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Felicia Knaul

**LEARNING AND EARNING: PAYOFFS AND TRADEOFFS OF
EARLY ENTRY INTO THE LABOR FORCE
IN COLOMBIA**

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Felicia Marie Knaul*

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Abstract

This paper analyzes the effects on adult earnings of child and youth labor force participation. The models consider the age at entry into the labor force, as well as the combination of work and school. Differences across genders, and across salaried and self-employed workers are considered. The analysis uses a human capital framework. The data come from a household survey undertaken by the National Statistical Administrative Department of Colombia (*DANE, Departamento Administrativo Nacional de Estadística*) in Bogota, Colombia in 1991.

The results suggest that there is a payoff to delayed entry into the labor force, and a tradeoff between work and schooling. The return to a year of education is reduced when schooling is combined with work. The lower return to education is partially offset by the return to experience, and the net effect is related to the level of schooling. The returns to attending school exceed the returns to dropping out of school and working. This is true of both the returns to a year of schooling combined with work, and to a year dedicated entirely to schooling.

Introduction

Many children and youth, especially in developing countries, begin to work at an early age. In Colombia, 25% of youth aged 12 to 17 are economically active. Depending on what activities are defined as work, over one million and up to two million children and youth between the ages of 6 and 17 are in the labor force (Flórez, Knaul and Méndez, 1996).

Child and youth labor force participation have both long- and short-run consequences on individual, family and social welfare. This paper looks at the long-run effects, in terms of future earning capacity, of early work experience on the individual, using information on the age at which adult labor force-participants first entered the labor force.¹

The theoretical framework is based on the idea that early labor force participation competes with schooling as an activity that occupies the child's time and affects future earnings. The information on early entry into the labor force and the combination of work and schooling, provides insights into the use of different measures of experience in estimates of human capital earnings functions.

Most information on child and youth labor force participation in developing countries focuses on the short-term consequences for the child. These effects are then compared to the contribution (if any) that is made to family well-being. By analyzing the effects on earnings as an adult, this paper provides additional insight into longer-run consequences. The long-run earning capacity of children is likely to be a factor in family decision-making regarding the allocation of children's time.² The results also contribute to the debate concerning legislation to end child labor and policies to assist working children and youth.

The first section of the paper provides a brief overview of the existing literature on the effects of early labor force participation on adult labor market outcomes, the combination of school and work in developing countries, and the importance of early labor force entry in the definition of experience. The second section provides an overview of the data. The next section summarizes the theoretical framework and the models that are used in the paper. The fourth section describes the organization of the empirical work. The next part examines the results of a series of wage and earnings equations that seek to model early entry into the labor force, followed by the findings from the models that specify the returns to combining school and work. The conclusions summarize the major points of relevance to policy decisions, and directions for future research. Additional information on the data, results of regressions not presented in this paper, and the sensitivity of the Heckman models to changes in specification are provided in Knaul (1995).

¹ It is necessary to mention that data on a person's earnings provide information on only certain aspects of well-being. Earnings equations give some information on a person's ability to generate income, and on their capacity to function in the labor market that is open to them.

² The paper refers to the allocation by families of children's time under the assumption that families control the activities of children. While this is commonly assumed, it is also possible that children and youth have decision-making power that affects both their own allocation of time and the way that resources are allocated within the family.

I. Prior Research

A number of studies evaluate the effects of work on schooling, maturation, and training of young people in high income countries. Very little research has been done on developing countries.

The existing literature on work among adolescents is mixed in its evaluation of the tradeoffs between school and work, and the long-run impact of work. Most of these studies consider the situation of youth, typically aged 16 and over. Much of this literature is summarized in Fine et al. (1990) and Rich (1993).

Fine et al. (1990) note that a number of studies have shown that adults who were employed during high school tend to have more stable employment records, as well as higher earnings. Steinberg et al. (1982 and 1982a) found that working during high school was associated with punctuality, dependability and personal responsibility.

While studies on younger children are less common, a few investigations have been undertaken with 11 to 15 year-olds. A longitudinal study of 14-15 year-olds suggests that starting work early, controlling for hours worked and socio-economic background, is associated with higher grade-point average and educational plans, especially for boys. Another survey of 11 to 14 year-olds suggests that workers tend to show fewer behavior problems in school. Fine et al. (1990) note that these results are surprising in the face of the mixed evidence for older youth and could well depend on the type of work undertaken.

On the other hand, there are a number of studies that suggest that teenage workers have lower grade point averages, and lower career and educational aspirations. Ehrenberg and Sherman (1986), using a panel of college students, found that hours worked had a negative effect on the probability of enrolling the following year and of graduating on time.

There is some evidence to suggest that the negative effects of working increase with hours worked (Fine et al., 1990; Steinberg and Dornbusch, 1991), and a debate as to whether or not working part-time (in the range of 15 to 20 per week) is associated with lower or higher educational and occupational outcomes. D'Amico (1984) found that employment for less than 20 hours per week was associated with higher grades, but that more intense work was associated with drop-out for white teenagers.

The evolution of the literature on the negative effects of unemployment, or 'scarring' are summarized in Rich (1993). Early research stressed the negative long-run impact of unemployment on adult labor market outcomes. By contrast, Becker and Hills (1983) find that job switching during high-school and short periods of unemployment are associated with higher average wages for adults up to 10 years later. The net effect of teenage labor market experience on adult wages is positive for whites, and highly positive for blacks. Studies using data from the 1960s and 1970s presented divergent findings concerning the impact of out-of-school work experience during teen years. While some studies found positive impacts on employment and wages as adults, others found little impact and attributed the differences to unobserved heterogeneity. Rich (1993), using data on high-school leavers in the 1980s, finds that working during high school is positively associated with adult employment, but not with wages, after accounting for unobservable heterogeneity. The positive impact on youth's ability to secure and maintain jobs as adults is persistent over time, and has a significant positive impact up to 8 years after leaving high-school.

While authors often point to the negative effects of working on both school attendance and attainment in developing countries, there has been little empirical work to evaluate the effects of work on educational outcomes. A number of studies have pointed to a fundamental difference between 'child work' that includes work in the household and light work in the market, and 'child labor' that involves exploitation, health hazards, reduced access to schooling, and long-term scarring (Patrinos and Psacharopoulos, 1993; Salazar, 1992; Myers, 1991). While this distinction may appear more semantic than substantive, it provides a basic framework from which to analyze 'harmful' employment for young people. 'Harmful' may be related to many factors including the age of the child, access to education, health status, and hours worked.

As mentioned above, a number of studies stress that a large proportion of working children attend school (Knaul, 1993; Patrinos and Psacharopoulos, 1993; Levison, 1991). Patrinos and Psacharopoulos cite evidence from Bolivia that suggests that non-working children have lower educational attainment. In Lima, by contrast, dropout and repetition are associated with, although not necessarily caused by, child employment. The low levels of education of particular groups of economically active children, such as street children, stand out in comparison to working children as a whole (Knaul, 1993). Knaul and Parker (1997), Knaul (1995) and Flórez, Knaul and Méndez (1996), show that domestic servants also suffer particularly low school attendance rates and levels of education.

A further literature of direct relevance to this paper considers the measurement of education and experience in analysis of returns to human capital. Lam and Levison (1992) find that the definition of the experience variable may have important effects on the variance in earnings for groups with low levels of experience and hence on questions regarding the relationship between labor market experience, age and income inequality.

Behrman and Birdsall (1983) evaluate the returns to the quality and the quantity of schooling in Brazil. The authors assume that effective labor market experience begins at age 15 and define the experience term as $E = \min[(\text{age} - \text{schooling} - 7)(\text{age} - 15)]$. Using this measure of experience, they find that deepening education (increasing quality) has a higher social rate of return than broadening schooling by increasing quantity. Eaton (1985) and Behrman and Birdsall (1985) show that the findings are sensitive to the measure of experience due to the prevalence of labor force participation among young people. The returns to education are lower, and the returns to experience are higher and more curved, with the adult definition of experience used in the original analysis. Moreover, the results on deepening versus broadening as a focus for investment in education are less clear. Behrman and Birdsall (1985) note that this finding, "...suggests that the standard definition of experience should not go unquestioned in settings where many children leave school well before the age of 15, but may or may not immediately begin full time work".

II. Data

The data used in this paper come from the Expanded Survey of Poverty and Quality of Life in Bogota (SPQLB - *Encuesta de Pobreza y Calidad de Vida en Bogota - formulario amplio*) collected by the Colombian statistical agency (DANE - *Departamento Administrativo Nacional de Estadística*) in November of 1991. This version of the survey covers 2900

families. The expanded survey is used because it includes a question on the age at entry into the labor force that forms the key piece of information for this research. The survey also contains extensive questions on many aspects of family life, family history and job conditions.³

The question on age at entry is asked of all employed (full or part-time) persons aged 12 and over. It is worded as follows: How old were you when you held your first paid job or worked as an unpaid assistant in a family business? (*¿Cuántos años tenía cuando realizó su primer trabajo en forma remunerada o como ayudante familiar sin remuneración?*) The youngest age considered valid is 5 years. The only restriction according to the instruction manual is that the job must have been held for at least two consecutive weeks. The work may have been part-time or seasonal, for pay or without pay in a family business. The data do not include additional information on the nature of the work performed as a child, or the length of time that the job was held.

III. Modelling Child and Youth Labor Force Participation Using a Human Capital Earnings Function.

Firms and schools may be complementary sources of human capital. As Becker (1993) writes:

Schools and firms are often substitute sources of particular skills. Some types of knowledge can be mastered better if simultaneously related to a practical problem; others require prolonged specialization...The development of certain skills requires both specialization and experience and can be had partly from schools and partly from firms.(pp 51)

For young children, school and work may also be competing activities. Schooling is a cumulative process and this suggests non-uniformity in the relationship between education and training. Advancement in both education and the labor market is unlikely without an investment in education early in the life cycle.

The human capital model provides a framework for examining the effect of early entry into the labor force, as well as the tradeoff between working and attending school. Individuals invest in themselves through education and training that lead to increases in future earnings and non-monetary benefits. This investment is associated with both direct costs and time costs that arise due to the deferral of earnings and the possible reduction of a person's working life. A positive discount rate satisfies the condition that at the time in which the investment is undertaken, the present value of the income streams with and without the investment should be equal (Mincer, 1974; Becker, 1993).

The human capital earnings function summarized by Mincer (1974) differentiates between schooling and 'post'-schooling investments that may be referred to as training or on-the-job experience. The earnings function is of the following general form:

³ An additional advantage of the SPQLB is that the information on wages, earnings and income is unlikely to suffer from top-coding, a problem with many other Colombian surveys, as 7 digits are allowed.

$$\ln E_j = \ln E_o + r_s s + r_j K$$

where E are gross earnings, r_s is the return to years of schooling, s is the total amount of schooling, r_k is the return to post-school investment in training, and K is the cumulative amount of time spent in training. This is the function that is used as the starting point for the analysis in this paper.

