative coefficient on such a dummy, therefore, would imply that women systematically expect lower earnings than what they observe in terms of women's earnings in their municipality.

An interesting feature of Table 6 are the differences between the regression for mother and youth earnings expectations (see Attanasio and Kaufmann (2008) for a more detailed analysis). The size and sometimes even the sign of some coefficients is systematically different between the two regressions. Interestingly, our measure of academic achievement, GPA, seems to be much more important in mothers' expectations than in the youths' ones. The same is true for household income and father's occupation. Higher parental income and having a father who is employer is also correlated with higher expected earnings, potentially resulting from parents who are better "connected" or who might be able to employ their children themselves. The inverse Mills ratio seems to be significant (and strongly so) only in the youth regressions.

Moving to Table 7 for the older cohort, we notice once again the importance of the Census average earnings data by gender and municipality. This time the female dummy is significantly negative in the youth equation for senior high school expected earnings. The GPA is relevant (in both mother and youth regressions) for college earnings but not for high school earnings. Finally, fathers' education is significant in the youth equation but not in the equation for mothers. In some instances having a mother with some university education is negatively correlated with junior and senior high school earnings, which is hardly consistent with evidence on realized earnings and might have some behavioral explanation (see Attanasio and Kaufmann (2008) for a more detailed analysis). Finally, as with the previous table, the inverse Mills ratio seems to play a more important role in the youth equation, although it is not strongly significant this time.

5   School Choices: the Role of Earnings Expectations and Risk Perceptions

In this section, we show that individuals' expectations about future returns to schooling and perceptions about employment probabilities and earnings risks for different schooling scenarios are important predictors of their educational decisions. As mentioned above, we also investigate whose

expectations, youths' or parents (as proxied by mothers') expectations, are relevant for schooling decisions. We present the estimation results on the two subsamples we consider: youths who have completed junior high school and decide whether to enrol in senior high school, and youths who decide whether to enroll in college, having completed senior high school.

Having shown that mothers' expectations are significantly different from those of their children, we can sensibly address the question discussed in Section 2.2 about whose expectations are relevant for education choices. However, to be able to get an answer, we need to observe both mothers' and youths' expectations for the same group of individuals. For this purpose, therefore, we have to use the subsample where the youth answered the subjective expectations questions and utilize the mother's point expectations answers as a proxy for her subjective expectations. As in the descriptive analysis in section 4.1, here and in all subsequent analyses where we use only one subsample, we take into account the selected nature of our data by using a Heckman selection model. In particular, in the following analysis of education choices we estimate the participation ("respondent") equation (4) jointly with the schooling choice equation. Although the discrete choices of schooling conditioned on selecting into a subsample are non-parametrically identified by using the time and date of interview variables as exclusion restrictions (as in Section 4.1), we will be fitting a bivariate probit by maximum likelihood.

As we discussed above, the point expectations elicited from mothers in our survey can be used as a proxy for mother's expectations, or at least for the first moment of mothers' expectations. Unfortunately, we will not be able to use a similar approach for higher moments of earnings expectations or for the perceived probability of working. For these variables we will be forced to use whatever is available, which means the variables derived from the youth answers for the youth sample and the variables derived from the mothers' answers for the mother sample. We will discuss these issues in detail below.

5.1   Results

5.1.1   College Attendance Choice

We start with the analysis of the decision to enrol or not in college for youths who have just finished senior high school. As shown in Table 1, around 30% of youths graduating from high school decide to enrol in college.

Tables 8, 9 and 10 report our estimates of the model in equation (2) that relates schooling decisions to a set of control variables and expected future earnings under different schooling scenarios, as expected by both the mother and the youth. As discussed above, this model is estimated on the subsample of individuals for whom the youth answered the expectations questions. Our choice of estimator takes into account the selected nature of this sample. Moreover, while youths' expectations are derived from the answers to the subjective expectations questions, the mothers' are approximated by the point expectations available in the survey. In the tables, we report the

coefficients and marginal effects of the relevant variables on the probability of enrolling into college. A complete set of results including the selection equation can be found in the Appendix.

The control variables have all the expected signs and are statistically significant. Parental education is an important determinant of the probability of going to college, as is parental income and, in particular, academic performance, as measured by the GPA. Cost variables, such as distance from university and the level of tuition fees in nearby universities are also important determinant of the decision (for the data sources and the exact definition of the variables, see Kaufmann (2009)).

Table 8 presents results for the effect of expected earnings of mothers' and youths', where the second specification is a constrained version of the first specification: in the second model the coefficient on senior high school and college earnings are constrained to be of the same absolute magnitude but opposite sign, as would be the case if one included a measure of expected returns (as the difference between expected log college and log high school earnings).

The expected earnings of both mothers and youths have the right sign: higher expected earnings with a college degree increase the probability of college enrolment, while higher expectations of earning with a high school degree decrease the probability. However, it is clear that the effect of youths expectations is much larger, while it is only statistically significant in the constrained model.

In Table 9 we add to the constrained specification variables that measure the risk of the investment choices considered by the youth (see Columns 3 and 4). In particular, we add the variables that measure the probability of work as well as the variance of log earnings under different schooling scenarios. It should be stressed that we can only compute these measures for the youths and not for the mothers, for which only the point expectations question was asked in this subsample. Somewhat disappointingly, none of the variables considered is statistically significantly different from zero. The pattern of sign and size of the coefficients of the other variables does not change relative to Columns 1 and 2.

A possible interpretation of the results in Table 9 is that only youths' expectations matter. Given this interpretation, in Table 10 we present the results we obtain by dropping from our specification mothers' point expectations. In the first column we see that an increase by 10 percentage points in the return to college (as measured by the difference in log expected earnings with and without college degree) increases the probability of enrolling into college by just over half a percentage point. The effect is clearly not large, but it is statistically different from zero.

In Columns 3 and 4 of Table 10, instead of controlling for current income, we aggregate income, wealth and durable ownership in a single measure of economic wellbeing (as described in Appendix B) and construct dummies for the quartiles of this measure. The table reports the coefficient on the only significant dummy, which is the one that refers to the top quartile. Interestingly, the other results are virtually unaffected. Being in the top quartile of our wealth variable, or having a per-capita income of more than 10 thousand pesos increase the probability of attending college by more than 10 percentage points.

Having a self-employed father has a significantly negative effect. This might be due to the fact that the income of a self-employed individual is likely to be more risky than that of an employee or employer, which affects the planning security of how to finance several years of higher education. Fathers' occupation will also affect his likelihood of receiving loans from a bank, e.g. to finance college education of his children (though it will in general be very difficult to receive loans for human capital investments due to moral hazard problems and lack of collateral).

The results in this section point towards the importance of a family's financial means in the decision to attend college. We will investigate this issue further in Section 6.

5.1.2 High School Attendance Choice

We now turn our attention to the decision to enroll in senior high school for youths who have just finished junior high. As can be seen in Table 1, 79% of the youths who have completed junior high school in our sample enroll into senior high school. We model this decision using again equation (1), which relates the probability of enrolment to a set of control variables and future earnings under different schooling scenarios, as expected by both the mother and the youth. Table 11 reports our estimates of this model. As before, the model is estimated on the subsample of individuals for whom the youth answered the expectations questions so that our estimator takes into account the selected nature of the sample. Moreover, as before mothers' expectations are approximated by the point expectations available in the survey.

In Columns 1 and 2 (presenting coefficient estimates and marginal effects), we see that mothers' as well as youths' expectations seem to matter in high school attendance decisions. In particular expected college earnings are significantly positively correlated with the decision to attend high school.

