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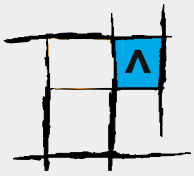

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Intra-Household Gender Bias and Child Labor Persistence in Brazil

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Abstract

In this paper we examine gender differences in the inter-generational persistence of child labor within the context of intra-household resource allocation. We begin by building an intra-household allocation model where fathers and mothers may affect the education investment and the child labor participation of their sons and daughters differently due to differences in the children's human capital technologies or differences in the parents' preferences. Using the 1996 Brazilian Household Survey, we estimate the impacts of parents' child labor status, schooling and non-labor income on children's child labor participation and school attendance. The empirical results show that fathers favor sons and mothers favor daughters regarding child labor participation decisions but fathers and mothers both favor sons regarding educational attainment.

(**JEL Classification Numbers:** J20, O12, O54)

(**Keywords:** Child Labor, Brazil, Intra-Household Allocations, Bargaining Models, Gender Bias)

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Intra-Household Gender Bias and Child Labor Persistence in Brazil

In a previous paper (Emerson and Portela, 2000) we found strong evidence of inter-generational persistence in child labor among families in Brazil. Specifically, we found that people who start work at a younger age end up with lower earnings as adults, and that children are more likely to be child laborers the younger their parents were when they entered the labor force, and the lower the educational attainment of their parents as well as their grandparents. These findings are consistent with models of child labor and poverty persistence (see e.g., Bell and Gersbach, 2000; Dessy, 2000; Emerson and Portela, 2000; Basu, 1999; Glomm, 1997) where parent's child labor hampers their ability to gain human capital through schooling which makes them unable to command a high enough wage as an adult to afford to keep their children out of the labor force. We also found that this inter-generational persistence remains even when we control for household income and parental education. This result suggests that there is a link, beyond what is posited in traditional models, between child labor of parents and the child labor of their children.

These results also hold when we performed the analysis for sons and daughters separately. That is, there is a persistence of child labor from parents to sons as well as from parents to daughters.

In this paper, our aim is to examine this persistence further by exploring whether there is evidence of gender bias in the household's decision to send their children to work and to school and, if so, to see if this bias has any effect on the persistence of child labor through the generations of a family. Thus, this study contributes to both the empirical

evidence on child labor as well as the large body of work on intra-household allocation. The question we are interested in answering is whether fathers and mothers favor children of a certain gender when deciding to send the children to work and to school.

This is an important issue due to its impact on individuals' welfare and the implications for public policy. Intra-household allocations play an important role in human capital investment and time use with welfare consequences for the individuals and overall society depending on the efficiency of such allocations. Also, intra-household allocations may have strong effects on distribution. They can either reinforce or compensate original endowment differences. Additionally, the nature of these allocations may affect the efficacy of policies such as transfer programs that target particular members of the household.

There is an extensive literature on gender differences in human capital investments and outcomes that has presented some evidence of gender bias. To cite but one example, Sen (1999, 1990) reports that female mortality rate is significantly higher than those for men in Asia and North Africa. Others studies have shown that sons are favored in the intra-household allocation of nutrients and have better anthropometric outcomes (e.g. Behrman, 1988; Sen, 1984).

The reasons for within household discrimination against daughters are not completely clear. In a situation where the parents care about future earnings of their offspring, it may be that the expected return to investment in sons might be higher than the return from investment in daughters. In traditional societies, where parents rely on their sons to care for them when old, while daughters contribute resources to their husband's families, it would be efficient for the parents to invest in their sons if parents

care for themselves only. On the other hand, it might be that the cost of having sons and daughters are different, in particular the investment cost. For example, in situations where young daughters are responsible for child care or household chore activities (when they are not in school), the opportunity cost of a daughter's schooling may be higher than a son's. Alternatively, it might be that the difference in resource allocations simply reflect the differences in parents' preference or social norms.

Interestingly, some studies have found that the gender bias in the children's inputs or outcomes is related to the parent's gender. In a study of families in the U.S., Ghana and Brazil, Duncan Thomas (1994) finds that children's health achievement (as measured by height for age) is linked to the educational attainment and non-labor income of the parent of the same sex as the child. In other words, sons do better the more education and non-labor income the father has and daughters do better the more education and non-labor income of the mother. This finding suggests that there may be differences in the preferences of the parents and/or that there may be technological differences in child rearing. Moreover, it supports the rejection of the unitary family model that assumes parents have common preferences and pool their resources. In fact, there is some additional evidence that the unitary family model hypothesis is not consistent with Brazilian data. Thomas (1990) shows that unearned income controlled by mothers has stronger impacts on family's health than income under father's control. In addition, Tiefenthaler (1999) finds that family labor supply decisions in Brazil do not conform to the implications of the unitary family model.

The recent child labor literature generally assumes (*ala* Becker, 1982) that parents have common preferences and are altruistic toward their children as well (e.g., Baland

and Robinson, 2000; Bell and Gersbach, 2000; Dessy, 2000; Emerson and Portela, 2000; Basu and Van, 1998). Additionally, the empirical literature on child labor has predominantly explored the relation between the economic conditions and incentives of the family and the child labor outcomes (e.g. Emerson and Portela, 2000; Ray, 2000; Grottaert and Patrinos, 1999; Jensen and Nielsen, 1997). Although it is a valid starting point in order to focus on the poverty dimension of child labor, this focus overlooks other factors that might be important. Some recent studies that explicitly look at intra-household allocations are Basu (2001) and Ridao-Cano (2000), which extend intra-household behavior to child labor decisions. Both authors suggest that fathers and mothers have different impacts in the labor supply of their children, and that this is potentially related to their relative bargaining power. Neither, however, explore gender bias within the intra-household allocation decisions.[1]