This equation is estimated empirically as a log linear function, a basic formulation commonly used in the literature. A quadratic term for years of experience incorporates diminishing returns in terms of the training that is received through labor market experience. The basic equation is of the following form:

$$\text{Log } Y_i = \beta_0 + \beta_1 s_i + \beta_2 e_i + \beta_3 e_i^2 + X' \beta + \mu_i$$

where, for each individual i , $\log Y_t$ is the natural logarithm of earnings or wages at time t , e represents years of work experience, s is years of schooling and X is a matrix of control variables that may include personal, family background, and labor market characteristics.⁴ The error term is represented by m .

The analysis included in this paper makes use of several different specifications of the education and experience terms. The models are summarized in Table 1. In the absence of more detailed information on training and time actually spent in the labor force, experience is often measured as the person's age less years of schooling less the age at which they began school (Model 1).

The traditional proxy for experience does not account for the fact that labor market attachment is not necessarily continuous. Part-time and temporary employment are prevalent, even among school-going children at the primary and secondary levels. These phenomena may be especially important in the context of a developing country.⁵ With sufficient information, the earnings equation may be specified in such a way as to allow for differences between early and late labor market experience, between in-school and out-of-school work, and the interaction of school and work at different stages of schooling.

Years of schooling is typically not available and number of grades successfully completed is used a proxy.⁶ This may lead to overestimates of the number of years of out-of-

⁴ This parabolic specification of the earnings function follows from modelling the pattern of investment in post-school training as linear and declining (Mincer, 1974; pp 83-6).

⁵ Even in the United States many teenagers work while they are in school (Steinberg, 1982; Finch et al., 1991).

⁶ All of the models, except the last, use a continuous measure of the number of completed years of education. Due to difficulties in identifying the exact number of years of graduate education, people who reached this level are coded as having the same number of years of education as a person who completed 7 years of university or higher education. A dummy variable is added in order to account

school experience when grade repetition is frequent. In the Colombian case, and particularly in the rural areas, children start school late at age 7 or even 8 years. Further, grade repetition is quite common at both the primary and secondary levels (Table 2).⁷

Early entry into the labor force may be modeled in a number of different ways. The most simplistic involves reformulating the experience variable to be a measure of total work experience as opposed to out-of-school experience. This is equivalent to the person's age minus the age at which they started working (Model 2).

Another formulation (Model 3) excludes in-school experience. This measure is equivalent to total experience less the number of years of in-school experience in primary and secondary school. By excluding in-school work experience, the measure has the advantage of considering work experience that is more likely to be full-time, and more comparable across individuals. Further, it makes more transparent the identification of the effect of late entry, which is particularly common among women.

There are important differences between the traditional and the total measure of experience in the data used in this paper. Total experience exceeds out-of-school experience in 32% of the cases. These cases seem to reflect working while in school or seasonal work. For 60% of the people surveyed, entry into the labor force came after their schooling was completed, if schooling is measured as the number of grades completed. For 12% of labor force participants, between 5 and 10 years appear to have been spent out of the labor force or unemployed after school completion, and for 41% between 1 and 5 years. While it is true that some of this time out of work is due to periods of job search and withdrawal from the labor market, a substantial amount of time can probably be attributed to the effect of late entry into school and the frequent repetition of grades.

A substantial proportion of Bogota's labor force participants began to work when they were children or young adults. Among adult males aged 18 to 65, 13.3% held their first job between the ages of 5 and 11, and 34.2% between ages 12 and 15. For adult females, the frequencies are 7.6% and 19.7%, respectively (Table 3). Considering these data in terms of age cohorts, there appears to have been a decline in the proportion of Bogota residents who began to work at a very young age that is in part due to rural-to-urban migration.

Allowing education to vary with early experience is a more realistic approach to the analysis of returns to investments in human capital and has important implications for policy. Work competes for children's time and may reduce the number of hours that can be spent in school and studying. It may also be a complement to schooling and could even prevent drop-out if the schedule is not onerous and depending on the age of the child. This type of work is likely to be part-time and have a lower return than full-time work. Combining the two activities provides a return to a year of school and a return to a year of training, but each individual return is less than when the young person specializes in either one of the activities. The combination of the returns may or may not exceed the individual return.

for differences between those who reached post-university and the rest of the population. For a more detailed evaluation of the returns to post-university education see Knaul (1995).

⁷ The figures presented in the table reflect the distribution of ages in each grade of school in the early 1990s, but grade repetition and age at entry into school are if anything more common among older cohorts.

Empirical evidence also suggests the importance of explicitly modelling the combination of school and work among young people. Evidence from National Household Surveys also suggests that in-school employment is relatively common in Colombia as well as other Latin American countries (Knaul, 1995; Levison, 1991). The data used in this paper show that approximately 5.3% of Bogota's adult labor force participants worked prior to age 11 and were enrolled in primary school, 8.5% worked between ages 12 and 14 and did secondary school, and 4.3% between ages 15 and 17.⁸ This means that over 45% of those people who began work between ages 5 and 14 are likely to have combined school and work.

Models 4 and 5 explicitly account for in-school experience. The first model includes a linear term for in-school experience between ages 5 and 16. Given the data, it is necessary to assume that in-school experience is roughly measured by the difference between total work experience and out-of-school work experience. The coefficient on this term is expected to be negative as the young person is unlikely to spend as much time on either school or work as individual activities.

Model 5 allows for non-linearity in the returns to schooling. Education is modeled using a step function with a dummy variable for primary, secondary, university and post-university education. Three interaction terms are added: one for individuals who combined work and primary school, and then dropped out of school during or after primary; the second for those who combined work and primary school, and continued on to secondary; and, one for individuals who worked during secondary school.⁹

A number of caveats regarding the limitations of the data are in order.¹⁰ First, an ideal data set would permit one to evaluate the effects of different types of entry (full or part-time) and different patterns of experience as a young person. Given the data at hand, it is necessary to bear in mind that early labor force participation may in fact be quite sporadic, seasonal or part-time. Rates of child and youth labor force participation in the urban areas may more than double during school vacations (Flórez, Knaul and Méndez, 1996; Knaul, 1995).

The fact that information on age at entry is only available for those who are currently employed constitutes an important caveat and limitation and introduces a particular form of selectivity bias into the analysis. Work as a young person may be associated with dropping out of the labor market or being unemployed. If so, evidence on the most hazardous forms of

⁸ The survey does not include precise information on the number of years of in-school work experience. Still, it is likely that people who completed some amount of primary education and began to work before age 11, worked while they were in school. The same is true for those with secondary education who began to work between ages 12 and 17. Given these assumptions, it is possible to infer the number of years of in-school work experience by comparing the age at which the person began working to the grade they completed.

⁹ The number of adult wage earners with no education is small. Despite this, the no-education group is the reference group in order to allow for easy interpretation of the results. Using university education as the base group, the returns to each level are very similar, but the t-statistics are stronger.

¹⁰ While the information from the SPQLB does not explicitly accept looking for work as entering the labor force this is unlikely to be an important issue for the purposes of this research. The differences between holding a job and looking for work are blurry for young children and the self-employed.

child and youth work may be absent from the sample. This might be the case if, for example, child labor causes health injuries that incapacitate a person for work. A child could also be 'scarred' for later entry into the legal labor force as might be the case for young women exploited through prostitution. While it is unlikely that the most hazardous forms of child labor affect large enough proportions of the population to significantly bias the overall results of the empirical analysis, it does limit the applicability of the findings. Children undertaking hazardous labor are arguably the most in need of protection and attention.

The degree of bias in the SPQLB data can be evaluated using information from the Colombian National Household Surveys. These data include information on the recent work history of the unemployed and those who are out of the labor force, as well as on whether or not they have ever worked in their lives. With these data, it is possible to estimate the proportion of people who are likely to have worked as youngsters yet are out of the labor force as adults. These correspond to the early entrants who were not asked the question on age at entry in the SPQLB data used for the analysis in this paper. For males between the ages of 20 and 50, less than 10% are unemployed, or are out of the labor force yet worked at earlier stages of their lives. For older cohorts aged 50 to 59 and for women, the figures are substantially higher and roughly range between 20% and 55%.

With a retrospective question such as the one used in the SPQLB survey, the people whose early labor force participation is not counted by only having information on age at entry for the employed, would have to satisfy two criteria: they would have to have both worked as youngsters, and be out of the labor force as adults. Based on data for 1992 from the Colombian National Household Survey, 34% of women age 55 to 59 are unemployed, or have worked and are out of the labor force. For the age group 12 to 14, 1.7% of females have worked, and are out of the labor force or are unemployed. Doubling the figure of 1.7% due to the fact that labor force participation of young people has become less common in Bogota, the total proportion of women aged 55 to 59 who were working as youngsters and would be 'missed' by the retrospective question from the SPQLB is 24%. This is a maximum figure as it considers one of the older, female cohorts.

While 24% is not a negligible figure, it is likely to include a large number of children who did part-time or seasonal work. The majority of those young people who are currently out of the labor force yet had worked in the past, acknowledged that they either stopped work in order to study, or had temporary work. Over 85% of 12 to 14 year olds who were out of the labor force in 1992 and had worked before, said that they had stopped working in order to study or had completed a period of temporary work. Only a small proportion of children mentioned illness, accidents and unsatisfactory working conditions as a reason for dropping out of the labor force. Overall, these figures imply that most of the work 'missed' in the retrospective data in the SPQLB is seasonal or part-time.

The regression analysis presented later in this paper will tend to err on the side of overestimating the negative effects of early work experience. The overestimate will depend on the extent to which the work that is missed in the retrospective data from the SPQLB is less intense, seasonal or part-time and hence more likely to be compatible with schooling and less likely to be dangerous to the young person.

A more serious issue is that the information from the SPQLB excludes unpaid work in ones' own family home. This biases the analysis, particularly with respect to females.

A difficulty with the regression analysis presented below, is that the age at entry into the labor force is an endogenous variable. The choice of the age of entry and educational attainment may be determined by the expected wages or payoff to early entry. Lacking adequate instruments to address these problems, the empirical analysis assumes that both variables may be treated as exogenous.

The cross-sectional nature of the data makes it difficult to control for individual heterogeneity. One does not know what the effect of working as a child would have been on the people who did not undertake these activities, or what the adult wage would have been for the working children if they had not worked.¹¹ Still, the SPQLB data set does include a number of variables related to family background that partially control for selectivity.