Individual and family background variables have the expected signs: the probability of high school attendance is increasing in GPA and in mothers' and fathers' education. Having a father who is a family worker has a significant negative effect. Perhaps surprisingly, parental income is not significant. This evidence contrasts strongly with what we observed for the decision to enrol in college and casts some doubts about the relevance of liquidity constraints for this particular education choice. This might be related to the fact that public secondary education is free.[9]

In the third and fourth column of Table 11 we add measures of youths' risk perceptions. As explained before it is not possible to include these measures for both mothers and youths due to data limitations. We find that once we add these measures, the coefficient on youths' expected college earnings goes down in size and loses its significance. This coefficient might have picked up the effect of the youths' perceptions of employment probabilities with a college degree, which now is strongly significant and has an important positive effect on the likelihood of attending high school. By attending high school the youth can secure the option of attending college afterwards

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[9]We do not have information on private schools or selective schools that are both known to be of much better quality and for which there might be some constraints.

and benefit from a high job security with a college degree. However, it should be stressed that the evidence is not as clear cut as the one for the college enrollment decision, for which mothers expectations seem to play a very small role. Perhaps not surprisingly, mothers expectations do play an important role for the decision to enrol in senior high school.

The findings above raise the concern that also the significance of mothers' expected college earnings might be driven by omitting mothers' perceptions about employment probabilities. Our evidence in Table 3 has shown that the expectations about the probability of future work, for instance, are systematically different, even after controlling for selection and various observable variables, for mothers and youths.

To address this concern at least in part, we re-estimate our enrolment decision equation separately for the subsample of mother and youth respondents, where we can control for both expectations as well as risk perceptions (also for mothers). We report the results of this exercise in Table 12.

If individual expectations are indeed different for youths and mothers, the estimates in the left panel of Table 12 are only consistent if only the youths expectations are relevant for decisions, while the right-hand side panel presents consistent estimates if only the mothers' expectations matter. If, as it seems to be the case in Table 11, both sets of expectations are important, all coefficients in Table 12 are inconsistent.

Table 12 suggests that perceptions of earnings and employment risk are important predictors of high school attendance decisions: The probability of attending high school is increasing in the perceived probability of having a job after completing a college degree, as attending senior high school generates the option to go to college. In addition we find that for mothers also perceptions of earnings risk are important: If mothers perceive senior high school earnings to be particularly risky, they are more likely to stop school after junior high school.

These results underline the importance of taking into account risk perceptions in the analysis of schooling choices, which, as we discussed in the introduction, has been largely neglected in this literature. Data on subjective distributions of future earnings has the important advantage of delivering measures of individual risk perceptions that do not confound unobserved heterogeneity with "true" risk and take into account that ex-ante perceptions matter.

6 Credit Constraints

In Section 5, we have shown that parental income and father's occupation –both of which determine the availability of resources and the ability to collateralize and receive loans– are important predictors of the college attendance choice. At the same time, we have seen that the effect of expected returns to education, albeit significant, is not very large.

Interpreting the significance of parental income as a sign for credit constraints can be problematic. Parental income might be reflecting unobserved ability that affect future earnings expectations

or differences in information about skill prices. Using data on quantitative subjective expectations, we have tried to address this concern by controlling directly for people's expectations of future returns to schooling and for their risk perceptions. How sensitive education choices are to expectations about future returns provides direct evidence on the relevance of liquidity constraints: an individual who does not exploit an investment opportunity that she perceives as very profitable might be lacking funding opportunities for that investment.

In this section, we analyze in more depth the extent to which liquidity constraints affect college attendance decisions. We do not pursue the same analysis for the decision to enrol in senior high school for two reasons. First, in the previous section we were less successful in identifying a convincing behavioural model for senior high school enrolment. For instance, we were not able to resolve as cleanly as with the college decision, the issue of whose expectations are relevant for the enrolment decisions. Second, senior high schools are free for the public sector, so that the cost of attending senior high school is considerable lower than the cost of attending college. Moreover, several scholarships are available for senior high school students from modest backgrounds.[10]

In Table 13 we extend the model estimated in Table 10 by allowing the coefficient on expected returns to college to be different for individuals with different parental income and/or wealth (the table displays marginal effects, while a table with coefficient estimates is in Appendix B). In particular, in the first two columns of the table we allow the coefficient on expectations to be different depending on whether parental income is above or below median income. In Columns 3 and 4, instead, we let the coefficient depend on whether our synthetic wealth measure[11] is above or below the sample median. In both cases, we consider two specifications: one where the coefficient on the GPA is the same for everybody, and another where the same coefficient is let to vary with parental income or wealth, like the coefficient on expectations.

The results are very clear. The coefficient on expected return is significantly different from zero and much larger than what we reported in Table 10, but only for individual whose parents have income or wealth index above the median. In the case of the income interaction, the marginal effect of expected returns for this group is 0.100, instead of 0.055. For the wealth measure, the marginal effect is 0.140. For the group with income or wealth below the median, instead, the point estimate of the effect of expected returns to education is much smaller and not statistically different from zero.

Letting the coefficient on the GPA vary with income or wealth as the coefficient on the returns to education does not change the coefficients on the expected returns. The coefficients on the GPA, however, take up the same pattern as those on expectations: the effect of the GPA is large and

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[10]Public schools are free of tuition and transport costs (or costs-of-living) are smaller, as people usually live within short distance of a high school, which is not necessarily true for universities. Conditional cash transfers from Progresa/Oportunidades were extended to senior high school attendance in 2002, while higher education is underfinanced even compared to other Latin American countries (see Kaufmann (2009) for further background information on Mexico's higher education system and financing of higher education in Mexico).

[11]As before, the wealth measure we use is the first principle component of parental income, durables, savings and other measures of wealth. For a complete description see Appendix B.

significant for individuals with relatively high parental income and/or wealth, while it is virtually zero for the poorest individuals in our sample.

One possible worry in interpreting these results is that splitting the sample between high and low levels of individuals' parental income or wealth also splits students by ability, so that, for instance, one would not encounter many individuals with low income and high GPA and viceversa. These worries, however, are unfunded. While it is true that GPA and parental income correlate, we do find individuals with high GPA and relatively low levels of income and wealth and viceversa.

Our evidence, therefore, points clearly to the fact that there are individuals in our sample with a relatively high expected return to education (and high GPA) that do not act upon these expectations and these individuals are more likely to come from the poorest part of our sample. [12]

Again having a father who is self-employed has a significant negative effect. These results and evidence from previous sections is consistent with credit constraints playing an important role in college attendance decisions.

At the same time further investigation in this important issue is needed, as there could potentially be explanations other than credit constraints that explain why poor individuals are not very responsive to expected returns. Furthermore, to give informed policy recommendations it is important to evaluate welfare implications of government policies such as fellowships or student loan programs.[13]

7   Conclusion

The goal of this paper was to improve our understanding of human capital investment decisions, in particular the decisions about receiving secondary and post-secondary education.

We have analyzed three aspects of this decision process: firstly we shed some light on the decision-making process within the household in terms of the question whose expectations matter in schooling decisions. We find that for the high school choice both mothers' and youths' expectations matter, while for the college attendance choice only the ones of the youths appear relevant. While the picture that emerges for the college decision is relatively clear, the evidence on high school decisions is more ambiguous due to the combination of data limitations and the fact that both mothers' and youths' expectations seem to matter. Further research on this issue, therefore, is needed.