In the present study, we investigate the impact of fathers and mothers on the child labor and school attendance of their sons and daughters, separately, within the context of inter-generational persistence of child labor. In line with the existing child labor literature, we assume altruistic parents make the decision to send children to work, but we allow for parental preferences to differ across children as well as allowing the human capital technology to vary across children. Using Brazilian household survey data we estimate the impact of parent's child labor status, education and non-labor income on the labor status and school attendance of their sons and daughters separately. We find evidence that, for child labor, the father having been a child laborer has a greater impact on the child labor status of sons than of daughters, and the opposite is found for mothers,

[1] Basu's theoretical contribution goes further and includes the possibility that the choices taken by the individuals can affect their bargaining power.

who have a greater impact on daughters than on sons. Equally compelling, when it comes to schooling decisions, both fathers and mothers appear to favor sons.

This paper proceeds as follows. The next section presents a simple model of household allocation. It illustrates the argument that altruistic fathers and mothers may have distinct impacts on their sons and daughters due to differences in their preferences and/or differences in the children's human capital technologies. Section three describes the data used in this paper and the variables used in the regression estimations. Section four presents the empirical results and section five summarizes the main findings.

II. The Model

In order to model household allocations where parents have different preferences, it is necessary to depart from the unitary family model. Two classes of models usually used in the intra-household allocation literature that allow differences in parents' preferences are the family bargaining models (see, e.g., Lundberg and Pollak, 1993; McElroy, 1990; McElroy and Horney, 1981) and the collective model (e.g., Chiappori, 1992, 1988). Bargaining models assume that the household allocation outcomes are the result of a bargaining process in which household members seek to allocate resources they control to goods they individually prefer. The resulting equilibria are sensitive to the threat point definition and equilibrium concept assumed. The collective model leaves unspecified the underlying nature of the allocation process within the household but assumes that the resource allocations are Pareto efficient.[2] Due to its generality, we opt

[2] For a summary of intra-household allocation models, see Behrman (1997) and Strauss and Thomas (1995).

to use this collective approach to household decisions to motivate the discussion and the empirical investigation that follows.

We can think of the child labor decision within a standard collective household allocation framework. Each household consists of two heads (mother and father) and *n* children who can be sons or daughters. Both fathers and mothers are altruistic in that they value the consumption of each member of the household and the human capital achievement of their children. The children in the household can go to school, go to work or spend time in both activities. The amount of schooling children receive determines the wage they are able to command as adults, and children who work are not able to get as much education as those who do not. Therefore the amount of labor income the father and mother bring into the household depends on how much schooling they received as children. Thus parents who were child laborers command lower wages and are more likely to demand that their children work to supplement the family income. This is what we term the child labor trap.

Browning and Chiappori (1998) show that for all Pareto-efficient allocations, there exist a set of weights such that the household welfare function can be represented by a linear combination of father's and mother's utilities, where the weights on each person's utility is a function of their bargaining power in the household. This power may be a function (among other things) of the exogenous non-labor income they bring into the home and is a topic we explore in the empirical section of this chapter.

Consider a general household's utility maximization problem:

$$\max U = \lambda u_f(c_f, c_m, c_p, c_1, \cdots, c_n, l_f, l_m, h_1, \cdots, h_n, n; z_f) +$$

$$(1-\lambda) u_m(c_f, c_m, c_p, c_1, \cdots, c_n, l_f, l_m, h_1, \cdots, h_n, n; z_m) \qquad (1)$$

Subject to the budget constraint:

$$c_f + c_m + c_p + \sum_{j=1}^{n} c_j \leq (1-l_f)w_f + (1-l_m)w_m + \sum_{j=1}^{n}(1-e_j)w_c + I_f + I_m \qquad (2)$$

Where U is the household's welfare function, u_f is the father's utility function, u_m is the mother's utility function. The parameter λ represents the relative bargaining power in the household and $\lambda \in [0,1]$. The total consumption of the household is the sum of the father's consumption of his private goods, c_f, the mother's consumption of her private goods, c_m, the household's consumption of public goods, c_p, and the sum of each child j's consumption of his/her private good: c_j, $j = 1,\cdots,n$. The consumption of leisure for the father and mother are l_f and l_m, respectively. Parents also care about the human capital achievement of their children, $h_1, \ldots, h_n$ as well as the number of children in the household, n.[3] The terms z_f and z_m represent any individual, household and community characteristics that effect the father's and mother's utility respectively. The current wage rates for the father, mother and children are given by w_f, w_m, and w_c, respectively.

Fathers and mothers may additionally have exogenous non-labor income of their own and these are given by I_f and I_m. Finally child j's time spent in school (education) is given by e_j. Each person is endowed with one unit of time. For adults this time is split between labor and leisure, so time spent working is 1-l. For children time is split between working and going to school, so for them, time spent working is 1-e.

For ease of exposition we assume that the wages of the father and mother are given by their production functions $w_f = h_f$ and $w_m = h_m$, we normalize the child wage to

one, $w_c = 1$, so a child who only works will earn a total of 1. In order to focus on parents' preferences on children's outcomes, we also assume that both fathers and mothers value equally any additional unit of consumption regardless of the recipient and that there does not exist a public good ($c_p = 0$), so $c_f + c_m + c_p + \sum_{j=1}^{n} c_j = C$. Additionally, we assume that fathers and mothers supply labor inelastically or, in other words, they spend all of their time working: $l_f = l_m = 0$, that fertility is exogenous, and that the utilities are monotonically increasing in consumption, so non-satiation applies.