IV. Organization of the Empirical Work:

The empirical analysis uses two specifications of the dependent variable: 'hourly wages' and 'total hourly earned income'. Each regression is done separately for males and females. The sample is restricted to adults between the ages of 18 and 65.

The definition of the dependent variable in the earnings function is not straightforward, particularly in developing countries where people may undertake numerous overlapping and informal jobs. The SPQLB data is extremely detailed in terms of information on labor income, permitting extensive analysis of combination of multiple jobs, and cash and in-kind remunerations. The primary wage variable includes all income of salaried workers from the primary job, including overtime, benefits and the estimated monetary value of in-kind payments in the form of housing and food. This is particularly important for certain occupational categories such as household helpers (Knaul and Parker, 1997; Knaul, 1995). Normal weekly wages for domestic servants, civil servants, and salaried workers are divided by normal weekly hours. The variable 'total hourly earned income' is defined to include salaried and non-salaried workers who earn income (public servants, employees, domestic servants, employers, business owners and self-employed workers), primary and secondary jobs, and cash and in-kind remuneration.¹² This measure of total wages and earnings is divided by total normal hours worked.

¹¹ Under some scenarios, there may be upward bias in the estimation of the coefficients that measure early work experience. This would imply that early entry would appear to have a more positive (or a less negative) effect on earnings than is actually the case. This would be true if the children who entered the labor force were those who would be most likely to benefit from the early experience, possibly in the sense of being physically able to combine work and school. Selectivity may also operate in the opposite manner, leading to overestimation of the negative effect of early entry into the labor force on the 'average' child, both because of the type of work undertaken and the condition of the children who are found to be working. It may be that the only children who begin working at an early age are those who come from households in extreme hardship, come from 'abusive' families, or do not succeed at school for reasons such as having an inadequate diet.

¹² Additional specifications of the dependent variable were also tried. These varied the combination of primary and secondary jobs, in-kind and cash earnings and monthly versus hourly figures. The specifications provided here take advantage of the richness of the data base, and are the

The robustness of the results is tested by running each regression using two specifications: a simple formulation that includes only measures of education, experience and age at entry; and another with explanatory variables, controlling for family background and personal characteristics.¹³ The family background variables include: the education and occupation of the father of the head of the household in which the person lives; the education of the mother; and, the principal activity of the mother of the household head. In these cases, a more complete set of controls is included. Dummy variables are also included to indicate: if the person is related to the household head (not a boarder, household servant, guest, etc.); is a parent or in-law of the household head; is involved in political or union activities; is involved in community activities; is a member of a sports or cultural club; if the household head lived in the rural areas for part of his/her childhood; if the household migrated to Bogota; and, if the person works in a unionized firm. These results are only presented for models 4 and 5 for total earnings.

Selection bias is potentially an important problem with both the wage and earnings equations, especially for women (Table 4).¹⁴ In order to correct for this source of bias, the results for the Ordinary Least Squares models including family background and personal characteristics are compared to results using a Heckman selectivity model (Heckman, 1979).¹⁵ The probit equations include the following variables that are excluded from the earnings and wage functions: dummy variables to indicate the marital status of the person, a single dummy indicating whether or not there is a child aged 4 or younger in the household, and the total amount of unearned family income. While the instability of sample selection models is well known (Mroz, 1987; Falaris, 1995), in this case the identifying variables prove to have the expected sign and be significant in the probit equations (Knaul, 1995).

There is a difficulty in using the selection models that is related to the fact that information on age at entry in the labor market is available only for the employed. This implies that (total) experience and the combination of work and school must be excluded from the probit in Model 2 through 5. Age and its square are included in the probit equations as

most appropriate and complete representation of the wage and earnings of workers. The combination salaried and self-employed workers, while controversial given that business owners and the self-employed also earn a return to physical capital, prevents the exclusion of certain occupation groups from the wage equation and hence the introduction of additional selectivity (Schultz, 1991; Tenjo, 1993). While dividing by hours may introduce additional error, hourly figures tend to be a more correct reflection of the situation of many workers, and particularly women, who often have part-time jobs.

¹³ The regressions were also run including dummies for occupation and industry with no major changes to the findings (Knaul, 1995).

¹⁴ As a means of evaluating the extent of selectivity bias in the male equations, the regressions were also run for the restricted sample of male household heads. There were no major differences to the findings presented below.

¹⁵ The Heckman procedure is performed using full maximum likelihood techniques with corrected standard errors.

imperfect proxies. Knaul (1995) includes a detailed discussion of the sensitivity of the results to excluding and including age and measures of experience in the probit.¹⁶

The corrections for selectivity, presented only when the lambda term is significant, tend to push up the returns to education relative to the OLS estimates that include family and personal background characteristics. This increase in the return to education is consistent with the possibility that at a given level of education, women are more successful in the non-salaried occupations than in the salaried occupations. This could be a reflection of the fact that domestic service, an occupation that tends to be poorly paid, is important in the wage equations.

The means and standard deviations of the variables used in the models are presented in Table 5. The results of the empirical work are presented in Tables 6 through 10. Each table has two blocks of data for each of males and females. The first block of data refers to wages and the second to total earned income. The first regression in each block includes only the basic variables for education, experience, age at entry, and in-school work. The second and third regressions, where presented, included the controls for family background and personal characteristics, and the selectivity corrections, respectively. Only the coefficients on the experience and education variables are included in this paper. A complete presentation of the results for all of the variables is available in Knaul (1995).

V. Early Entry into the Labor Force and Training:

The signs and magnitudes of the results of the regressions using the 'traditional' measure of experience (Model 1) are as expected and comparable to the findings from other sources (Tenjo, 1993). The return to a year of education for males using the simple specification without control variables, is 11.4% in the wage equations and 11.3% in the earnings equations. For females, the returns are very similar. The coefficient on the dummy variable for graduate education is higher for females. As expected, the returns to experience tend to be higher and display more curvature for males in both the wage and earnings equations (Table 6).¹⁷ Adding the controls has the expected result of reducing the magnitude of the returns to education as family background and personal characteristics are likely to be correlated with educational attainment.¹⁸

¹⁶ The inclusion of the family and personal background variables seems to absorb a good part of the selection bias. With the inclusion of these variables, the returns to education are reduced as is the significance of the selection terms in the Heckman models.

¹⁷ The gender differentials in the returns to graduate education are discussed in detail in Knaul (1995).

¹⁸ The results of the Heckman corrections for selectivity are not presented as they are insignificant in the equations with traditional experience measures. This suggests that the family and individual background variables are controlling for a substantial degree of selectivity-related issues. In the other models, the selection term is typically significant in the female wage equations. This may be related to the fact that the probit includes age instead of the total experience due to the lack of information on age at entry into the labor force.

The returns to total experience (Model 2) differ from the returns to the traditional measure for several reasons (Table 7). Total experience includes work undertaken while a person was attending school. The return to these years of experience is likely to be lower than to a year of full-time work. Further, this measure does not count grade repetition, variation in the year a child enters the school system, and late entry into the labor force as experience or on-the-job training.¹⁹ These differences account for the steeper age-earnings profiles and the peak at an earlier age.

Out-of-school experience (Model 3) begins to separate the effects from including in-school experience as opposed to grade repetition and late entry (Table 8). The coefficients on the linear terms are higher in many cases, and for the quadratic terms tend to be larger by a percent or more than in the regressions using the traditional measure of out-of-school experience. For women, the squared term is more important and has a stronger t-statistic than with the traditional measure of experience. The profiles also tend to peak at an earlier age than in either of Models 1 and 2. These results suggest that the total experience specification measures the number of years of 'effective' work experience.²⁰

For males, both the total and the out-of-school measure of experience give a lower R^2 than the traditional measure. For females, the R^2 are close enough to suggest that, at least for females, these two alternate measure are at least as effective as the traditional measure of experience.²¹ Thus, while Models 2 and 3 reduce some sources of error, they introduce others.

¹⁹ Neither the total nor the out-of-school measures address the issue of time spent out of the labor force or unemployed.

²⁰ Given the rapid increases that have recently occurred in female labor force participation and higher education in Colombia (Flórez and Cano, 1993) (Tenjo, 1993b), it is possible that some of the results for women presented in this section are due to cohort effects (Lam and Levison, 1992). For this reason, the models were also run dividing the sample into a younger cohort (18 to 40) and an older cohort (41 to 65). The results suggest that there are important differences between older and younger cohorts that are to some degree masked by merging the sample. The penalty for early entry into the labor force for females may be higher now than in the past, probably because of the increasing value of education. One part of the explanation may come from the decline in the proportions of female employment concentrated in domestic service Knaul (1995).

²¹ A specification with traditional experience and an additional variable for age at entry into the labor force was also tested following Goldin (1980). The findings indicate that there is a positive return to later entry, or maturity, that varies between 2 and 3% per year for males, and for females between 1 and 2% per year. This model suggests interesting directions for future research. The simple linear version of this 'maturity' model does not allow the return to experience to vary non-linearly with the age at which the child began to work, although there may be very little on-the-job learning for young children. Further, the distribution of age at entry into the labor force shows that a small, yet important, proportion of women enter the labor force after age 30 and may face different types of penalties.

VI. The Effect of Combining School and Work

The combination of school and work is likely to reduce both the returns to school and the returns to experience. Less time is spent on each year of education or work and this could imply a reduction in the value of the schooling and experience that is attained. The net effect may be either positive or negative, as although the returns to each individual activity are likely to decline, the young person has two part-time returns and there may be complementarities between the two activities. Selection could bias the coefficient upward if those children who combine work and school, are the ones that are successful at the two activities.

The regressions using Model 4 (including a variable that approximates the number of years of primary and secondary, in-school work experience between ages 5 and 16) are consistent with the interpretation suggested above (Table 9). For males, the coefficient on years of in-school work experience is significant in all of the equations, and ranges from a value of -2.9% to -4.3%. The returns to experience and to education tend to be slightly higher than in the regressions using Model 2.

For females, the variable for years of in-school work is typically insignificant and ranges from a low of 0.01% to .02%. Both the coefficient on education and the coefficient on experience tend to rise, but the differences are negligible. These findings imply that the penalty to combining school and work is insignificantly different from zero for females. One interpretation is related to the idea that the returns to basic levels of education and to experience are low for females, especially in the kinds of occupations that begin at an early age such as domestic service or work in the informal sector. The penalty for the reduction in time spent on education or early experience is then also proportionately lower. Similarly, the flat earnings profile may mean that there is no measured penalty relative to a situation in which wages do not rise very much with experience. In either case, the results seem to be suggesting that the relatively poor overall labor market conditions for many working females, such as domestic servants, make it difficult to identify an 'additional' penalty for early work experience. Another way of thinking of this is that the penalty is expressed in the type of occupations open to women with low education and early labor force experience.