Secondly, we analyzed the link between subjective expectations and schooling decisions, taking into account one determinant that has often been neglected in this analysis, that is perceptions of

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[12]It is important to point out that the support of expected returns is largely overlapping for the poor and the rich and mean returns to college are not significantly different. Kaufmann (2009) shows that low college enrollment of the poor cannot be explained by lower expected returns of the poor, but estimates that the poor face significantly higher costs to college.

[13]Compare Kaufmann (2009) who provides further evidence that credit constraints provide an important obstacle to investments in higher education in Mexico and that introducing a student loan or fellowship program could lead to important welfare gains.

earnings and employment risk for different schooling scenarios. We find that expected returns to schooling and risk perceptions are important determinants of schooling decisions, but play different roles in the decision to attend senior high school and college. While risk perceptions seem be more important in high school decisions, expected returns appear more relevant in college attendance decisions.

Thirdly and most importantly, data on subjective expectations help us to provide evidence on the importance of credit constraints in secondary and post-secondary schooling decisions. Our findings suggest that credit constraints constitute an important obstacle for poor Mexicans to obtain higher education, which is consistent with the fact that fellowships and students loans are basically non-existent at the level of college education.

One implicit goal of this paper was to illustrate that data on subjective expectations of earnings can be used as an important input into addressing further interesting policy questions. Subjective expectations can be used in structural models of educational choices that take into account perceived earnings and employment risk as important additional determinants. Furthermore, data on expectations for several children in a family can inform the debate about intra-family household allocation in terms of human capital investments: Do parents invest in those children with the highest expected earnings and provide transfers to the others (if they have preferences for equalizing the utility of their children)? Are there differences in investment patterns between rich and poor families?

Our paper adds to the literature on subjective expectations in illustrating that –also in developing countries, at least conditional on a certain level of education– people seem able and willing to respond meaningfully to questions about their perceptions of future earnings and employment and that these data can improve our understanding of important economic decisions, such as investment into human capital.

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Table 1: Individual and Family-Background Characteristics

Cohort:	Young Cohort			Old Cohort			Full
Resp:	**Youth**	**Mother**	**Diff**	**Youth**	**Mother**	**Diff**	**Sample**
	Mean/(SE)		(P-Val)	Mean/(SE)		(P-Val)	Mean/(SE)
Enrollment Rate							
Senior High School	0.8011 (0.3992)	0.7875 (0.4092)	(0.2941)				
College				0.2304 (0.4212)	0.3649 (0.4816)	(0.000)	
Female	0.553 (0.497)	0.503 (0.500)	(0.002)	0.583 (0.493)	0.495 (0.500)	(0.000)	0.537 (0.499)
GPA of Jr HS (Scale 0-100)	80.71 (8.15)	81.28 (8.971)	(0.040)	82.18 (7.17)	82.31 (10.33)	(0.679)	81.77 (8.75)
Per Cap Income - 5 to 10k	0.295 (0.456)	0.295 (0.456)	(0.987)	0.240 (0.427)	0.270 (0.444)	(0.057)	0.277 (0.447)
Per Cap Income - above 10k	0.212 (0.409)	0.195 (0.397)	(0.190)	0.166 (0.373)	0.170 (0.376)	(0.334)	0.191 (0.393)
Mother's Educ - Primary	0.718 (0.450)	0.742 (0.438)	(0.137)	0.792 (.406)	0.791 (0.407)	(0.921)	0.754 (0.430)
Mother's Educ - Jr HS	0.241 (0.428)	0.226 (0.418)	(0.324)	0.176 (.381)	0.176 (0.381)	(0.983)	0.210 (0.407)
Mother's Educ - Sr HS	0.035 (0.184)	0.023 (0.150)	(0.052)	0.027 (.161)	0.031 (0.173)	(0.529)	0.029 (0.167)
Mother's Educ - Univ	0.006 (0.076)	0.009 (0.094)	(0.341)	0.006 (.075)	0.003 (0.051)	(0.260)	0.007 (0.082)
Father's Educ - Primary	0.704 (0.457)	0.714 (0.452)	(0.591)	0.760 (0.427)	0.757 (0.429)	(0.879)	0.730 (0.444)
Father's Educ - Jr HS	0.230 (0.421)	0.213 (0.410)	(0.349)	0.182 (0.386)	0.185 (0.388)	(0.867)	0.204 (0.403)
Father's Educ - Sr HS	0.058 (0.234)	0.057 (0.232)	(0.906)	0.050 (0.217)	0.042 (0.200)	(0.409)	0.054 (0.226)
Father's Educ - Univ	0.009 (0.093)	0.019 (0.125)	(0.125)	0.008 (0.089)	0.016 (0.125)	(0.106)	0.013 (0.112)
Father's Occup - Unsk. Work	0.333 (0.471)	0.362 (0.481)	(0.105)	0.415 (0.493)	0.454 (0.498)	(0.062)	0.382 (0.485)
Father's Occup - Employee	0.456 (0.498)	0.391 (0.488)	(0.001)	0.311 (0.436)	0.256 (0.390)	(0.004)	0.359 (0.479)
Father's Occup - Employer	0.008 (0.087)	0.004 (0.062)	(0.205)	0.010 (0.097)	0.005 (0.072)	(0.250)	0.008 (0.089)
Father's Occup - Self-Empl.	0.182 (0.385)	0.215 (0.411)	(0.029)	0.224 (0.417)	0.250 (0.433)	(0.153)	0.220 (0.414)
Father's Occup - Fam. Work	0.022 (0.147)	0.027 (0.162)	(0.428)	0.040 (0.196)	0.034 (0.182)	(0.481)	0.031 (0.172)
Observations	2084	1781		1497	1585		9988

Table 2: Subjective Expectations of Future Earnings

Cohort:	Young Cohort			Old Cohort			Full
Resp:	**Youth**	**Mother**	**Diff**	**Youth**	**Mother**	**Diff**	**Sample**
	Mean/(SE)		(P-Val)	Mean/(SE)		(P-Val)	Mean/(SE)
Exp Log Earnings							
- Junior HS	7.027	7.190	(0.000)	N.A.	N.A.		7.096
	(0.597)	(0.487)					(0.543)
- Senior HS	7.592	7.703	(0.000)	7.568	7.640	(0.000)	7.623
	(0.548)	(0.444)		(0.504)	(0.436)		(0.491)
- College	8.227	8.320	(0.000)	8.243	8.305	(0.000)	8.269
	(0.518)	(0.439)		(0.480)	(0.438)		(0.475)
Exp Return							
- Senior HS	0.564	0.514	(0.000)	N.A.	N.A.		0.526
	(0.321)	(0.280)					(0.299)
- College	0.635	0.616	(0.107)	0.675	0.668	(0.591)	0.645
	(0.365)	(0.330)		(0.386)	(0.361)		(0.362)
Std Dev of Log Earn							
- Junior HS	0.076	0.070	(0.000)	N.A.	N.A.		0.072
	(0.047)	(0.044)					(0.045)
- Senior HS	0.065	0.061	(0.002)	0.064	0.60	(0.021)	0.062
	(0.041)	(0.039)		(0.039)	(0.0375)		(0.039)
- College	0.054	0.053	(0.191)	0.054	0.052	(0.111)	0.053
	(0.036)	(0.035)		(0.034)	(0.032)		(0.034)
Skewness							
- Junior HS	0.513	0.539	(0.000)	N.A.	N.A.		0.521
	(0.200)	(0.190)					(0.200)
- Senior HS	0.655	0.661	(0.239)	0.647	0.652	(0.493)	0.653
	(0.182)	(0.171)		(0.184)	(0.176)		(0.179)
- College	0.804	0.810	(0.345)	0.788	0.797	(0.167)	0.801
	(0.180)	(0.167)		(0.179)	(0.170)		(0.175)
Prob of Work							
- Junior HS	0.481	0.506	(0.000)	N.A.	N.A.		0.491
	(0.208)	(0.208)					(0.211)
- Senior HS	0.663	0.664	(0.940)	0.665	0.648	(0.009)	0.658
	(0.186)	(0.169)		(0.182)	(0.179)		(0.179)
- College	0.823	0.816	(0.146)	0.824	0.812	(0.034)	0.819
	(0.167)	(0.156)		(0.160)	(0.154)		(0.159)
Observations	2084	1781		1497	1585		9988