Children's education is converted into adult human capital by the idiosyncratic technology:

$$h_j = f_j(e_j; h_f, h_m), \quad \forall j \tag{3}$$

where $f_j(0) = 1$, $\frac{\partial f_j(e_j; h_f, h_m)}{\partial e_j} > 0$, $\frac{\partial f_j(e_j; h_f, h_m)}{\partial h_f} > 0$, and $\frac{\partial f_j(e_j; h_f, h_m)}{\partial h_m} > 0$. This technology is different for each child because of different abilities, societal bias (e.g. due to gender), etc. Father's and mother's human capital also enter into the technology because of, for example, the fact that the effectiveness of children's schooling depends critically on the pool of human capital at home.[4] The father's and mother's human capital enter separately because there may be differences in the way that parents interact with children depending on ability, gender, birth order, etc.

With these assumptions in place, the household's problem becomes:

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3 $h_1, \ldots, h_n$ are the human capital children attain when they become adults. To keep notation as simple as possible, time subscripts have not been used but it is important to note that this is what creates the intergenerational link in this model.

$$\max U = \lambda u_f(C, h_1, \cdots, h_n; z_f) + (1-\lambda) u_m(C, h_1, \cdots, h_n; z_m). \qquad (1')$$

Subject to the budget constraint:

$$C = h_f + h_m + \sum_{j=1}^{n}(1-e_j) + I_f + I_m \qquad (2')$$

and the technology, (3). Substituting the constraint and technology directly into the utility function of the household gives us the new household's problem:

$$\max_{\{e_1,\cdots,e_n\}} U = \lambda u_f\left(h_f + h_m + \sum_{j=1}^{n}(1-e_j) + I_f + I_m,\, f_1(e_1; h_f, h_m), \cdots,\, f_n(e_n; h_f, h_m); z_f\right) +$$

$$(1-l) u_m\left(h_f + h_m + \sum_{j=1}^{n}(1-e_j) + I_f + I_m,\, f_1(e_1; h_f, h_m), \cdots,\, f_n(e_n; h_f, h_m); z_m\right) \qquad (4)$$

If we assume an interior solution ($e_j > 0,\ \forall j$), we can derive the first-order conditions. For each child j, the first order condition is:

$$\frac{\partial U}{\partial e_j}:\ \lambda\left[\frac{\partial u_f}{\partial e_j}(-1) + \frac{\partial u_f}{\partial f_j}\cdot\frac{\partial f_j}{\partial e_j}\right] + (1-\lambda)\left[\frac{\partial u_m}{\partial e_j}(-1) + \frac{\partial u_m}{\partial f_j}\cdot\frac{\partial f_j}{\partial e_j}\right] = 0 \qquad (5)$$

It is worthwhile interpreting these first-order conditions before we move on. Note that in the first set of brackets in equation (5), the father's marginal utility of increasing child *j's* education is represented. It has two components: the first term is the loss of utility of the father due to the foregone income of child j. The second term is the gain in utility due to the increase of human capital of the child, which the father cares about. The second set of brackets contains the same for the mother. Again, though the parent cares about the child's human capital attainment, the child does not see the benefit of such until he or she reaches adulthood.

[4] This is a similar assumption as that in Bell and Gersbach (2000) and Glomm (1997).

Deriving the first-order condition for each child, gives us a system of n equations and n unknowns. Assuming the utility functions of the father and mother are well-behaved, the optimal solution to this problem is a vector of education levels for each child in the household that solve the n first-order conditions, $e^* = (e_1^*, \cdots, e_n^*)$, where:

$$e_j^* = \tilde{e}_j(h_f, h_m, I_f, I_m, ; \boldsymbol{l}, z_f, z_m) \ . \qquad (6)$$

Of course, the child labor function is just 1- e^* . The resulting adult human capital of the household's children is given by the function:

$$h_j^* = f_j[e_j(h_f, h_m, I_f, I_m; \lambda, z_f, z_m); h_f, h_m] \ . \qquad (7)$$

The empirical implications of this model come from the comparative statics of these two functions.

First, note that the higher the parents' human capital attainment, the less needed is the child's contribution to current household consumption. This allows the children to get more education and, as a result, they will be less likely to send their children to school when they become adults. This is the essence of the child labor trap explored in Emerson and Portela (2000). The focus of this paper is on the differential effects of fathers and mothers on their sons and daughters. This can be seen through an analysis of the optimal education and human capital functions.

For simplicity, consider a four-person household that consists of a father, mother, son and daughter. Now consider an increase, ceteris paribus, in the father's human capital. The effect on the son's optimal education function is twofold: First, there is the direct effect that more human capital for the father means more income for the family and thus the family needs the son to provide less income, and this reduces the amount of child labor. The reduction in child labor means more schooling and thus more human capital

of the son, which the family values. Second, more human capital of the father increases the return to the son's education through the technology that creates human capital from education. This will increase the marginal return to the son's education and therefore the family will have an incentive to invest more in the son's education.

The effect of the increase of the father's human capital need not be, and in general is not, the same for all kids. First, note that this would reduce child labor equally across children, *ceteris paribus,* if additional schooling increases children's human capital equally. But if additional schooling affects children's human capital differently, the child labor reduction would vary across children. Thus, the increase in schooling will differ across the two kids due to their idiosyncratic human capital technologies. Second, the increase in the father's human capital may also affect the marginal returns to education of the son and daughter differently. Third, father's tastes may favor one child over others and his additional human capital may provide him stronger bargaining power to impose his preferences. These differences can lead to different investments in education (and, therefore, human capital) for the son and daughter of the family.