The models used in this research assume that a young person may spend any year of their life either at school, at work or doing both activities. One way of evaluating the effects of in-school work experience on earnings and wages is then to consider a time-use earnings profile.²³ The complete profiles under different scenarios are presented for males in Figure 1 and for females in Figure 2 using the results of the earnings equations, controlling for family background and personal characteristics. The returns to six possible combinations of school and work are given. The solid line refers to a person who does not attend school and works from the age of 5 years. The thinner solid line refers to a person who successfully completes 11 years of education (primary and secondary school) and then enters the labor force. The rest of the profiles refer to combinations of schooling, in-school and out-of-school experience. In each case it is necessary to assign a, somewhat arbitrary, adult-experience equivalent which is a fraction of the number of years of early experience.²² The dotted line is the profile

²² Sample size issues make it impossible to explicitly differentiate between adult and child experience.

corresponding to a person who has 11 years of education, worked through their entire school career, and for their 10 years of work experience enter the full-time labor force as if they already had 6 years of work experience. The triangles describe a person who combines school and work between ages 5 and 14, then drops out of school to work full-time worker with 4 years of experience. The squares refer to a person who goes to primary school and does not work, then begins to work at age 11 and continues working throughout secondary school. This person enters the labor force as though they had 3 years of full-time experience. The lines refer to a child who goes to primary school and does not work, but then drops out at age 11 to begin to work.

The most striking result is the difference between the profile of the drop-out as compared to the young person who remains in school. In all of the graphs, the profile for the person who never went to school is everywhere substantially below the other profiles and peaks earlier on. The person with only primary school does better, but still substantially worse than those who are able to remain in school. Even the person who drops out of school at age 14 has a profile everywhere below the profiles for those who complete secondary school. This suggests that the returns to additional schooling quickly outweigh any benefits to dropping out of school even when this occurs toward the end of secondary school. Over the early part of the male profiles, the curve for combining education and work is often above the curve for 'specializing' in school. In effect, this is saying that the sum of the two benefits of partial school and partial work is greater early on than the benefit of each of the activities done individually. Still, in order to compare the overall returns to the different profiles it would be necessary to look at the net present value over the whole profile.

The female profiles differ from the male profiles. The lower returns to experience and the fact that there is less curvature, imply that the female profiles lie substantially below the male profiles, and are relatively flat.²³ The low, flat profile may be a reflection of the lack of on-the-job learning, or equivalently the low returns to age and experience, in female occupations.

The next set of regressions seek to model the fact that the combination of work and school may have different effects depending on the stage of schooling, the probability of proceeding to a higher level, and the type of work that is undertaken (Model 6, Tables 10A and B). For example, the costs of combining primary school with work may be higher because of the age of the child. Yet, higher levels of schooling may be more challenging and leave less time for the additional pressures of working.

There are three interaction terms in these regressions that refer to the stage at which work was combined with school: the first for individuals who worked during primary school and did not go on to secondary school; the second for those who combined school and work at the primary level and went on to get at least some secondary education; and, the third includes those who did at least some secondary education and worked while they were in secondary school. The signs on these coefficients are negative and generally significant coinciding with the hypothesis that each of schooling and work become part-time activities.

²³ This may reflect a number of factors including discrimination, less continuous labor force participation than that of males, or occupational differences.

The returns for males are generally consistent with expectations, but there are significant gender differences. The change in the return to primary education for women with and without the selectivity correction in the wage equation, and between the wage and earnings equations, are especially interesting. In the OLS wage equations, the returns to primary education are insignificantly different from zero, and the return to secondary school is low. In the Heckman model and in all of the earnings equations, the returns are positive and significant. This suggests that restricting the sample to include only wage earners has important effects on the results for women. The finding that the returns to primary education are low for females in the wage sector may be explained by the fact that the sector is dominated by low paying, dead-end occupations such as domestic service.

The return to experience and the return to education at each level are summarized in figures 3 and 4. The first bar refers to individuals who combined primary school and work and did not continue to secondary. The second includes those who went to primary school without working and did not go on to secondary. The third and fourth bars refer to the individuals who combine work and school at the secondary level, in the first case also combining primary and work. The last bar summarizes the returns to those who did not work during primary or secondary school. The overall returns to experience are added to the net returns to education and in-school work to represent the total return to the investment of time in school and work. In order to calculate the return to work experience, it is necessary to make assumptions about the adult-equivalent of part-time experience. The calculations assume that children who begin to work between ages 5 and 11, work half of the period, or on average 3 years. Those who work during primary and secondary school, are assigned an average of 7 years, and those who began between ages 12 and 15 are assigned an average of 3 years. The results for males are similar to those reported in the previous regressions for the continuous measure of in-school experience. As in the earnings profiles presented above, the entire penalty for combining work and school is allocated to the return to education, although it is more likely that both the returns to education and experience are reduced by some proportion of the total penalty.²⁴

For males, the penalty for combining school and work at the secondary level is smaller than at the primary level. The return to a person who combines only secondary school and work, actually outweighs the return to only attending school. However, the penalty for combining school and work at the primary level and continuing on to secondary is substantial. Working only during secondary school may be seen as a signal of a person who is able to handle both activities and is gaining valuable experience. On the other hand, work during primary school may affect a person's ability to learn basic formal skills, and hence their success at the secondary level.

²⁴ In order to gauge the sensitivity of the findings to the assigned number of years of adult-equivalent experience, the number of years of experience assigned to each level of combined school and work was decreased. Even reducing the value of the experience to one year would not completely eliminate this advantage for males, although it would bring it very close to only attending school. To further test the sensitivity of the model the penalty for combining school and work was divided between the returns to experience and to education, instead of assigning the entire burden to the returns to education. As expected, this makes it much more evident that the returns to early work experience for young people are very low, especially as compared to going to school.

For women, the very low return to primary education implies that the net return to combining school and work is also low. All of the figures for females, including those that refer to the earnings regressions, suggest that the returns to combining education and work at any level are lower than the returns to concentrating on schooling. There appears to be a higher penalty for women to early work experience. Child labor may have a long-run negative impact on young women's health and ability to function in the labor market. Also, very low-paying, low-skill jobs for young women, such as domestic service, may not allow for progression either in school or in the labor market. Any skills that are attained may not be transferable to other jobs, and young women who begin in these occupations may find it difficult to look for and be accepted in other types of work.²⁵

VI. Conclusions

This paper highlights the differences in returns to experience that are associated with labor force participation at different stages of the life cycle. Both work during childhood and as a youth, as well as in-school work experience, affect adult earnings in ways that differ from later on-the-job experience. In addition, grade repetition, age at entry into schooling, and late entry into the labor force can have important effects on the measure of experience.

The results point to several priorities for future research. First, the relationship between working and attending school is complex and deserves further attention. Work might induce drop-out, or quite the opposite, it might help children and youth to remain in school. Further, it was not possible to consider the effects of different types of work, or the intensity of work on educational attainment and later earnings. Given that hazardous forms of child and youth labor are generally the lot of the offspring of poor families, the negative effects of early labor force participation may not be in the work itself, but rather in the unequal distribution of this work across children. It will also be important to gain a better understanding of the situation of young women and girls who undertake non-market work in their households. The findings of the paper suggest that there are positive returns to early labor market experience, but these depend on continued progression through the school system. The returns to early experience are substantially lower than the returns to education. There is also a penalty to early entry into the labor force that is likely to be non-linear in the age at entry.

The results point to important differences between males and females in terms of the returns to education and experience, as well as the effect of early experience on earnings. In the salaried sectors, the returns to basic levels of education are especially low for females. Further, the returns to experience are lower for women, and the penalties for combining school and work in primary and in secondary school are more pronounced. It may be that the

²⁵ Small sample size is another possibility. There are only 36 observations for females who combined work and primary school without continuing to secondary, and only 23 for those who combined work with primary and went on to secondary. There may also be some difficulty in measuring a true return to primary school because of the small base of people with no education. As mentioned above, this is unlikely because the regressions were also run using university as the base, and the returns to education did not change substantially.

types of jobs that are open to young women, particularly in the wage sector, are of the type that offer little room for advancement or progression in schooling. The most obvious case to study is the situation of domestic servants. Available evidence on domestic service suggests that the women are often quite young, work long hours and have few opportunities to attend school. This may be a case in which early labor force experience acts as a signal and prevents advancement into better paid occupations.

The earnings profiles for school drop-outs are substantially lower than for those who stay in school. This is true of both the profiles for schooling combined with work, and to time dedicated entirely to schooling. The returns to additional schooling quickly outweigh any benefits to dropping out of school even when this occurs toward the end of secondary school. The results of this analysis suggest that the penalty to shortening the educational career substantially outweighs the returns to early experience.

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TABLE 1

AN OVERVIEW OF MODELS: ADVANTAGES AND DISADVANTAGES OF THE MEASURES OF LABOR MARKET EXPERIENCE AND EDUCATION IN ACCOUNTING FOR EARLY (CHILD AND YOUTH/IN-SCHOOL AND OUT-OF-SCHOOL) LABOR MARKET EXPERIENCE

MODELS	EXPERIENCE MEASURE	ADVANTAGES AND DISADVANTAGES OF EXPERIENCE MEASURE
1) Traditional measure of experience	Age-number of completed grades of schooling-6	Only out-of-school experience is measured and grade repetition is not counted
2) Total experience	Age-age at entry into labor force	Measures both out-of and in-school experience; grade repetition no longer an issue; no accounting for continuity in labor market
3) Total Out-of-school experience	Age-age at entry into labor force -years of in-school work experience (ages 5 and 16)	Measures out-of-school experience; grade repetition no longer an issue; ignores in-school work experience that may be part-time or seasonal; partially accounts for years out of labor force; no accounting for continuity in labor market
4) Total controlling for In-school work	Total experience; years of work during primary and secondary (5 to 16)	credit for early experience; a year of school or work are is each worth less than if done 'full-time'(expected to be negative as both school and work are part-time)
5) Total allowing non-linearity in education and interactions between school and work	Total experience; dummies for work ages 5 to 11, and 12 to 15 years interacted with the highest level of schooling attained; dummy for reaching secondary school and working since primary)	credit for early experience, but 'penalty' in terms of reduction in value of schooling depends on the highest level of education that is achieved as well as if school was reduced to part-time, (pattern on the three terms may be test of effect of work at different ages)

TABLE 2

AGE DISTRIBUTION OF CHILDREN CURRENTLY ATTENDING SCHOOL BY HIGHEST COMPLETED GRADE,
BOGOTA, 1991 (FIGURES IN BOLD ARE A GUIDE TO THE APPROPRIATE AGE FOR EACH GRADE
ASSUMING CHILD ENTERS SCHOOL AT AGE 6 AND FAILS NO GRADES)