Table 3: Differences in Subjective Expectations between Mothers and Youths

Cohort:	Young Cohort		Old Cohort	
	Uncond.	**Conditional**	**Uncond.**	**Conditional**
	Mean/(SE)		Mean/(SE)	
Exp Log Earnings				
- Junior HS	0.1581	0.3205	N.A.	N.A.
	(0.0697)	(0.0694)		
- Senior HS	-0.0009	0.1671	0.0953	0.1786
	(0.0643)	(0.0631)	(0.0991)	(0.0924)
- College	0.0005	0.1858	-0.0647	0.0567
	(0.0617)	(0.0623)	(0.0981)	(0.0923)
Exp Return				
- Senior HS	-0.1590	-0.1534	N.A.	N.A.
	(0.0391)	(0.0404)		
- College	0.0015	0.0187	-0.1600	-0.1219
	(0.0444)	(0.0455)	(0.0804)	(0.0771)
Std Dev of Log Earn				
- Junior HS	-0.0296	-0.0263	N.A.	N.A.
	(0.0059)	(0.0062)		
- Senior HS	-0.0062	-0.0056	0.0007	-0.0034
	(0.0051)	(0.0053)	(0.0081)	(0.0079)
- College	-0.0130	-0.0101	0.0025	-0.0003
	(0.0046)	(0.0048)	(0.0070)	(0.0068)
Skewness				
- Junior HS	0.0104	-0.0006	N.A.	N.A.
	(0.0248)	(0.0256)		
- Senior HS	-0.0190	-0.0309	-0.0648	-0.0063
	(0.0226)	(0.0234)	(0.0387)	(0.0369)
- College	-0.0073	-0.0105	-0.0327	0.0178
	(0.0222)	(0.0230)	(0.0373)	(0.0359)
Prob of Work				
- Junior HS	-0.0230	-0.0317	N.A.	N.A.
	(0.0266)	(0.0273)		
- Senior HS	-0.0863	-0.0798	-0.1092	-0.0462
	(0.0233)	(0.0240)	(0.0393)	(0.0369)
- College	-0.0711	-0.0724	-0.0461	-0.0075
	(0.0210)	(0.0218)	(0.0335)	(0.0323)
Observations	3865	3865	3082	3082

Notes: Table takes into account sample selection by instrumenting for who responds to the expectation questions. As instruments we use variables that capture the timing of the interview.

Table 4: Expected Earnings of Mothers and Youths, Mothers' Point Expectations and Census Earnings

| Cohort: | Young Cohort | | | | Old Cohort | | | |
| Resp: | Youth | | Mother | | Youth | | Mother | |
	Mean (SE)	Implied Return	Mean (SE)	Implied Return	Mean (SE)	Implied Return	Mean (SE)	Implied Return
Exp Log Earnings (from Distr)								
- Junior HS	7.027 (0.597)		7.190 (0.487)		N.A.		N.A.	
- Senior HS	7.592 (0.548)	0.564 (0.321)	7.703 (0.444)	0.512 (0.279)	7.568 (0.504)		7.640 (0.436)	
- College	8.227 (0.518)	0.635 (0.365)	8.320 (0.439)	0.616 (0.329)	8.243 (0.480)	0.675 (0.385)	8.305 (0.438)	0.667 (0.363)
Mother's Point Expect (Logs)								
- Junior HS	7.447 (0.536)		7.549 (0.479)		N.A.		N.A.	
- Senior HS	7.801 (0.513)	0.354 (0.302)	7.894 (0.496)	0.345 (0.252)	7.733 (0.488)		7.838 (0.436)	
- College	8.272 (0.522)	0.471 (0.396)	8.355 (0.517)	0.461 (0.352)	8.232 (0.468)	0.499 (0.385)	8.328 (0.438)	0.490 (0.398)
Log Census Earnings (Resid Municip)								
- Junior HS	7.254 (0.436)		7.249 (0.505)		7.101 (0.471)		7.152 (0.468)	
- Senior HS	7.643 (0.319)	0.342 (0.332)	7.604 (0.357)	0.330 (0.347)	7.538 (0.432)	0.391 (0.433)	7.520 (0.436)	0.350 (0.411)
- College	8.125 (0.268)	0.503 (0.352)	8.134 (0.289)	0.544 (0.429)	8.104 (0.340)	0.588 (0.429)	8.117 (0.438)	0.596 (0.492)
Observations	2084		1781		1497		1585	

Table 5: Mother's Expected Earnings and her Point Expectations

| Dep Var: | **Mother's Expected Log Earnings** | | | | |
| Resp: | Young Cohort | | | Old Cohort | |
	Jr HS	**Sr HS**	**College**	**Sr HS**	**College**
Mother's Point Exp (Logs) - Jr HS	0.525***				
	(0.023)				
Mother's Point Exp (Logs) - Sr HS		0.445***		0.377***	
		(0.021)		(0.023)	
Mother's Point Exp (Logs) - College			0.454***		0.494***
			(0.021)		(0.024)
Log Census Earn (Municip of Resid, by Gender) - Jr HS	0.010	0.027	0.071**	0.069**	0.013
	(0.032)	(0.030)	(0.030)	(0.034)	(0.034)
Log Census Earn (Municip of Resid, by Gender) - Sr HS	-0.045	-0.049	-0.044	-0.016	0.019
	(0.037)	(0.034)	(0.034)	(0.036)	(0.036)
Log Census Earn (Municip of Resid, by Gender) - College	0.006	-0.000	0.071**	0.034	0.105***
	(0.038)	(0.034)	(0.035)	(0.036)	(0.036)
Female	-0.032	-0.058**	-0.029	0.009	-0.007
	(0.027)	(0.025)	(0.025)	(0.034)	(0.034)
GPA of Junior HS (0-100)	0.001	0.002*	0.002	0.001	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's Educ - Univ	-0.337**	-0.196	-0.183	0.073	0.130
	(0.138)	(0.127)	(0.127)	(0.278)	(0.277)
Father's Educ - Sr HS	0.120**	0.079	0.035	0.054	0.081
	(0.056)	(0.051)	(0.051)	(0.067)	(0.066)
Per cap Income - 5 to 10k	0.015	0.041*	0.058***	0.043	0.032
	(0.024)	(0.022)	(0.022)	(0.028)	(0.028)
Per cap Income - more than 10k	0.014	0.016	0.043*	0.008	-0.018
	(0.027)	(0.025)	(0.025)	(0.031)	(0.031)
Father's Occup - Employer	0.073	0.266*	0.219	-0.055	0.161
	(0.174)	(0.160)	(0.160)	(0.154)	(0.154)
Observations	3865	3865	3865	3082	3082
Cens. obs.	2084	2084	2084	1497	1497
Chi-Square	1035.423	951.109	943.215	533.873	656.744
Inverse Mills Ratio	0.044	0.069	0.001	-0.030	-0.063
S.E. of Inv Mills	0.054	0.049	0.049	0.093	0.093

Notes: Table displays coefficients and standard errors in brackets. * $p<0.1$ ** $p<0.05$ *** $p<0.01$. Excl. categories: male, lowest per capita parental income category, father's and mother's education primary or less, father's occupation: unskilled worker. Not included due to space limitations (not significant): mother's education junior or senior high school, father's education junior high school or university, father's occupation employee, self-employed or family worker. All specifications include state FE.