These differences can lead to different impacts of each parent on the same child as well as different parental impacts across children. For example, it is possible that, for the same child, an increase in the father's human capital will have a different impact than an equal increase in the mother's human capital. In addition, it could be that the effect of an increase in mother's human capital could be different for the son and daughter. Finally, note that these differential impacts can also be driven by different parental preferences over the human capital of their children and the relative bargaining power of the father and mother.

It is precisely these differences that we explore in the empirical investigation of the paper in section four. First, however, we describe the data used in the paper in section three.

III. The Data

The data used in the present paper are taken from the 1996 Brazilian Household Survey called *Pesquisa Nacional por Amostragem a Domicilio* (PNAD) collected by *Instituto Brasileiro de Geografia e Estatística* (IBGE), the Brazilian census bureau. It is an annual labor force survey much like the Current Population Survey in the U.S. The 1996 PNAD encompasses approximately 85,000 households.

The sample selection used in this study consists of individuals between 10 and 14 years old that are considered a son, daughter or other relative in the family unit. Each observation consists of information on the child characteristics, his or her parent characteristics and his or her family characteristics. Since we are interested in differential effects of mother's and father's child labor and education on children's labor, we use a sample of observations with complete information of the father's and the mother's characteristics. Because of this, families with single heads are excluded from the analysis. We also exclude all observations for which the age difference between the head of the family or spouse, and the oldest child is fourteen or below.

We construct the child labor variables in two ways: if a child worked on the labor market any strictly positive hours per week, and if a child worked 20 hours or more on the labor market per week. Both of these definitions of child labor will be used to check the robustness of the results.

A parent is considered to have been a child laborer if he or she began working in the labor market at 14 years old or below. We will also utilize a continuous variable of the age the parents entered the labor force for the first time.

In addition, for each child, we obtained his or her school attendance status, gender and region of residence. Similarly, we constructed years of schooling, age and employment status of the parents.

For a more complete description of the data, please see Emerson and Portela (2000).

IV. The Results

Child labor is widespread in this sample of households in Brazil. Table 1 shows the incidence of child labor and schooling among the sons and daughters in the sample. Roughly 19 percent of all sons work some hours in the labor market as do approximately 9 percent of daughters. School attendance is also quite high with almost 92 percent of sons and over 93 percent of daughters attending school at least part-time. What is particularly interesting (and important for the estimation strategy) is that among child laborers almost 81 percent of sons and 82 percent of daughters both work and go to school.

In order to test the impact of intra-household gender differences on the child labor and educational outcomes of children, we estimate a series of bivariate probit models. The advantage of using the bivariate probit model is that the child labor and child schooling decisions are likely related, as evidenced by the high proportion of children that both work and go to school in the sample. The bivariate probit model allows us to

utilize the information from the correlation among the errors of the child labor regression and the child schooling regression.

The first bivariate probit model we estimate is a regression of the child labor indicator variable (for daughters and sons, separately) and the child school indicator variable on the child labor indicator variables for both the mother and the father as well as the father's and mother's years of schooling. Also included in all regressions are a vector of household characteristics: the age of the child, age of the father and age of the mother, the number of male siblings aged 0 to 5, 6 to 9, 10 to 14 and 15 to 17, the number of female siblings aged 0 to 5, 6 to 9, 10 to 14 and 15 to 17 and indicator variables that equal one if the child lives in an urban area, if the father is either unemployed or not in the labor market and if the mother is either unemployed or not in the labor market. The results of the first regression are given in Table 2. Here the coefficients on the mother's and father's child labor indicator variables are positive and significant for both daughters and sons in the child labor equation, as seen in the first two columns, meaning that the children of parents who were child laborers are more likely to be child laborers themselves. This is the main result of Emerson and Portela (2000) and demonstrates the persistence of child labor. In addition, the coefficients on the mother's years of schooling variable is negative and significant for both sons and daughters meaning that the more education the mother has, the less likely the children are to work as child laborers. The coefficients on the father's years of schooling are negative for both sons and daughters but only significant for sons. Thus fathers' education has a negative impact on sons' child labor but no impact on daughters. For the school attendance of the children, the father having been a child laborer has a negative impact on the probability of the sons and

daughters being in school. Interestingly, the mother's child labor status has no impact on the school attendance of the sons and daughters. Father's and mother's years of schooling have a positive and significant impact on the school attendance of both the sons and daughters.

To test for intra-household gender differences we first test to see if the impact of the father's or the mother's child labor status and years of schooling is different for their sons and daughters child labor status and school attendance. These results are given in the third column of Table 2. This column shows the difference between son's and daughter's coefficients. In this test we find that the father's and mother's years of schooling have different impacts on the child labor of the children depending on gender, where the father's years of schooling has a greater negative impact on the son's child labor status than the daughter's. The opposite is true for the mother's years of schooling, which reduces the likelihood of the daughter being a child laborer more than the son. For school attendance, there is some evidence to suggest that the fathers' years of schooling affects the son's school attendance more than the daughters'. Although not statistically significant, the same result were obtained for mothers'.

Next, we test if, for the same child, treatment differs across parents. To do so we perform a series of chi-squared tests on the hypothesis that the fathers' and mothers' child labor status and schooling is the same for sons and the same for daughters. In Table 2, we fail to reject the hypothesis that the child labor status of the fathers has a differential impact than mothers' child labor status for both sons and daughters. However, we do reject the hypothesis that the schooling of the father and the mother has the same effect on both sons and daughters, where mothers' schooling matters more for daughters and

fathers' matters more for sons. For school attendance of daughters and sons, the fathers' and mothers' child labor status has a differential affect on daughters but not on sons.