AGE: GRADE:	5	6	7	8	9	10	11	12	13	14	15 and over*	16 and over**	17 over +
PRIMARY:													
First year	20.9	28.9	30.0	16.2	2.5	1.2							
1	2.9	26.5	43.0	14.9	6.6	2.1	1.4	1.2					
2		2.8	29.6	35.5	21.3	6.0	2.2	2.0					
3			5.4	21.6	30.3	23.5	9.1	4.2	2.5	0.1	3.3		
4				3.2	20.2	36.2	19.7	12.4	3.2	2.1	2.8		
5					4.2	18.9	32.2	19.0	14.2	4.9	6.6		
SECONDARY:													
First year						17.2	32.4	25.0	12.6	7.4	5.4		
6						1.9	21.1	30.3	17.3	14.2	15.3		
7							2.7	12.7	26.4	19.1	14.5	38.6	
8								3.0	12.1	24.3	16.2	44.5	
9									1.0	7.5	26.4	21.7	43.2
10									1.3	1.8	12.3	13.0	19.9
11										0.8	0.9	4.0	15.8

TABLE 3

AGE AT BEGINNING TO WORK ^{1/},
EMPLOYED RESIDENTS OF BOGOTA, BY GENDER, 1991

AGE GROUP	MALES	FEMALES	TOTAL
5-8 YEARS	6.3	3.4	5.1
9-11 YEARS	7.0	4.2	5.8
12-15 YEARS	34.2	19.5	27.8
16-17 YEARS	13.6	14.1	13.8
18-19 YEARS	17.6	22.6	19.8
20-24 YEARS	17.3	26.8	21.5
25-29 YEARS	3.3	5.7	4.3
30-34 YEARS	.3	1.6	.9
35-39 YEARS	.1	1.1	.6
40+ YEARS	.2	1.1	.6
N total	2596	2147	4743

Estadística (DANE), 1991.

Note: ^{1/} As discussed in detail in the text, beginning to work is defined as having held a paid or unpaid job for at least two consecutive weeks.

^{2/} Frequencies are weighted using expansion factors provided by DANE.

TABLE 4

SELECTION INTO THE LABOR FORCE
BY GENDER, AGES 18 TO 65

	MALES	FEMALES
% in the sample who are in the labor market and have non-zero hourly wages (cash &/or in-kind)	47.6%	36.7%
% in the sample who are in the labor market and have non-zero hourly wages (cash &/or in-kind) or earnings (from a business or as an independent worker)	76.0%	49.8%
% of those in the labor market who have non-zero hourly wages (cash &/or in-kind)	55.5%	63.8%
% of those in the labor who have non-zero wages (cash &/or in-kind) or earnings (from a business or as an independent worker)	88.5%	88.5%
TOTAL	3249	4053

TABLE 5A

SUMMARY STATISTICS OF KEY VARIABLES USED IN THE ANALYSIS
(MALES AND FEMALES AGED 18 TO 65)

VARIABLE	MALES				FEMALES			
	OBSERVED		OBSERVED		OBSERVED		OBSERVED	
	WAGES:	SD	EARNINGS:	SD	WAGES:	SD	EARNINGS:	SD
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
LOG HOURLY WAGE	6.19	0.78			6.07	0.75		
LOG HOURLY EARNINGS			6.26	0.85			6.03	0.85
AGE AT ENTRY INTO LABOR FORCE	16.20	4.70	16.00	4.60	18.60	4.90	18.40	5.70
TRADITIONAL, OUT-OF-SCHOOL EXPERIENCE (AGE-GRADES COMPLETED-6)	17.90	11.90	20.10	12.70	15.50	10.70	17.70	11.90
TOTAL EXPERIENCE (AGE-AGE BEGAN WORKING)	17.10	11.40	19.10	12.10	12.50	9.90	14.50	10.70
TOTAL OUT-OF-SCHOOL EXPERIENCE (AGE - AGE BEGAN WORK - YEARS OF IN-SCHOOL EXPERIENCE)	16.00	11.30	18.00	12.00	12.10	9.70	14.00	10.60
YEARS OF COMPLETED EDUCATION	9.50	4.40	9.10	4.40	9.70	4.20	9.20	4.50
IF PRIMARY EDUCATION	0.24	0.43	0.28	0.45	0.22	0.41	0.25	0.43
IF SECONDARY EDUCATION	0.48	0.50	0.46	0.50	0.48	0.50	0.46	0.50
IF UNIVERSITY EDUCATION	0.24	0.43	0.22	0.41	0.28	0.45	0.25	0.43
IF GRADUATE EDUCATION	0.03	0.18	0.03	0.16	0.02	0.13	0.02	0.12
(IF NO EDUCATION=REFERENCE GROUP)*	0.01		0.01		0.01		0.03	
YEARS OF IN-SCHOOL WORK EXPERIENCE IN PRIMARY AND SECONDARY SCHOOL (AGED 5-16)	1.06	2.24	1.15	2.39	0.46	1.36	0.47	1.53
COMBINED PRIMARY SCHOOL AND WORK, DROPPED OUT OF SCHOOL AFTER PRIMARY	0.05	0.22	0.06	0.23	0.03	0.16	0.04	0.19
COMBINED PRIMARY SCHOOL AND WORK, CONTINUED TO SECONDARY	0.04	0.21	0.05	0.22	0.02	0.13	0.02	0.14
COMBINED SECONDARY SCHOOL AND WORK	0.17	0.375	0.16	0.37	0.081	0.3	0.09	0.3

SOURCE: SURVEY OF POVERTY AND LIVING CONDITIONS IN BOGOTA, 1991, DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA (DANE). CALCULATIONS DONE BY THE AUTHOR.

NOTES: USING EXPANSION FACTORS PROVIDED BY DANE.

* THIS GROUP IS QUITE SMALL. IT IS USED AS A REFERENCE IN ORDER TO FACILITATE THE INTERPRETATION OF THE OTHER COEFFICIENTS. AS DISCUSSED IN THE TEXT, THE REGRESSIONS WERE ALSO RUN USING UNIVERSITY AS THE BASE.

TABLE 5B

SUMMARY STATISTICS OF CONTROL VARIABLES USED IN THE ANALYSIS
(MALE AND FEMALES AGED 18 TO 65)

VARIABLE	MALES				FEMALES			
	OBSERVED		OBSERVED		OBSERVED		OBSERVED	
	WAGES		EARNINGS		WAGES		EARNINGS	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FAMILY BACKGROUND:								
FATHER OF DE HEAD OF HOUSEHOLD:								
HIGHEST LEVEL OF EDUCATION								
OF FATHER OF HEAD OF HOUSEHOLD:								
SECONDARY EDUCATION:	0.15	0.36	0.14	0.35	0.14	0.34	0.13	0.34
UNIVERSITY EDUCATION:	0.06	0.24	0.06	0.23	0.07	0.25	0.07	0.25
UNKNOWN:	0.09	0.28	0.08	0.27	0.07	0.26	0.08	0.28
PRIMARY OR NONE (REFERENCE GROUP)	0.71		0.72		0.72		0.72	
PRINCIPAL OCCUPATION OF FATHER OF HEAD OF HOUSEHOLD:								
EMPLOYEE	0.30	0.46	0.26	0.44	0.25	0.44	0.25	0.43
SELF-EMPLOYED	0.36	0.48	0.38	0.49	0.37	0.48	0.38	0.48
EMPLOYER	0.05	0.02	0.04	0.20	0.05	0.21	0.04	0.21
DAY WORKER (REFERENCE GROUP)	0.30		0.31		0.33		0.34	
MOTHER OF DE HEAD OF HOUSEHOLD:								
HIGHEST LEVEL OF EDUCATION								
OF MOTHER OF HEAD OF HOUSEHOLD:								
SECONDARY EDUCATION:	0.16	0.37	0.15	0.36	0.15	0.36	0.15	0.36
UNIVERSITY EDUCATION:	0.02	0.15	0.02	0.14	0.03	0.16	0.03	0.17
UNKNOWN:	0.07	0.26	0.07	0.26	0.06	0.24	0.07	0.25
PRIMARY OR NONE (REFERENCE GROUP)	0.74		0.76		0.76		0.75	
PRINCIPAL OCCUPATION OF MOTHER OF HEAD OF HOUSEHOLD:								
EMPLOYEE	0.14	0.35	0.13	0.33	0.11	0.31	0.11	0.31
SELF-EMPLOYED	0.19	0.39	0.19	0.39	0.20	0.40	0.20	0.40
EMPLOYER	0.02	0.12	0.01	0.12	0.02	0.14	0.02	0.14
DOMESTIC SERVANT	0.05	0.22	0.05	0.22	0.03	0.18	0.04	0.19
HOMEWORKER / DID NOT WORK	0.49	0.50	0.50	0.50	0.46	0.50	0.46	0.50
DAY WORKER (REFERENCE GROUP)	0.12		0.17		0.18		0.17	
PERSONAL CHARACTERISTICS OF RESPONDENT:								
INVOLVED IN POLITICAL ACTIVITIES	0.14	0.18	0.04	0.18	0.02	0.14	0.02	0.14
INVOLVED IN SPORTS CLUBS / ACTIVITIES	0.15	0.36	0.13	0.34	0.07	0.26	0.07	0.25
INVOLVED IN COMMUNITY ACTIVITIES / POLITICS	0.04	0.20	0.05	0.21	0.03	0.17	0.04	0.19
GREW UP IN RURAL AREAS	0.10	0.30	0.11	0.32	0.08	0.27	0.09	0.29
MIGRANT TO BOGOTA	0.49	0.50	0.49	0.50	0.43	0.50	0.44	0.50
WORKS IN UNIONIZED SHOP	0.20	0.40	0.12	0.33	0.19	0.39	0.13	0.34
HACKMAN MODELS:								
	MALES				FEMALES			
	ENTIRE SAMPLE:				ENTIRE SAMPLE:			
	Mean	SD			Mean	SD		
SINGLE	0.34	0.47			0.31	0.46		
SEPARATED OR DIVORCED	0.02	0.14			0.09	0.29		
WIDOWED	0.01	0.02			0.05	0.22		
CHILD YOUNGER THAN 4 YEARS	0.32	0.47			0.33	0.47		
UNEARNED FAMILY INCOME	49129	109793			51982	110035		

SOURCE: SURVEY OF POVERTY AND LIVING CONDITIONS IN BOGOTA, 1991, DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA (DANE).

CALCULATIONS DONE BY DE AUTHOR.

NOTES: USING EXPANSION FACTORS PROVIDED BY DANE.