Table 6: Expected Earnings and Observed Characteristics - Young Cohort

Dep Var:	**Expected Log Earnings**					
Resp:	Youth (Young Cohort)			Mother (Young Cohort)		
	Jr HS	**Sr HS**	**College**	**Jr HS**	**Sr HS**	**College**
Log Census Earn (Municip of Resid)	0.088**	0.060	0.132***	0.064*	0.056*	0.095***
by Gender) - Jr HS	(0.045)	(0.041)	(0.040)	(0.037)	(0.033)	(0.034)
Log Census Earn (Municip of Resid	0.145**	0.135**	0.065	-0.068	-0.068*	-0.068*
by Gender) - Sr HS	(0.060)	(0.055)	(0.054)	(0.043)	(0.039)	(0.039)
Log Census Earn (Municip of Resid	-0.069	-0.046	0.084*	-0.019	-0.013	0.095**
by Gender) - College	(0.053)	(0.050)	(0.048)	(0.044)	(0.039)	(0.040)
Female	-0.035	-0.020	0.024	0.000	-0.039	-0.015
	(0.034)	(0.031)	(0.031)	(0.031)	(0.028)	(0.028)
GPA of Junior HS (0-100)	0.000	0.001	0.001	0.003**	0.003***	0.004***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Mother's Educ - Jr HS	-0.066*	-0.043	-0.024	-0.008	-0.006	0.032
	(0.036)	(0.033)	(0.033)	(0.032)	(0.028)	(0.029)
Mother's Educ - Univ	0.042	0.072	0.070	-0.363**	-0.271*	-0.209
	(0.192)	(0.174)	(0.172)	(0.160)	(0.144)	(0.146)
Per cap Income - 5 to 10k	0.011	0.039	0.045	0.054*	0.066***	0.081***
	(0.032)	(0.029)	(0.029)	(0.028)	(0.025)	(0.026)
Per cap Income - more than 10k	0.054	0.049	0.089***	0.045	0.042	0.058**
	(0.037)	(0.034)	(0.033)	(0.031)	(0.028)	(0.029)
Father's Occup - Employer	-0.129	-0.229	-0.259	0.228	0.452**	0.394**
	(0.186)	(0.167)	(0.165)	(0.202)	(0.181)	(0.184)
Observations	3865	3865	3865	3865	3865	3865
Censored	1781	1781	1781	2084	2084	2084
Chi-Square	485.099	493.734	435.751	434.537	438.112	404.965
Inverse Mills Ratio	0.313	0.197	0.236	0.018	0.052	0.069
S.E. Inv Mills Ratio	0.065	0.059	0.058	0.062	0.056	0.056

Notes: Table displays coefficients and standard errors in brackets. * p<0.1 ** p<0.05 *** p<0.01. Excl. categories: male, lowest per capita parental income category, father's and mother's education primary or less, father's occupation: unskilled worker. Omitted due to space limitations (not significant): mother's education senior high school, father's education junior and senior high school and university, father's occupation employee, self-employed and family worker. All specifications include state FE.

Table 7: Expected Earnings and Observed Characteristics - Old Cohort

| Dep Var: | **Expected Log Earnings** | | | |
| Resp: | Youth (Old Cohort) | | Mother (Old Cohort) | |
	Sr HS	**College**	**Sr HS**	**College**
Log Census Earn (Municip of Resid, by Gender) - Jr HS	0.061* (0.037)	0.106*** (0.037)	0.107*** (0.037)	0.090** (0.039)
Log Census Earn (Municip of Resid, by Gender) - Sr HS	0.056 (0.046)	0.015 (0.046)	-0.004 (0.039)	0.013 (0.042)
Log Census Earn (Municip of Resid, by Gender) - College	-0.060 (0.047)	0.017 (0.047)	0.066 (0.040)	0.171*** (0.042)
Female	-0.083** (0.033)	-0.011 (0.033)	0.049 (0.038)	0.023 (0.040)
GPA of Junior HS (0-100)	0.001 (0.002)	0.004* (0.002)	0.001 (0.001)	0.003** (0.001)
Father's Educ - Sr HS	0.113 (0.080)	0.141* (0.079)	0.009 (0.074)	0.045 (0.078)
Father's Educ - Univ	0.157 (0.195)	0.113 (0.194)	0.087 (0.125)	0.147 (0.131)
Per cap Income - 5 to 10k	0.040 (0.034)	0.012 (0.034)	0.054* (0.031)	0.035 (0.032)
Father's Occup - Employee	-0.071** (0.036)	-0.027 (0.036)	0.013 (0.035)	-0.011 (0.037)
Observations	3082	3082	3082	3082
Censored	1585	1585	1497	1497
Chi-Square	298.697	283.787	255.401	210.286
Inverse Mills Ratio	0.135	0.102	-0.092	0.029
S.E. Inv Mills Ratio	0.075	0.075	0.105	0.110

Notes: Table displays coefficients and standard errors in brackets. * $p<0.1$ ** $p<0.05$ *** $p<0.01$. Excl. categories: male, lowest per capita parental income category, father's and mother's education primary or less, father's occupation: unskilled worker. Omitted due to space limitations (not significant): mother's education junior and senior high school and university, father's education junior high school, father's occupation employer, self-employed and family worker. All specifications include state FE.

Table 8: College Attendance Choice: Youths' versus Mothers' Expectations of Earnings

Dep Var:	College Attendance Decision			
	Unconstrained Model		Constrained Model	
	Coeff/(SE)	Marg Eff/(SE)	Coeff/(SE)	Marg Eff/(SE)
Youth's Exp Log Earn - Sr HS	-0.172	-0.047	-0.169*	-0.046
	(0.110)	(0.032)	(0.100)	(0.029)
Youth's Exp Log Earn - College	0.171	0.047	0.169*	0.046
	(0.114)	(0.033)	(0.100)	(0.029)
Mother's Point Exp (Logs) - Sr HS	-0.044	-0.012	-0.062	-0.017
	(0.111)	(0.030)	(0.099)	(0.027)
Mother's Point Exp (Logs) - College	0.075	0.020	0.062	0.017
	(0.107)	(0.030)	(0.099)	(0.027)
GPA of Junior HS (0-100)	0.030***	0.008***	0.030***	0.008***
	(0.006)	(0.003)	(0.006)	(0.003)
Mother's Educ - Sr HS (d)	0.503*	0.163	0.501*	0.162
	(0.260)	(0.103)	(0.260)	(0.103)
Father's Educ - Jr HS (d)	0.258**	0.076*	0.258**	0.076*
	(0.120)	(0.044)	(0.120)	(0.044)
Father's Educ - Sr HS (d)	0.428**	0.136*	0.428**	0.135*
	(0.210)	(0.078)	(0.210)	(0.078)
Father's Educ - Univ (d)	1.597***	0.574***	1.599***	0.574***
	(0.557)	(0.176)	(0.558)	(0.177)
Per cap Income - more than 10k (d)	0.356***	0.106**	0.357***	0.106**
	(0.104)	(0.042)	(0.104)	(0.042)
Father's Occup - Self-Empl. (d)	-0.232**	-0.059**	-0.235**	-0.059**
	(0.116)	(0.028)	(0.115)	(0.028)
Distance to Univ 20 to 40km (d)	-0.283***	-0.072**	-0.284***	-0.072**
	(0.094)	(0.030)	(0.094)	(0.030)
Distance to Univ more than 40km (d)	-0.361***	-0.090***	-0.363***	-0.090***
	(0.112)	(0.031)	(0.112)	(0.031)
Tuition more than 750 pesos (d)	-0.351***	-0.092**	-0.353***	-0.092**
	(0.123)	(0.040)	(0.123)	(0.040)
Observ (Censored)	3082 (1585)	3082 (1585)	3082 (1585)	3082 (1585)
Log Likelihood	-2756.751	-2756.751	-2756.819	-2756.819
Sample Sel: Corr of Errors (P-Val)	0.113 (0.747)	0.113 (0.747)	0.119 (0.862)	0.119 (0.862)