These results suggest that, like previous studies on, for example, child health (Thomas, 1994), there are intra-household gender biases in the allocation of resources with the mother favoring the daughters and the fathers favoring the sons. In the model this can arise due to the different idiosyncratic technologies that convert education into human capital and/or differences in parental preferences over the children. To look further into this and to compare with other intra-household allocation studies in Brazil, we look at the effect of non-labor income for both the father and the mother on the child labor and school attendance indicator variables.[5] Thomas (1990, 1994) argues that if non-labor income has different impact on child outcomes depending on which parent is the recipient, then the pooling resources assumption of the unitary family model no longer prevails. The non-labor income may be a proxy for the relative bargaining power within the household (the parameter λ in the model) and it can give us an indication if a unitary model of the household is appropriate in this context.

Table 3 presents the results of the estimation on the same bivariate probit model as in Table 2 but in this case fathers' and mothers' non-labor income is included. The results in Table 3 are qualitatively the same for all the previous variables as in Table 2. Now, however, mother's non-labor income has a negative impact on daughters' child labor, and both mothers' and fathers' non-labor income has a positive impact on sons' school attendance. Additionally, this difference of parental non-labor income on children's school attendance is significantly greater for sons than for daughters. This is

[5] PNAD collects individual information on monthly non-labor income which encompasses government transfers, pensions, rents, donations, income from financial assets applications,etc.

an interesting and unexpected result. It says that both fathers and mothers favor the education of sons in the household. This may suggest that the returns to education for sons are generally higher than for daughters and so parents, who care about the human capital of all children, will direct resources to the children with the highest marginal returns. Alternatively, it may be that the opportunity cost of school is higher for daughters than for sons due to, for instance, household activities normatively assigned to females. Indeed, Table 1 shows that 6.62 per cent of daughters and 8.26 per cent of sons don't attend school. However, among those that don't attend school, more than 76 per cent of daughters don't work in the labor market either in contrast with 56 per cent of sons. Thus, a daughter is more likely to not attend school and not work in the labor market either.

To check for sensitivity of the measure of parental child labor, and to allow for gradients in the impact of parental child labor variable we estimate the same two bivariate probit models above using a different variable for parental child labor. The new variable gives the age that each parent entered the labor market, replacing the indicator variable that equals one if the parent entered the labor market at age 14 or below. These results are given in Tables 4 and 5. Comparing Table 4 with Table 2, the results are qualitatively similar except that, in the schooling attendance regression, fathers age started work is not significant. Another difference between Table 4 and Table 2 is that in Table 4 the impact of the father's child labor is significantly different across sons and daughters, where an early entry of the father into the labor market has a greater effect on the son's probability of being a child laborer than on daughter's probability. Also, now the mothers and fathers age started to work variables have significantly different impacts across sons, but

the father and mother's schooling variables not longer have a differential impact across sons. As for school attendance, father's age started to work is no longer significant for daughters or sons and there is no longer a differential impact for daughters of the father's versus the mother's age started to work.

The results in Table 5 repeat the pattern of the results in Table 4, but now we add non-labor income to the model. In Table 5, note that the results differ from those in Table 3 in the same way that the results in Table 4 differ from Table 2.

To provide a test of the robustness of the results in Tables 4 and 5, we estimate the same two bivariate probit models but replace the children's child labor indicator variable that equals one if they worked any strictly positive hours in the sample week with an indicator variable that equals one only if they worked at least 20 hours in the sample week. The results are given in Tables 6 and 7 and are qualitatively identical to those in Tables 4 and 5 except now the coefficient on father's schooling, is negative and significant for daughter's child labor.

We also estimated models using the over 20 hours in the sample week definition of children's child labor with the parental child labor indicator variable, as well as estimating the same models but as probit models on children's child labor and school attendance separately. These estimations give qualitatively the same results and the results are given in the Appendix.

V. Conclusion

This paper investigates intra-household gender differences in child labor and school attendance within the context of inter-generational persistence of child labor. The main results can be summarized as follows:

(i) Similar to Emerson and Portela (2000), there is a strong inter-generational persistence of child labor. Moreover, the results suggest that a father having been a child laborer impacts the son's child labor incidence and school attendance more than the daughters. On the other hand, a mother who was a child laborer seems to impact sons and daughters equally on both activities or to favor slightly the daughter in the child labor decision;

(ii) As expected, higher educational attainment of the parents increases the probability that a child will attend school and decreases the likelihood of child labor. However, these impacts differ across sons and daughters. Father's schooling impacts the son's child labor and school attendance more than the daughter's. Mother's schooling has a stronger impact on the daughter's child labor than the son's and impacts the son and daughter's school attendance either equally or slightly stronger for the son's;

(iii) Surprisingly, father's and mother's non-labor income has no impact at all on the daughter's school attendance but a positive and significant impact on the son's school attendance. Father's non-labor income does not affect child labor but mother's non-labor income decreases the likelihood of a daughter be a child labor.

These results together suggest that parents - father and mother - favor sons (to the detriment of daughters) regarding the education attainment of their children. On the other hand, they seem to diverge on child labor decisions. Father favor sons and mothers favor

daughters when it comes to the decision of which child will work on the labor market. These findings are in partial contrast with Thomas (1994) who found that mothers favor daughters and fathers favor sons on health and nutrition status. However, it goes along with his conclusion and others about possible explanations. If parental education and non-labor income reflect bargaining power in household allocation decisions, our results suggest that gender differences in resource allocation are related to differences in child rearing technology and/or parent's preferences.

A possible family arrangement consistent with these findings is that parents anticipate relatively higher returns to male education and at the same time assign household work activities to daughters due to, e.g., social norms. Thus, the daughter's lower relative returns to education and the relative higher opportunity cost of attending school lead the parents to favor son's educational attainment. When it comes to withdraw a child from the labor market, the father prefers the son because he may value more the returns to education and the mother prefers the daughter because she may value more the daughter's time at home.