TABLE 6

REGRESSIONS ON HOURLY WAGES AND EARNINGS OF ADULT
 MALES AND FEMALES.
 MODEL 1 WITH EXPERIENCE FORMULATED AS "AGE-COMPLETED GRADES OF
 SCHOOL-6" OLS REGRESSIONS WITH AND WITHOUT CONTROLS.
 (FIRST FIGURE IS COEFFICIENT; FIGURE BELOW IS t-STATISTICS FOR OLS)

INDEPENDENT VARIABLES	MALES				FEMALES	
	LOG HOURLY WAGES		LOG HOURLY EARNED INCOME		LOG HOURLY EARNED INCOME	
	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	SIMPLE SPEC'N	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	SIMPLE SPEC'N
TRADICIONAL MEASURE OF WORK EXPERIENCE IN YEARS (AGED-COMPLETED GRADES-6)	0.0427 8.74	0.0414 8.56	0.0455 10.57	0.035 6.86	0.0286 5.61	0.0347 7.27
TRADICIONAL WORK EXPERIENCE SQUARED	-5E-04 -4.63	-0.0005 -4.81	-0.0005 -6.35	-0.0003 -2.55	-0.0002 -1.70	-0.0004 -3.90
YEARS OF COMPLETE EDUCATION	0.1144 24.99	0.0901 17.39	0.1127 27.59	0.1141 23.82	0.0917 16.05	0.01138 24.35
IF GRADUATE EDUCATION (RELATIVE TO NO EDUCATION OR LOWER LEVEL OF EDUCATION)	0.2881 2.93	0.1121 1.14	0.4072 4.21	0.5301 3.94	0.4493 3.43	0.6486 4.62
CONSTANT	4.55 62.72	4.56 57.06	4.61 68.60	4.51 59.06	4.59 53.46	4.53 59.71
R-SQUARE	0.04	0.42	0.31	0.33	0.40	0.28
ADJUSTED R-SQUARE	0.36	0.41	0.30	0.33	0.39	0.28
F	207.33	0.48	253.70	172.06	40.16	188.08
NUM. OBS.-OLS.	1452	1401	2314	1405	1364	1914

SOURCE: SURVEY OF POVERTY AND LIVING CONDITIONS IN BOGOTA, 1991, DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA (DANE).

NOTE: ^{1/} ALL CALCULATIONS ARE BASED ON EXPANSION FACTORS PROVIDED BY DANE.

^{2/} SEE (KNAUL 1995) FOR EXPLANATION OF FULLSET OF CONTROL VARIABLES, COEFFICIENTS AND t-STATISTICS.

TABLE 7

REGRESSION ON HOURLY WAGES AND EARNINGS OF ADULT MALES AND FEMALES.
 MODEL 2 WITH EXPERIENCE FORMULATED AS 'AGE-AGE BEGAN WORKING'
 OLS REGRESSIONS WITH AND WITHOUT CONTROLS, HECKMAN CORRECTION FOR SELECTIVITY ON EQUATION WITH CONTROLS
 FOR FAMILY BACK GROUND / 2.
 (first figure is coefficient; figure below is t-statistic)

INDEPENDENT VARIABLES:	MALES				FEMALES			
	LOG HOURLY WAGES			LOG HOURLY	LOG HOURLY WAGES			LOG HOURLY
	SIMPLE	CONTROLS FOR	HECKMAN CORR'	EARNED INCOME	SIMPLE	CONTROLS FOR	HECKMAN CORR'N	EARNED INCOME
SPEC'N	FAM BACK'D	ON EQ. W/FAM.	SPEC'N	SPEC'N	FAM BACK'D	ON EQ. W/FAM.	SPEC'N	
	AND PERS. CHAR	FAM BACK'D AND	PERS. CHAR. /3		AND PERS. CHA	FAM BACK'D AND	PERS. CHAR. /3	
TRADITIONAL MEASURE OF WORK EXPERIENCE IN YEARS (AGE-AGE BEGAN WORKING)	0.0383 7.80	0.0389 7.98	0.0474 9.56	0.0438 10.22	0.0372 7.62	0.0285 5.78	0.0366 7.37	0.0341 7.18
TRADITIONAL WORK EXPERIENCE SQUARED	-0.0005 -4.42	-0.0005 -4.80	-0.0009 -7.95	-0.0006 -6.61	-0.0005 -3.60	-0.0003 -2.23	-0.0008 -5.89	-0.0005 -4.17
YEARS OF COMPLETED EDUCATION	0.0975 22.45	0.0717 14.69	0.0688 12.70	0.0954 25.22	0.0953 22.32	0.0744 14.64	0.0993 17.06	0.0987 23.74
IF GRADUATE EDUCATION (RELATIVE TO NO EDUCATION OR LOWER LEVEL OF EDUCATION)	0.2847 2.82	0.0901 0.89	0.2892 2.41	0.4060 4.15	0.5265 3.90	0.4563 3.46	0.5359 3.21	0.6318 4.47
CONSTANT	4.80 75.02	4.78 66.45	4.21 51.32	4.85 83.99	4.78 82.44	4.84 70.23	3.83 44.18	4.78 82.23
R-SQUARE	0.34	0.41		0.30	0.33	0.39		0.28
ADJUSTED R-SQUARE	0.34	0.40		0.29	0.33	0.38		0.28
F	184.65	44.03		237.98	169.11	38.96		183.83
NUM.OBS.-OLS	1421	1374	1374	2272	1378	1338	1338	1881
NUM.OBS.-HECKMAN			3123				3922	
Z-STATISTIC ON RHO			5.97				6.95	

SOURCE: SURVEY OF POVERTY AND LIVING CONDITIONS IN BOGOTA, 1991, DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA (DANE). CALCULATIONS DONE BY THE AUTHOR.

NOTE: ¹ ALL CALCULATIONS ARE BASED ON EXPANSION FACTORS PROVIDED BY DANE.

² SEE (KNAUL 1995) FOR EXPLANATION OF FULL SET OF CONTROL VARIABLES, COEFFICIENTS AND T-STATISTICS.

³ HECKMAN MODELS INCLUDE AGE AND AGE SQUARED IN THE PROBIT.

TABLE 8

REGRESSIONS ON HOURLY WAGES AND EARNINGS OF ADULT MALES AND FEMALES
 MODEL 3 WITH EXPERIENCE FORMULATED AS OUT OF SCHOOL EXPERIENCE /2.
 OLS REGRESSIONS WITH AND WITHOUT CONTROLS, HECKMAN CORRECTION FOR SELECTIVITY ON EQUATION WITH CONTROLS
 FOR FAMILY BACKGROUND/4

(first figure is coefficient; figure below is t-statistic for OLS and z-statistic for the Heckman models)

INDEPENDENT VARIABLES:	MALES			FEMALES					
	LOG HOURLY WAGE			LOG HOURLY EARNED INCOME		LOG HOURLY WAGE			LOG HOURLY EARNED INCOME
	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	HECKMAN CORR'N ON EQ. W/ FAM. FAM BACK'D AND PERS. CHAR. /4	SIMPLE SPEC'N		SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	HECKMAN CORR'N ON EQ. W/ FAM. FAM BACK'D AND PERS. CHAR. /4	SIMPLE SPEC'N
OUT-OF-SCHOOL WORK EXPERIENCE IN YEARS	0.0438 8.84	0.0440 8.95	0.0528 10.29	0.0484 11.20		0.0383 7.80	0.2996 6.04	0.0393 7.72	0.0357 7.50
OUT-OF-SCHOOL WORK EXPERIENCE SQUARED	-0.0006 -5.20	-0.0006 -5.56	-0.0010 -8.58	-0.0007 -7.31		-0.0005 -3.76	-0.0003 -2.49	-0.0008 -6.22	-0.0006 -4.44
YEARS OF COMPLETED EDUCATION	0.1019 23.22	0.0763 15.47	0.0722 13.11	0.1003 26.08		0.0964 22.44	0.0755 14.80	0.1004 17.13	0.0999 23.79
IF GRADUATE EDUCATION (RELATIVE TO NO EDUCATION OR LOWER LEVEL OF EDUCATION)	0.2628 2.62	0.0707 0.07	0.2490 2.08	0.3730 3.83		0.5089 3.76	0.4369 3.32	0.5169 3.09	0.6116 4.32
CONSTANT	4.74 74.51	4.73 66.19	4.17 50.55	4.79 83.08		4.77 81.96	4.82 69.70	3.81 43.40	4.77 81.36
R-SQUARE	0.3545	0.4151		0.3046		0.3300	0.3960		0.2824
ADJUSTED R-SQUARE	0.3527	0.4060		0.3034		0.3280	0.3859		0.2808
F	194.40	45.69		248.26		169.06	39.31		184.53
NUM.OBS.-OLS	1421	1374	1374	2272		1378	1338	1338	1881
NUM.OBS.-HECKMAN			3123					3922	
Z-STATISTIC ON RHO			5.90					7.00	

SOURCE: SURVEY OF POVERTY AND LIVING CONDITIONS IN BOGOTA, 1991, DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA (DANE).

NOTE: ¹ ALL CALCULATIONS ARE BASED ON EXPANSION FACTORS PROVIDED BY DANE.

² THIS MEASURE OF EXPERIENCE IS DEFINED AS (AGE - AGE BEGAN WORK - YEARS OF IN-SCHOOL EXPERIENCE).

³ SEE (KNAUL 1995) FOR EXPLANATION OF FULL SET OF CONTROL VARIABLES, COEFFICIENTS AND T-STATISTICS.

⁴ HECKMAN MODELS INCLUDE AGE AND AGE SQUARED IN THE PROBIT.