Notes: Table displays coefficients, marginal effects and standard errors in brackets. * p<0.1 ** p<0.05 *** p<0.01. Excl. categories: male, mother's and father's education primary or less, per capita income less than 5000 pesos, father's occupation: unskilled worker, less than 20km from closest university, and tuition costs less than 750 pesos. All specifications include state FE.

Table 9: College Attendance Choice: Youths' versus Mothers' Expectations of Earnings and Perceived Earnings Risk

Dep Var:	College Attendance Decision			
	Expected Earnings		Risk Perceptions	
	Coeff/(SE)	Marg Eff/(SE)	Coeff/(SE)	Marg Eff/(SE)
Youth's Exp Log Earn - Sr HS	-0.169*	-0.046	-0.177*	-0.048
	(0.100)	(0.029)	(0.101)	(0.030)
Youth's Exp Log Earn - College	0.169*	0.046	0.177*	0.048
	(0.100)	(0.029)	(0.101)	(0.030)
Mother's Point Exp (Logs) - Sr HS	-0.062	-0.017	-0.058	-0.016
	(0.099)	(0.027)	(0.099)	(0.027)
Mother's Point Exp (Logs) - College	0.062	0.017	0.058	0.016
	(0.099)	(0.027)	(0.099)	(0.027)
Youth's Prob of Work - Sr HS			-0.004	-0.001
			(0.260)	(0.158)
Youth's Prob of Work - College			0.130	0.035
			(0.298)	(0.081)
Youth's Var of Log Earn - Sr HS			-7.657	-2.073
			(5.707)	(1.637)
Youth's Var of Log Earn - College			1.910	0.517
			(6.850)	(1.863)
Controls for GPA, Mother's Educ, Father's Educ and Occup, Distance to Univ and Tuition Costs	Yes	Yes	Yes	Yes
Observ (Censored)	3082 (1585)	3082 (1585)	3082 (1585)	3082 (1585)
Log Likelihood	-2756.819	-2756.819	-2755.649	-2755.649
Sample Sel: Corr of Errors (P-Val)	0.119 (0.862)	0.119 (0.862)	0.121 (0.884)	0.121 (0.884)

Notes: Table displays coefficients, marginal effects and standard errors in brackets. * p<0.1 ** p<0.05 *** p<0.01. Excl. categories: male, mother's and father's education primary or less, per capita income less than 5000 pesos, father's occupation: unskilled worker, less than 20km from closest university, and tuition costs less than 750 pesos. All specifications include state FE.

Table 10: College Attendance Decision: Youths' Expected Returns and Perceived Employment and Earnings Risk

Dep Var:	College Attendance Decision			
	Income		Income/Wealth	
	Coeff/(SE)	Marg Eff/(SE)	Coeff/(SE)	Marg Eff/(SE)
Youth's Expected Return to College	0.190*	0.052*	0.187*	0.051*
	(0.098)	(0.029)	(0.099)	(0.029)
Youth's Prob of Work - Sr HS	-0.000	-0.000	-0.005	-0.001
	(0.260)	(0.071)	(0.260)	(0.071)
Youth's Prob of Work - College	0.139	0.038	0.138	0.038
	(0.297)	(0.082)	(0.298)	(0.082)
Youth's Var of Log Earn - Sr HS	-7.676	-2.087	-7.673	-2.096
	(5.722)	(1.645)	(5.732)	(1.656)
Youth's Var of Log Earn - College	2.042	0.555	1.842	0.503
	(6.841)	(1.869)	(6.857)	(1.881)
Per cap Income - more than 10k (d)	0.358***	0.107**		
	(0.104)	(0.042)		
Par Income/Wealth Quart 4 (d)			0.375***	0.113**
			(0.106)	(0.044)
Father's Occup - Self-Empl. (d)	-0.229**	-0.058**	-0.240**	-0.061**
	(0.115)	(0.028)	(0.116)	(0.028)
GPA of Junior HS (0-100)	0.030***	0.008***	0.031***	0.008***
	(0.006)	(0.003)	(0.006)	(0.003)
Mother's Educ - Sr HS (d)	0.478*	0.154	0.501*	0.163
	(0.260)	(0.102)	(0.259)	(0.103)
Father's Educ - Jr HS (d)	0.280**	0.083*	0.287**	0.086*
	(0.121)	(0.045)	(0.121)	(0.045)
Father's Educ - Sr HS (d)	0.431**	0.136*	0.425**	0.135*
	(0.209)	(0.078)	(0.209)	(0.078)
Father's Educ - Univ (d)	1.570***	0.565***	1.568***	0.565***
	(0.559)	(0.181)	(0.558)	(0.180)
Distance to Univ 20 to 40km (d)	-0.289***	-0.074**	-0.297***	-0.076**
	(0.095)	(0.030)	(0.095)	(0.031)
Distance to Univ more than 40km (d)	-0.372***	-0.092***	-0.383***	-0.095***
	(0.113)	(0.031)	(0.113)	(0.032)
Tuition more than 750 pesos (d)	-0.358***	-0.094**	-0.364***	-0.095**
	(0.123)	(0.040)	(0.123)	(0.041)
Observ (Censored)	3082 (1585)	3082 (1585)	3082 (1585)	3082 (1585)
Log Likelihood	-2755.822	-2755.822	-2755.260	-2755.260
Sample Sel: Corr of Errors (P-Val)	0.115 (0.741)	0.115 (0.741)	0.107 (0.759)	0.107 (0.759)

Notes: Table displays coefficients, marginal effects and standard errors in brackets. * $p<0.1$ ** $p<0.05$ *** $p<0.01$. Excl. categories: male, mother's and father's education primary or less, per capita income less than 5000 pesos, father's occupation: unskilled worker, less than 20km from closest university, and tuition costs less than 750 pesos. All specifications include state FE.