Whatever the arrangement is, the results point to some fine-tuned policy implications. Policies designed to ban child labor and increase schooling attendance should take into account the child's gender in a family context. For example, some programs aimed to reduce child labor assign transfers to family that keep their children out of work and at school. Our findings suggest that these programs should take into account not only the recipient of the transfer - the mother or the father - but also the gender of the ultimate beneficiary - the son or the daughter. It is clear that the opportunity cost of being at school is not only the forgone wage but also the forgone

value of doing other activities beyond work in the labor market and the transfer scheme could account for this.

Appendix

In this appendix we present the unweighted means of all the variables used in the empirical analysis of this paper. These are given in Table A1.

The results from the estimated models using the over 20 hours in the sample week definition of children's child labor with the parental child labor indicator variable are given in Tables A2 and A3. The results from estimating the same models but as probit models on children's child labor and school attendance separately are given in Tables A4 and A5, respectively.

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Table 1: Child Labor and School Attendance

Child Labor		School Attendance					
		Sons			Daughters		
		No	Yes	Total	No	Yes	Total
No	Number	678	11174	11852	719	12249	12968
	Row %	5.72	94.28	100	5.54	94.46	100
	Column%	56.08	83.19	80.95	76.49	92.41	91.36
Yes	Number	531	2258	2789	221	1006	1227
	Row %	19.04	80.96	100	18.01	81.99	100
	Column%	43.92	16.81	19.05	23.51	7.59	8.64
Total	Number	1209	13432	14641	940	13255	14195
	Row %	8.26	91.74	100	6.62	93.38	100
	Column%	100	100	100	100	100	100

Table 2: Bivariate Probit on Child Labor and School Attendance

Work strictly Postive Hours						
Independent Varibles	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	0.2470***	0.0490	0.2706***	0.0381	0.0236	0.0620
Child Labor Mother	0.3342***	0.0441	0.3162***	0.0359	-0.0180	0.0569
Father's Schooling	-0.0010	0.0061	-0.0444***	0.0051	-0.0435***	0.0079
Mother's Schooling	-0.0404***	0.0063	-0.0235***	0.0051	0.0169**	0.0081
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.5700	0.2102	0.6500	0.4213		
Father's=Mother's Schooling	12.8600	0.0003	5.4500	0.0196		
School Attendance						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	-0.0850*	0.0481	-0.1473***	0.0465	-0.0623	0.0669
Child Labor Mother	0.0448	0.0485	-0.0376	0.0467	-0.0824	0.0673
Father's Schooling	0.0398***	0.0074	0.0596***	0.0073	0.0198*	0.0105
Mother's Schooling	0.0555***	0.0077	0.0624***	0.0073	0.0069	0.0106
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	3.1800	0.0745	2.4200	0.1199		
Father's=Mother's Schooling	1.4900	0.2222	0.0500	0.8171		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.
Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.
White's Heteroskedastic consistent errors used in the regression.

Table 3: Bivariate Probit on Child Labor and School Attendance

Work strictly Postive Hours						
Independent Varibles	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	0.2537***	0.0497	0.2630***	0.0386	0.0092	0.0629
Child Labor Mother	0.3289***	0.0448	0.3186***	0.0365	-0.0104	0.0578
Father's Schooling	-0.0001	0.0062	-0.0440***	0.0051	-0.0440**	0.0081
Mother's Schooling	-0.0402***	0.0064	-0.0216	0.0051	0.0186**	0.0082
Father's Non-Labor Income	-0.0018	0.0101	-0.0085	0.0101	-0.0067	0.0142
Mother's Non-Labor Income	-0.0588*	0.0312	-0.0186	0.0182	0.0402	0.0361
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.1300	0.2870	0.9300	0.3339		
Father's=Mother's Schooling	12.9300	0.0003	6.1800	0.0129		
Father's=Mother's Non-Labor Income	2.9900	0.0840	0.2400	0.6219		
School Attendance						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	-0.1013**	0.0488	-0.1426***	0.0468	-0.0413	0.0676
Child Labor Mother	0.0377	0.0493	-0.0225	0.0476	-0.0602	0.0686
Father's Schooling	0.0396***	0.0076	0.0572***	0.0075	0.0176*	0.0107
Mother's Schooling	0.0568***	0.0078	0.0591***	0.0074	0.0023	0.0107
Father's Non-Labor Income	-0.0027	0.0133	0.0695***	0.0263	0.0722**	0.0295
Mother's Non-Labor Income	-0.0262	0.0179	0.1697	0.0564	0.1959**	0.0592
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	3.5200	0.0605	2.8100	0.0936		
Father's=Mother's Schooling	1.7400	0.1875	0.0200	0.8813		
Father's=Mother's Non-Labor Income	0.6900	0.4057	2.4900	0.1148		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.

Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.

White's Heteroskedastic consistent errors used in the regression.