TABLE 9

REGRESSIONS ON HOURLY WAGES AND EARNINGS OF ADULT MALES AND FEMALES
 MODEL 4: TOTAL EXPERIENCE AND YEARS OF IN-SCHOOL EXPERIENCE /2
 OLS REGRESSIONS WITH AND WITHOUT CONTROLS /3
 (first figure is coefficient; figure below is t-statistic for OLS)

INDEPENDENT VARIABLES:	MALES				FEMALES			
	LOG HOURLY WAGE		LOG HOURLY EARNED INCOME		LOG HOURLY WAGE		LOG HOURLY EARNED INCOME	
	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.
TOTAL MEASURE OF WORK EXPERIENCE IN YEARS (AGE-AGE BEGAN WORKING)	0.0425 8.64	0.0422 8.61	0.0475 11.03	0.0471 10.83	0.0377 7.65	0.0288 5.94	0.0349 7.24	0.026 5.290
TOTAL WORK EXPERIENCE SQUARED	-0.0006 -4.94	-0.0006 -5.18	-0.0006 -7.08	-0.0006 18.67	-0.0005 -3.64	-0.0003 -2.35	-0.0005 -4.23	0.000 -2.700
YEARS OF COMPLETED EDUCATION	0.1049 23.57	0.0787 15.43	0.1034 25.71	0.0848 18.67	0.0959 22.05	0.0757 14.73	0.0996 23.28	0.074 14.720
IF GRADUATE EDUCATION (RELATIVE TO NO EDUCATION)	0.2673 2.67	0.0786 0.78	0.3687 3.78	0.1819 1.85	0.5188 3.82	0.4376 3.31	0.6194 4.36	0.518 3.720
YEARS OF IN-SCHOOL WORK EXPERIENCE IN PRIM'Y AND SEC'Y (AGED 5-16)	0.0432 -5.48	0.0345 -4.43	-0.0378 -5.59	-0.0354 -5.23	-0.0089 -0.70	-0.0194 -1.59	-0.0107 -0.94	-0.006 -0.540
CONSTANT	4.73 73.12	4.72 64.91	4.77 80.82	4.71 62.52	4.78 81.43	4.82 69.34	4.77 80.33	4.88 70.99
R-SQUARE	0.3565	0.4146	0.3053	0.3453	0.3303	0.3958	0.2819	0.35
ADJUSTED R-SQUARE	0.3542	0.4051	0.3038	0.3372	0.3279	0.3279	0.2800	0.34
F	156.72	43.50	199.18	42.84	135.34	37.53	147.22	41.68
NUM.OBS.-OLS	1421	1374	2272	2221	1378	1338	1881	1840.00

SOURCE: SURVEY OF POVERTY AND LIVING CONDITIONS IN BOGOTA, 1991, DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA (DANE).

NOTE: ¹ ALL CALCULATIONS ARE BASED ON EXPANSION FACTORS PROVIDED BY DANE.

² IN-SCHOOL EXPERIENCE IS DEFINED APROXIMATED BY GRADES COMPLETED LESS AGE BEGAN WORK (AGES 5-16)

³ SEE (KNAUL 1995) FOR EXPLANATION OF FULL SET OF CONTROL VARIABLES, COEFFICIENTS AND T-STATISTICS.

TABLE 10A

REGRESSIONS ON HOURLY WAGES AND EARNINGS OF ADULT MALES
 MODEL 5: TOTAL EXPERIENCE, EDUCATION IN LEVELS, AND INTERACTION TERMS FOR COMBINED
 SCHOOL AND WORK.
 OLS REGRESSIONS WITH AND WITHOUT CONTROLS, HECKMAN CORRECTION FOR SELECTIVITY ON
 EQUATION WITH CONTROLS FOR FAMILY BACKGROUND /2.
 (first figure is coefficient; figure below is t-statistic for OLS and z-statistic for the Heckman models)

INDEPENDENT VARIABLES:	MALES				
	LOG HOURLY WAGES			LOG HOURLY EARNED INCOME	
	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	HECKMAN CORR'N ON EQ. W/ FAM. FAM BACK'D AND PERS. CHAR. /3	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.
TOTAL WORK EXPERIENCE (AGE-AGE BEGAN WORKING)	0.0405 7.96	0.0411 8.15	0.0501 9.69	0.0466 10.50	0.0452 10.12
TOTAL WORK EXPERIENCE SQUARED	-0.0005 -4.64	-0.0006 -5.02	-0.0009 -8.12	-0.0007 -6.97	-0.0006 -6.73
SOME OR COMPLETE PRIMARY EDUCATION	0.4262 2.33	0.4132 2.35	0.5497 2.98	0.3817 2.93	0.4240 3.30
SOME OR COMPLETE SECONDARY EDUCATION	0.8403 4.58	0.7205 4.07	0.8555 4.62	0.7780 5.90	0.7219 5.53
SOME OR COMPLETE UNIVERSITY EDUCATION	1.477 8.06	1.185 6.64	1.297 6.93	1.408 10.69	1.221 9.26
SOME OF COMPLETE GRADUATE EDUCATION	1.979 9.83	1.427 7.09	1.737 8.05	2.026 12.99	1.595 9.96
COMBINED PRIMARY AND WORK, DROPPED OUT AFTER PRIMARY	-0.1374 -1.58	-0.0501 -0.58	0.0285 0.37	-0.1558 -2.15	-0.1567 -2.16
COMBINED PRIMARY AND WORK, CONTINUED TO SECONDARY	-0.3256 -3.73	-0.3068 -3.64	-0.2371 -3.04	-0.2732 -3.65	-0.2712 -3.68
COMBINED SECONDARY AND WOR	-0.1425 -2.65	-0.0938 -1.79	-0.0529 -1.10	-0.1224 -2.47	-0.0646 -1.32
CONSTANT	4.84 26.02	4.84 26.02	3.96 20.37	4.91 36.28	4.73 33.20
R-SQUARE	0.3453	0.3453		0.2885	0.3341
ADJUSTED R-SQUARE	0.3411	0.3411		0.2856	0.3253
F	82.74	82.74		101.93	37.92
NUM.OBS.-OLS	1422	1422	1375	2273	2222
NUM.OBS.-HECKMAN			3123		
Z-STATISTIC ON RHO			6.03		

SOURCE: SURVEY OF POVERTY AND LIVING CONDITIONS IN BOGOTA, 1991, DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA

NOTE: ¹⁾ ALL CALCULATIONS ARE BASED ON EXPANSION FACTORS PROVIDED BY DANE.

²⁾ SEE (KNAUL 1995) FOR EXPLANATION OF FULL SET OF CONTROL VARIABLES, COEFFICIENTS AND T-STATISTICS.

³⁾ HECKMAN MODELS INCLUDE AGE AND AGE SQUARED IN THE PROBIT.

TABLE 10B

REGRESSIONS ON HOURLY WAGES AND EARNINGS OF ADULT FEMALES
 MODEL 5: TOTAL EXPERIENCE, EDUCATION IN LEVELS, AND INTERACTION TERMS FOR COMBINED
 SCHOOL AND WORK.

OLS REGRESSIONS WITH AND WITHOUT CONTROLS, HECKMAN CORRECTION FOR SELECTIVITY ON
 EQUATION WITH CONTROLS FOR FAMILY BACKGROUND /2.

(first figure is coefficient; figure below is t-statistic for OLS and z-statistic for the Heckman models)

INDEPENDENT VARIABLES:	FEMALES				
	LOG HOURLY WAGE			LOG HOURLY EARNED INCOME	
	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.	HECKMAN CORR'N ON EQ. W/ FAM. FAM BACK'D AND PERS. CHAR. /3	SIMPLE SPEC'N	CONTROLS FOR FAM BACK'D AND PERS. CHAR.
TOTAL WORK EXPERIENCE (AGE-AGE BEGAN WORKING)	0.0390 7.71	0.0301 5.88	0.0391 7.49	0.0368 7.44	0.0259 5.23
TOTAL WORK EXPERIENCE SQUARED	-0.0005 -3.99	-0.0004 -2.54	-0.0009 -6.38	-0.0006 -4.78	-0.0004 -2.97
SOME OR COMPLETE PRIMARY EDUCATION	0.0407 0.26	0.0448 0.30	0.2969 1.81	0.3293 3.06	0.3084 2.95
SOME OR COMPLETE SECONDARY EDUCATION	0.3960 2.58	0.3047 1.98	0.6363 3.84	0.7259 6.74	0.5796 5.40
SOME OR COMPLETE UNIVERSITY EDUCATION	1.008 6.52	0.7549 4.83	1.222 7.18	1.352 12.38	1.009 8.98
SOME OF COMPLETE GRADUATE EDUCATION	1.785 8.96	1.410 7.04	2.050 8.80	2.237 13.02	1.742 10.04
COMBINED PRIMARY AND WORK, DROPPED OUT AFTER PRIMARY	-0.3040 -2.64	-0.2867 -2.50	-0.0773 -0.80	-0.1951 -2.02	-0.1483 -1.56
COMBINED PRIMARY AND WORK, CONTINUED TO SECONDARY	-0.2150 -1.62	-0.2192 -1.71	-0.0545 -0.47	-0.2161 -1.69	-0.1811 -1.46
COMBINED SECONDARY AND WORK,	-0.1368 -2.06	-0.1121 -1.70	-0.1199 -2.05	-0.1896 -2.93	-0.1333 -2.07
CONSTANT	5.23 33.76	5.19 33.09	4.04 23.05	4.94 44.25	5.06 45.52
R-SQUARE	0.3143	0.3849		0.2597	0.3330
ADJUSTED R-SQUARE	0.3098	0.3722		0.2561	0.3223
F	69.53	30.29		72.76	31.10
NUM.OBS.-OLS	1375	1335	1335	1877	1836
NUM.OBS.-HECKMAN			3921		
Z-STATISTIC ON RHO			6.97		

SOURCE: SURVEY OF POVERTY AND LIVING CONDITIONS IN BOGOTA, 1991, DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA (DANE).
 NOTE: ¹⁾ ALL CALCULATIONS ARE BASED ON EXPANSION FACTORS PROVIDED BY DANE.

²⁾ SEE (KNAUL 1995) FOR EXPLANATION OF FULL SET OF CONTROL VARIABLES, COEFFICIENTS AND T-STATISTICS.

FIGURE 1: RETURNS TO SCHOOL-WORK COMBINATIONS FOR MALES
 Total hourly earned income, controls for family background and personal characteristics
 (data from Table 9)