Table 11: High School Attendance Choice: Youths' versus Mothers' Expectations of Earnings

Dep Var:	Senior High School Attendance Decision			
	Coeff/(SE)	Marg Eff/(SE)	Coeff/(SE)	Marg Eff/(SE)
Youth's Exp Log Earn - Jr HS	-0.071	-0.016	-0.027	-0.006
	(0.107)	(0.024)	(0.112)	(0.025)
Youth's Exp Log Earn - Sr HS	-0.043	-0.010	-0.069	-0.016
	(0.139)	(0.031)	(0.143)	(0.032)
Youth's Exp Log Earn - Coll	0.174*	0.039*	0.145	0.033
	(0.102)	(0.023)	(0.104)	(0.024)
Mother's Point Exp (Logs) - Jr HS	-0.006	-0.001	0.000	0.000
	(0.111)	(0.025)	(0.112)	(0.025)
Mother's Point Exp (Logs) - Sr HS	-0.145	-0.032	-0.156	-0.035
	(0.132)	(0.030)	(0.133)	(0.030)
Mother's Point Exp (Logs) - College	0.195**	0.043**	0.182**	0.041*
	(0.091)	(0.021)	(0.092)	(0.022)
Youth's Prob of Work - Jr HS			-0.128	-0.029
			(0.198)	(0.045)
Youth's Prob of Work - Sr HS			0.017	0.004
			(0.252)	(0.057)
Youth's Prob of Work - College			0.537**	0.121**
			(0.235)	(0.056)
Youth's Var of Log Earn - Jr HS			3.037	0.684
			(3.438)	(0.783)
Youth's Var of Log Earn - Sr HS			0.582	0.131
			(4.781)	(1.077)
Youth's Var of Log Earn - College			3.020	0.680
			(5.911)	(1.337)
GPA of Junior HS (0-100)	0.028***	0.006***	0.028***	0.006***
	(0.004)	(0.001)	(0.004)	(0.001)
Mother's Educ - Jr HS (d)	0.440***	0.083***	0.441***	0.085***
	(0.101)	(0.020)	(0.101)	(0.020)
Father's Educ - Sr HS (d)	0.395*	0.071**	0.383*	0.070**
	(0.219)	(0.032)	(0.219)	(0.033)
Per cap Income - 5 to 10k (d)	-0.024	-0.005	-0.025	-0.006
	(0.077)	(0.017)	(0.077)	(0.018)
Per cap Income - more than 10k (d)	0.113	0.024	0.118	0.026
	(0.093)	(0.020)	(0.094)	(0.020)
Father's Occup - Fam. Worker (d)	-0.434*	-0.118	-0.451*	-0.125
	(0.238)	(0.078)	(0.239)	(0.080)
Observ (Censored)	3865 (1781)	3865 (1781)	3865 (1781)	3865 (1781)
Log Likelihood	-3382.895	-3382.895	-3378.500	-3378.500
Sample Sel: Corr of Errors (P-Val)	-0.303 (0.092)	-0.303 (0.092)	-0.274 (0.132)	-0.274 (0.132)

Notes: Table displays coefficients, marginal effects and standard errors in brackets. * p<0.1 ** p<0.05 *** p<0.01. Excl. categories: male, mother's and father's education primary or less, per capita income less than 5000 pesos, father's occupation: unskilled worker. All specifications include state FE.

Table 12: High School Attendance Decision: Mothers' and Youths' Expected Returns and Perceived Employment and Earnings Risk

Dep Var:	**Senior High School Attendance Decision**			
Respondent:	Youth		Mother	
	Coeff/(SE)	Marg Eff/(SE)	Coeff/(SE)	Marg Eff/(SE)
Expected Return to Sr HS	0.060	0.014	0.012	0.003
	(0.108)	(0.025)	(0.131)	(0.320)
Expected Return to College	0.146	0.033	-0.172	-0.045
	(0.094)	(0.022)	(0.113)	(4.689)
Prob of Work - Jr HS	-0.133	-0.030	-0.114	-0.030
	(0.198)	(0.045)	(0.232)	(3.102)
Prob of Work - Sr HS	0.047	0.011	-0.205	-0.054
	(0.252)	(0.057)	(0.316)	(5.593)
Prob of Work - College	0.564**	0.128**	0.432	0.113
	(0.233)	(0.056)	(0.279)	(11.782)
Var of Log Earn - Jr HS	2.820	0.638	5.463	1.430
	(3.419)	(0.781)	(4.464)	(148.960)
Var of Log Earn - Sr HS	0.447	0.101	-15.861***	-4.151
	(4.778)	(1.080)	(5.026)	(432.511)
Var of Log Earn - College	2.827	0.639	4.949	1.295
	(5.836)	(1.325)	(6.067)	(134.951)
Female (d)	-0.023	-0.005	0.144*	0.038
	(0.068)	(0.015)	(0.074)	(3.908)
GPA of Junior HS (0-100)	0.028***	0.006***	0.023***	0.006
	(0.004)	(0.001)	(0.004)	(0.639)
Mother's Educ - Jr HS (d)	0.443***	0.085***	0.458***	0.103
	(0.101)	(0.020)	(0.115)	(12.324)
Father's Educ - Jr HS (d)	0.111	0.024	0.277**	0.066
	(0.105)	(0.022)	(0.120)	(7.560)
Father's Educ - Sr HS (d)	0.390*	0.072**	0.576**	0.114
	(0.218)	(0.033)	(0.290)	(14.976)
Father's Educ - Univ (d)	0.523	0.088	7.710	0.194***
	(0.540)	(0.063)	(1.6e+04)	(0.042)
Per cap Income - more than 10k (d)	0.122	0.027	0.294***	0.071
	(0.094)	(0.020)	(0.103)	(8.012)
Father's Occup - Fam. Worker (d)	-0.458*	-0.128	-0.420*	-0.129
	(0.239)	(0.081)	(0.233)	(10.337)
Observ (Censored)	3865 (1781)	3865 (1781)	3865 (2084)	3865 (2084)
Log likelihood	-3381.000	-3381.000	-3272.554	-3272.554
Sample Sel: Corr of Errors (P-Val)	-0.277 (0.125)	-0.277 (0.125)	0.022 (0.904)	0.022 (0.904)

Notes: Table displays coefficients, marginal effects and standard errors in brackets. * p<0.1 ** p<0.05 *** p<0.01. (d) for discrete change of dummy variable from 0 to 1. Excl. categories: male, mother's and father's education primary or less, per capita income less than 5000 pesos, father's occupation: unskilled worker. All specifications include state FE.

Table 13: College Attendance Decisions and Evidence of Credit Constraints

Dep Var:	College Attendance Decision			
	Income		Income/Wealth	
	Marg Eff/(SE)		Marg Eff/(SE)	
Exp Return * Low Per Cap Income	0.027	0.030		
	(0.031)	(0.042)		
Exp Return * Middle/High Per Cap Income	0.088*	0.094**		
	(0.046)	(0.048)		
GPA * Low Per Cap Income		-0.000		
		(0.000)		
GPA * Middle/High Per Cap Income		0.017**		
		(0.007)		
Exp Return * Par Inc/Wealth Below Median			-0.013	-0.002
			(0.034)	(0.040)
Exp Return * Par Inc/Wealth Above Median			0.132**	0.109*
			(0.058)	(0.056)
GPA * Par Inc/Wealth Below Median				-0.000
				(0.000)
GPA * Par Inc/Wealth Above Median				0.009**
				(0.004)
GPA of Junior HS (0-100)	0.008***		0.009***	
	(0.003)		(0.003)	.
Per cap Income - more than 10k (d)	0.051	-0.482***		
	(0.048)	(0.161)		
Par Income/Wealth Quart 3 (d)			-0.063	-0.327**
			(0.043)	(0.131)
Par Income/Wealth Quart 4 (d)			0.014	-0.312**
			(0.047)	(0.128)
Father's Occup - Self-Empl. (d)	-0.057**	-0.055**	-0.066**	-0.056**
	(0.028)	(0.026)	(0.029)	(0.026)
Controls for Mother's and				
Father's Educ and School Costs	Yes	Yes	Yes	Yes
Observ (Censored)	3082 (1585)	3082 (1585)	3082 (1585)	3082 (1585)
Log Likelihood	-2756.101	-2757.687	-2736.299	-2743.014
Sample Sel: Corr of Errors (P-Val)	0.106 (0.759)	0.232 (0.557)	0.055 (0.877)	0.292 (0.481)

Notes: Table displays marginal effects and standard errors in brackets. * p<0.1 ** p<0.05 *** p<0.01. Excl. categories: male, mother's and father's education primary or less, per capita income less than 5000 pesos, father's occupation: unskilled worker, less than 20km from closest university, and tuition costs less than 750 pesos. All specifications include state FE.