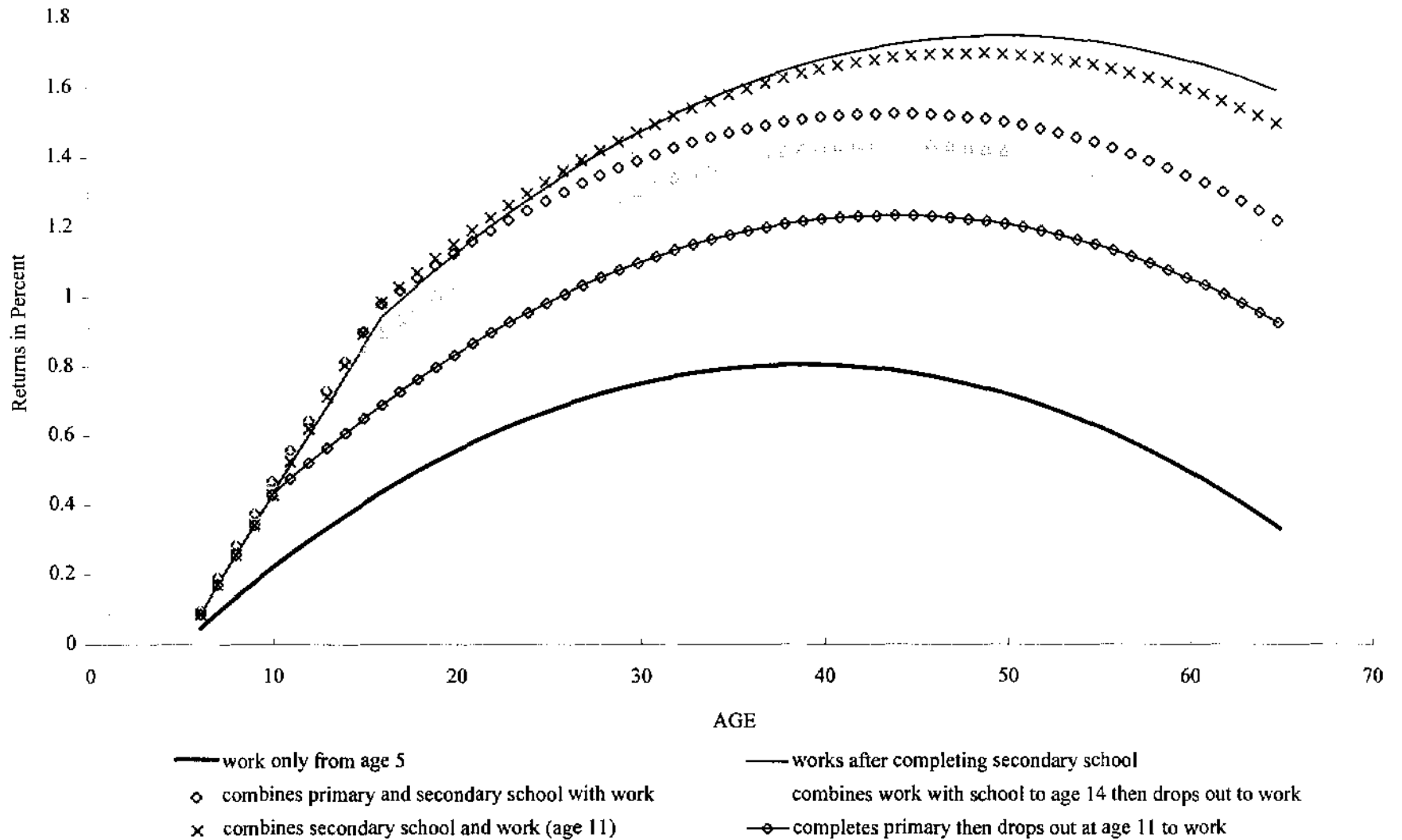
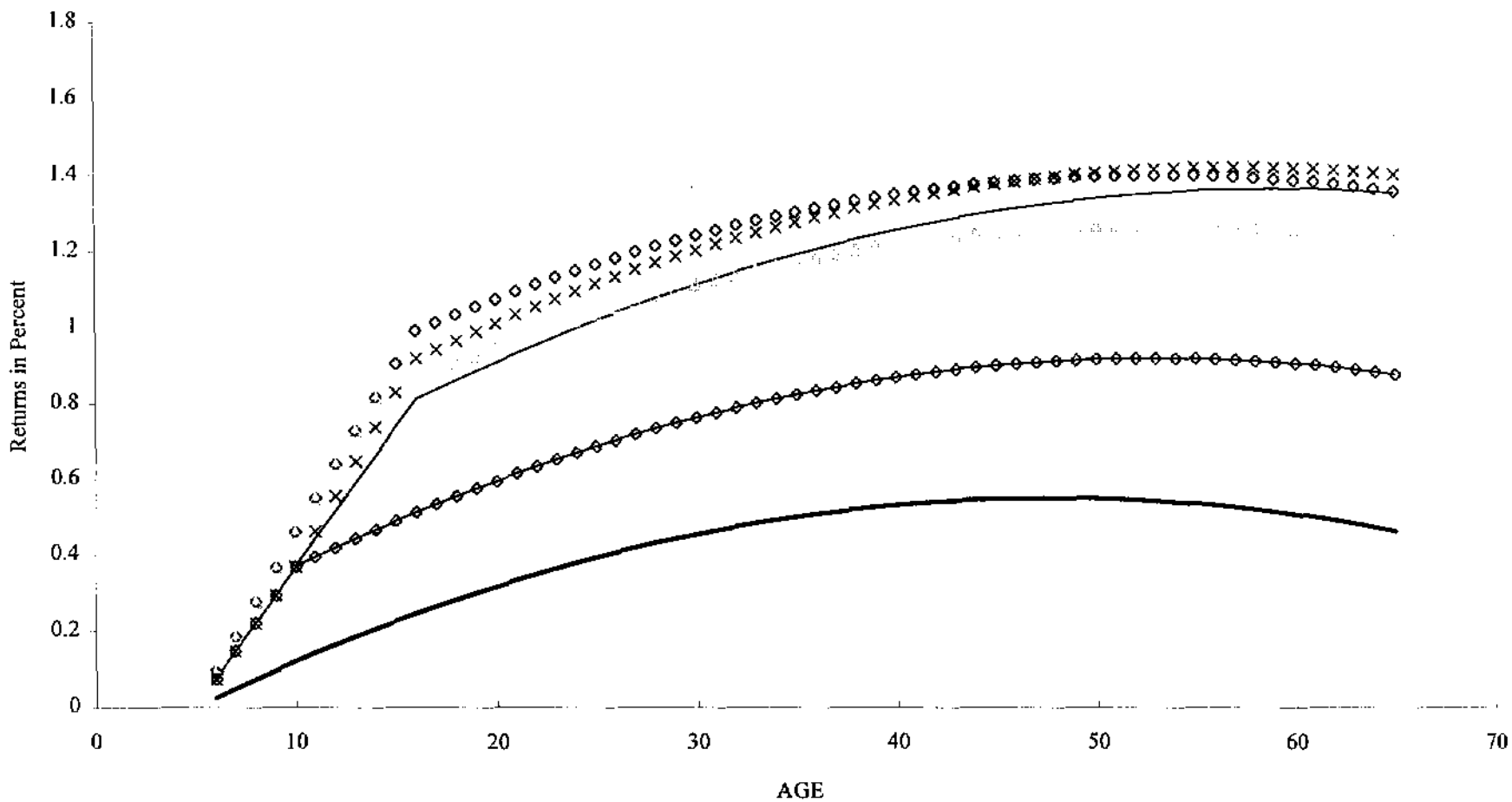


FIGURE 2: RETURNS TO SCHOOL-WORK COMBINATIONS FOR FEMALES
 Total hourly earned income, controls for family background and personal characteristics
 (data from Table 9)



- works only from age 5
- works after completing secondary school
- ◊ Combines primary and secondary school with work
- ◻ combines work with school to age 14 then drops out to work
- × Combines secondary school and work (age 11)
- ◐ completes primary then drops out at age 11 to work

FIGURE 3: RETURNS TO COMBINATIONS OF SCHOOL AND WORK FOR MALES
 by level
 Total hourly earned income, controls for family background and personal characteristics
 (data from Table 10)

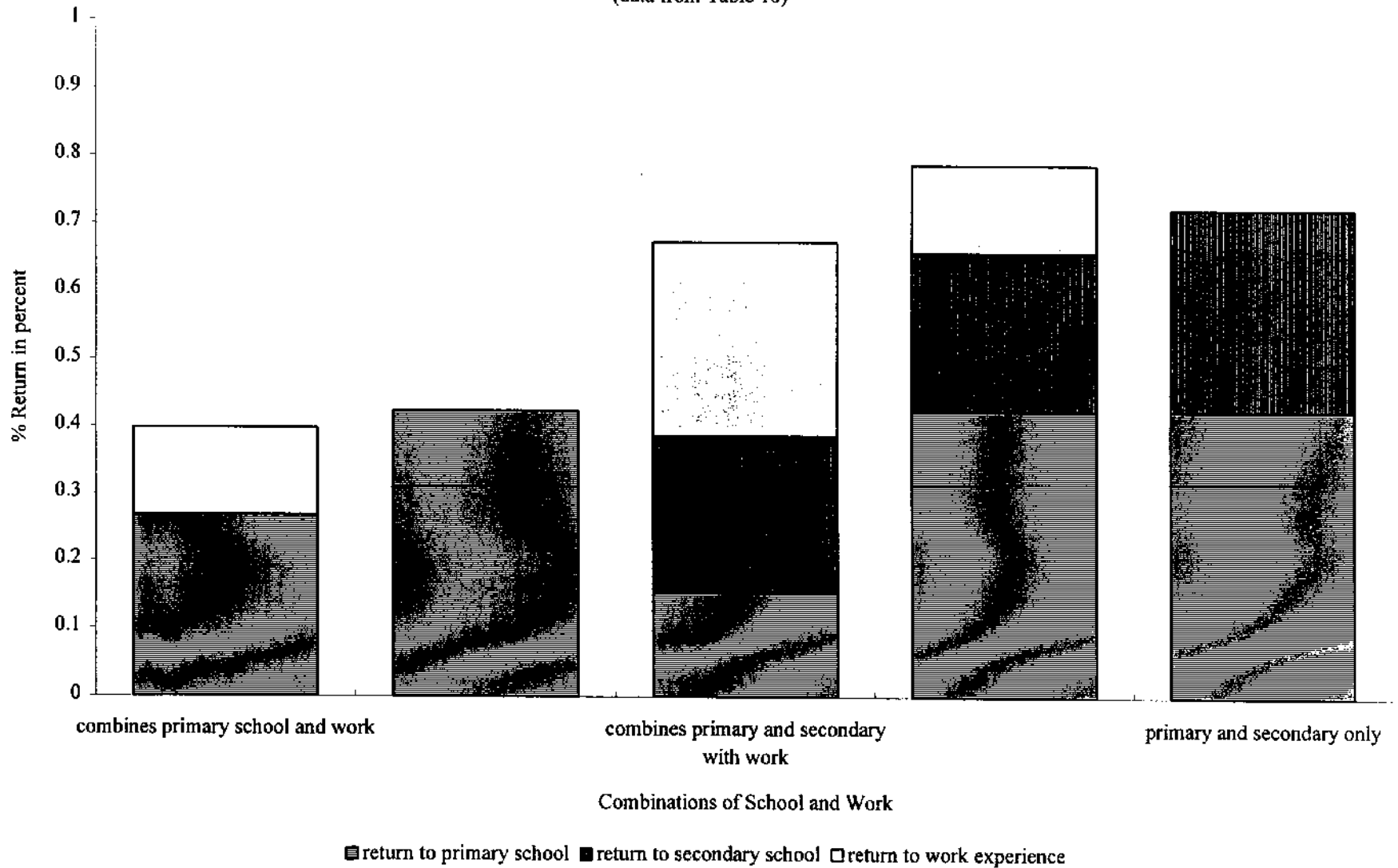


FIGURE 4: RETURNS TO COMBINATIONS OF SCHOOL AND WORK FOR MALES
 by level
 Total hourly earned income, controls for family background and personal characteristics
 (data from Table 10)