8 Appendix B: Robustness Checks

Construction of Income and Wealth Measures

The Jovenes survey provides detailed information on income of each household member, savings if existent (only a very selective and richer group of households saves or borrows –4% of households have savings, while 5% borrow), durables and remittances. We create the following two measures: per capita parental income and an index of parental income and wealth. Per capita parental income includes parents' labor earnings, other income sources such as rent, profits from a business, pension income etc and remittances, divided by family size. Median yearly per capita income is 6066 pesos (approximately 606 US$). The index of parental income and wealth is created by a principle component analysis of per capita income, value of durable goods and savings.

We add the income and wealth measures in the form of dummies to allow –in a flexible way– for nonlinear effects of income and wealth on the ability to borrow. We create the dummies using absolute thresholds for parental income, because for the question of credit constraints absolute poverty in interaction with direct costs of schooling matters. In terms of the score of parental income and wealth without natural unit, we use quartiles (computed separately for each of the four groups). The reason for the chosen income thresholds is their approximate correspondence with eligibility requirements for receiving fellowships.[14]. We use per capita income thresholds that are approximately equivalent to two times the minimum wage (about 5,000 pesos per capita income yearly), which is one of the eligibility criteria for receiving fellowships, and equivalent to four times the minimum wage (around 10,000 pesos per capita income), which captures individuals that are still eligible but not primary beneficiaries, while individuals with income of more than four times the minimum wage are not eligible. Around 50% of youths in our sample fall into the first category of less than 5,000 pesos yearly, while about 28% are in the second category and the remaining 20% are in the highest income category of more than 10,000 pesos of yearly per capita income.

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[14]It is important to keep in mind that fellowships in particular for higher education are quantitatively not very important: only 5% of the undergraduate student population received a fellowship in 2004 (for further details, see Kaufmann (2009))

Table 14: First-stage Regression for Whether the Youth Responds Herself

Dep Var:	Youth Respondent: Yes/No			
Respondent:	Young Cohort		Old Cohort	
	Marg Eff/(SE)		Marg Eff/(SE)	
Interview Sunday (d)	0.090	0.098*	0.111*	0.076
	(0.059)	(0.060)	(0.063)	(0.064)
Interview Thursday (d)	-0.052	-0.056	-0.085**	-0.088**
	(0.037)	(0.038)	(0.039)	(0.040)
Interview Saturday (d)	0.081*	0.077*	-0.043	-0.052
	(0.045)	(0.046)	(0.045)	(0.047)
Interview Saturday*Aftern. (d)	0.063	0.055	0.102*	0.104*
	(0.053)	(0.054)	(0.055)	(0.056)
Interview Thursday*Even. (d)	0.172**	0.183**	0.127	0.125
	(0.072)	(0.073)	(0.098)	(0.102)
Interview Saturday*Even. (d)	0.171*	0.157	0.294***	0.327***
	(0.100)	(0.105)	(0.086)	(0.080)
Interview Week 41 (d)	0.185***	0.217***	0.133***	0.165***
	(0.024)	(0.025)	(0.033)	(0.034)
Interview Week 42 (d)	0.145***	0.155***	0.126***	0.127***
	(0.023)	(0.023)	(0.030)	(0.030)
Interview Week 45 (d)	-0.134***	-0.129***	-0.056**	-0.072**
	(0.026)	(0.027)	(0.027)	(0.028)
Female (d)		0.068***		0.098***
		(0.017)		(0.019)
GPA of Junior HS (0-100)		-0.003**		-0.002*
		(0.001)		(0.001)
Mother's Educ - Sr HS (d)		0.106*		-0.037
		(0.057)		(0.067)
Mother's Educ - Univ (d)		-0.074		0.310**
		(0.115)		(0.134)
Father's Educ - Univ (d)		-0.174*		-0.217**
		(0.099)		(0.098)
Per cap Income - more than 10k (d)		0.055**		-0.002
		(0.023)		(0.027)
Father's Occup - Employee (d)		0.026		0.065***
		(0.020)		(0.025)
Father's Occup - Self-Empl. (d)		-0.061**		-0.051**
		(0.026)		(0.026)
Observations	3865	3865	3082	3082
Log Likelihood	-2539.448	-2423.009	-2088.612	-2008.118
Chi-Sq (df=25)	245.19		86.99	
P-Value	0.000	0.000	0.000	0.000

Notes: Table displays marginal effects and standard errors in brackets. * p<0.1 ** p<0.05 *** p<0.01. Excl. categories: Interview on Monday, Interview in the morning, Interview in week 43, male, mother's and father's education primary or less, father's occupation: unskilled worker, per capita income less than 5000 pesos. All specifications include state FE. For the old cohort dummies for distance to university and tuition costs are included, but are not presented here as they are not significant.

Table 15: College Attendance Decision and Evidence of Credit Constraints: Return-Income/Wealth Interactions (Coefficient Estimates)

Dep Var:	College Attendance Decision			
	Income Coeff/(SE)		Income/Wealth Coeff/(SE)	
Exp Return * Low Per Cap Income	0.100 (0.109)	0.117 (0.163)		
Exp Return * Middle/High Per Cap Income	0.323** (0.151)	0.371** (0.149)		
GPA * Low Per Cap Income		-0.000 (0.002)		
GPA * Middle/High Per Cap Income		0.066*** (0.014)		
Exp Return * Par Inc/Wealth Below Median			-0.047 (0.121)	-0.008 (0.165)
Exp Return * Par Inc/Wealth Above Median			0.466*** (0.172)	0.445*** (0.171)
GPA * Par Inc/Wealth Below Median				-0.001 (0.002)
GPA * Par Inc/Wealth Above Median				0.036*** (0.010)
GPA of Junior HS (0-100)	0.030*** (0.006)		0.030*** (0.006)	
Per cap Income - more than 10k	0.177 (0.154)	-5.320*** (1.164)		
Par Income/Wealth Quart 3			-0.236 (0.168)	-3.242*** (0.832)
Par Income/Wealth Quart 4			0.050 (0.160)	-2.964*** (0.825)
Father's Occup - Self-Empl.	-0.224* (0.116)	-0.234** (0.114)	-0.248** (0.117)	-0.248** (0.113)
Controls for Mother's and Father's Educ and School Costs	Yes	Yes	Yes	Yes
Observ (Censored)	3082 (1585)	3082 (1585)	3082 (1585)	3082 (1585)
Log Likelihood	-2756.101	-2757.687	-2736.299	-2743.014
Sample Sel: Corr of Errors (P-Val)	0.106 (0.759)	0.232 (0.557)	0.055 (0.877)	0.292 (0.481)

Notes: Table displays coefficients and standard errors in brackets. * p<0.1 ** p<0.05 *** p<0.01. Excl. categories: male, mother's and father's education primary or less, per capita income less than 5000 pesos, father's occupation: unskilled worker, less than 20km from closest university, and tuition costs less than 750 pesos. All specifications include state FE.