Table 4: Bivariate Probit on Child Labor and School Attendance

Work strictly Postive Hours						
Independent Varibles	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Father's Age Started to Work	-0.0306***	0.0053	-0.0493***	0.0044	-0.0187***	0.0069
Mother's Age Started to Work	-0.0221***	0.0045	-0.0133***	0.0032	0.0088	0.0055
Father's Schooling	-0.0018	0.0062	-0.0412***	0.0051	-0.0394***	0.0080
Mother's Schooling	-0.0421***	0.0063	-0.0271***	0.0051	0.0150*	0.0081
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.2100	0.2707	38.97	0.0000		
Father's=Mother's Schooling	13.2500	0.0003	2.46	0.1169		
School Attendance						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Father's Age Started to Work	0.0042	0.0051	0.0072	0.0050	0.0031	0.0071
Mother's Age Started to Work	-0.0037	0.0034	-0.0011	0.0033	0.0026	0.0048
Father's Schooling	0.0408***	0.0075	0.0606***	0.0074	0.0198*	0.0105
Mother's Schooling	0.0556***	0.0077	0.0641***	0.0073	0.0086	0.0106
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.5100	0.2194	1.6700	0.1966		
Father's=Mother's Schooling	1.3300	0.2495	0.09	0.7640		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.
Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.
White's Heteroskedastic consistent errors used in the regression.

Table 5: Bivariate Probit on Child Labor and School Attendance

Work strictly Postive Hours						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Father's Age Started to Work	-0.0298***	0.0054	-0.0502***	0.0045	-0.0204***	0.0070
Mother's Age Started to Work	-0.0218***	0.0045	-0.0131***	0.0032	0.0087	0.0055
Father's Schooling	-0.0010	0.0063	-0.0400***	0.0052	-0.0390***	0.0082
Mother's Schooling	-0.0418***	0.0065	-0.0248*	0.0052	0.0170**	0.0083
Father's Non-Labor Income	-0.0054	0.0112	-0.0188	0.0117	-0.0134	0.0162
Mother's Non-Labor Income	-0.0642**	0.0317	-0.0208	0.0200	0.0434	0.0375
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.06	0.3034	39.8800	0.0000		
Father's=Mother's Schooling	13.21	0.0003	2.78	0.0955		
Father's=Mother's Non-Labor Income	3.05	0.0809	0.01	0.9308		
School Attendance						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Father's Age Started to Work	0.0055	0.0052	0.0094*	0.0051	0.0039	0.0073
Mother's Age Started to Work	-0.0031	0.0035	-0.0021	0.0034	0.0010	0.0048
Father's Schooling	0.0406***	0.0077	0.0575***	0.0075	0.0169	0.0107
Mother's Schooling	0.0567***	0.0077	0.0605***	0.0074	0.0038	0.0107
Father's Non-Labor Income	-0.0022	0.0136	0.0754***	0.0275	0.0776**	0.0307
Mother's Non-Labor Income	-0.0255	0.0181	0.1747***	0.0565	0.2002***	0.0593
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.72	0.1897	3.05	0.0809		
Father's=Mother's Schooling	1.52	0.2170	0.06	0.8066		
Father's=Mother's Non-Labor Income	0.66	0.4181	2.40	0.1210		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.

Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.

White's Heteroskedastic consistent errors used in the regression.

Table 6: Bivariate Probit on Child Labor and School Attendance

Work at Least Twenty Hours a Week						
Independent Varibles	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Father's Age Started to Work	-0.0262***	0.0061	-0.0459***	0.0048	-0.0197***	0.0077
Mother's Age Started to Work	-0.0204***	0.0050	-0.0128***	0.0034	0.0076	0.0060
Father's Schooling	-0.0135*	0.0070	-0.0422***	0.0055	-0.0287***	0.0089
Mother's Schooling	-0.0369***	0.0073	-0.0262***	0.0056	0.0107	0.0092
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	0.4400	0.5094	28.5500	0.0000		
Father's=Mother's Schooling	3.4800	0.0619	2.6900	0.1009		
School Attendance						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Father's Age Started to Work	0.0042	0.0051	0.0073	0.0050	0.0032	0.0071
Mother's Age Started to Work	-0.0038	0.0034	-0.0010	0.0033	0.0028	0.0048
Father's Schooling	0.0410***	0.0075	0.0607***	0.0074	0.0197*	0.0105
Mother's Schooling	0.0554***	0.0077	0.0642***	0.0073	0.0088	0.0106
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.55	0.2138	1.6900	0.1938		
Father's=Mother's Schooling	1.26	0.2624	0.08	0.7712		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.
Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.
White's Heteroskedastic consistent errors used in the regression.

Table 7: Bivariate Probit on Child Labor and School Attendance

Work at Least Twenty Hours a Week						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Father's Age Started to Work	-0.0255***	0.0061	-0.0469***	0.0049	-0.0213***	0.0078
Mother's Age Started to Work	-0.0198***	0.0050	-0.0127***	0.0034	0.0071	0.0061
Father's Schooling	-0.0135*	0.0071	-0.0408***	0.0056	-0.0273***	0.0090
Mother's Schooling	-0.0347***	0.0074	-0.0243***	0.0057	0.0104	0.0093
Father's Non-Labor Income	-0.0116	0.0164	-0.0227	0.0144	-0.0111	0.0218
Mother's Non-Labor Income	-0.1020**	0.0511	-0.0220	0.0259	0.0800	0.0573
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	0.4200	0.5165	29.1900	0.0000		
Father's=Mother's Schooling	2.8000	0.0945	2.7700	0.0962		
Father's=Mother's Non-Labor Income	2.7700	0.0959	0.0000	0.9800		
School Attendance						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Father's Age Started to Work	0.0055	0.0052	0.0095*	0.0051	0.0040	0.0073
Mother's Age Started to Work	-0.0032	0.0035	-0.0020	0.0034	0.0012	0.0048
Father's Schooling	0.0409***	0.0077	0.0576***	0.0075	0.0168*	0.0108
Mother's Schooling	0.0565***	0.0077	0.0605***	0.0074	0.0040	0.0107
Father's Non-Labor Income	-0.0024	0.0135	0.0751**	0.0269	0.0774**	0.0301
Mother's Non-Labor Income	-0.0254	0.0180	0.1659**	0.0557	0.1912**	0.0585
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.7600	0.1845	3.0600	0.0801		
Father's=Mother's Schooling	1.4400	02309	0.0600	0.8114		
Father's=Mother's Non-Labor Income	0.6500	0.4212	2.0800	0.1497		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.

Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.

White's Heteroskedastic consistent errors used in the regression.

Table A1.: Unweighted Means					
Children's Variables	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Age	28847	12.011	1.421	10	14
Female indicator variable	28847	0.492	0.500	0	1
Hours	28842	3.763	10.796	0	98
working strictly positive hours indicator variable	28842	0.139	0.346	0	1
working at least 20 hours per week indicator variable	28842	0.105	0.306	0	1
Urban indicator variable	28847	0.774	0.418	0	1
schooling indicator variable	28841	0.925	0.263	0	1
only school indicator variable	28,841	0.822	0.383	0	1
school and work indicator variable	28,836	0.102	0.303	0	1
only work indicator variable	28,842	0.024	0.153	0	1
no school, no work indicator variable	28,836	0.050	0.218	0	1
Years of schooling	28830	3.341	1.946	0	9
age started work	4542	10.055	1.997	4	14
Fathers' variables					
Age	28847	43.824	9.225	25	98
Years of schooling	28801	4.920	4.559	0	17
age started work	27125	12.134	3.688	4	40
Earnings	28300	521.001	905.135	0	40000
child labor (age 14 or below)	28847	0.706	0.456	0	1
child labor (age 10 or below)	28847	0.394	0.489	0	1
not in labor market	28814	0.100	0.300	0	1
Non-Labor Income	28178	51.883	254.816	0	8333
Mothers' variables					
Age	28847	39.602	7.748	25	91
Years of schooling	28744	5.035	4.375	0	17
age started work	17075	13.900	5.784	4	56
Earnings	28710	143.869	445.588	0	20000
child labor (age 14 or below)	28847	0.372	0.483	0	1
child labor (age 10 or below)	28847	0.203	0.402	0	1
not in labor market	28831	0.462	0.499	0	1
Non-Labor Income	28661	17240	131.121	0	6000
Grandparents' variables:					
Years of schooling of the grandfather (father's side)	22085	2.016	2.949514	0	17
Years of schooling of the grandmother (father's side)	23813	1.707	2.649685	0	17
Years of schooling of the grandfather (mother's side)	23470	2.075	2.879995	0	17
Years of schooling of the grandmother (mother's side)	25059	1.744	2.618133	0	17
Families' variables:					
family income minus child income	27953	838.897	1299.069	0	63500
number of Boys Aged 0 to 5	28847	0.195	0.471	0	5
number of Boys Aged 6 to 9	28847	0.267	0.514	0	4
number of Boys Aged 10 to 14	28847	0.863	0.771	0	4
number of Boys Aged 15 to 17	28847	0.252	0.495	0	3
number of Girls Aged 0 to 5	28847	0.191	0.469	0	5
number of Girls Aged 6 to 9	28847	0.266	0.515	0	3
number of Girls Aged 10 to 14	28847	0.835	0.763	0	5
number of Girls Aged 15 to 17	28847	0.209	0.455	0	4

Table A2: Bivariate Probit on Child Labor and School Attendance

Work at Least twenty Hours a Week						
Independent Varibles	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	0.2316***	0.0556	0.2783***	0.0413	0.0467	0.0693
Child Labor Mother	0.2618***	0.0496	0.2326***	0.0386	-0.0292	0.0629
Father's Schooling	-0.0125*	0.0069	-0.0452***	0.0055	-0.0327***	0.0088
Mother's Schooling	-0.0365***	0.0073	-0.0241***	0.0055	0.0124	0.0091
Chi-Square Test	Chi-2	P > Chi-2	Chi-2	P > Chi-2		
Father=Mother	0.1500	0.6987	0.5600	0.4539		
Child Labor Father's=Mother's Schooling	3.7600	0.0526	4.7300	0.0296		
School Attendance						
Independent Variables	**Daughters**		**Sons**		**Difference**	
	Coeff.	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std.Errors**
Child Labor Father	-0.0842*	0.0481	-0.1491***	0.0466	-0.0649	0.0669
Child Labor Mother	0.0429	0.0486	-0.0391	0.0467	-0.0821	0.0674
Father's Schooling	0.0401***	0.0075	0.0597***	0.0074	0.0197*	0.0105
Mother's Schooling	0.0553***	0.0077	0.0624***	0.0073	0.0072	0.0106
Chi-Square Test	Chi-2	P > Chi-2	Chi-2	P > Chi-2		
Father=Mother	3.0500	0.0810	2.4200	0.1195		
Child Labor Father's=Mother's Schooling	1.4100	0.2357	0.0500	0.8219		

***Significant at the 1% level. **significant at the 5% level. *Significant at the 10% level.
Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.
White's Heteroskedastic consistent errors used in the regression.

Table A3: Bivariate Probit on Child Labor and School Attendance

Work at Least twenty Hours a Week						
	Daughters		**Sons**		**Difference**	
Independent Variables	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	0.2315***	0.0562	0.2701***	0.0419	0.0386	0.0701
Child Labor Mother	0.2505***	0.0502	0.2389***	0.0393	-0.0116	0.0638
Father's Schooling	-0.0126*	0.0070	-0.0445***	0.0056	-0.0319***	0.0089
Mother's Schooling	-0.0345	0.0074	-0.0225***	0.0056	0.0120	0.0093
Father's Non-Labor Income	-0.0078***	0.0148	-0.0131	0.0127	-0.0053	0.0195
Mother's Non-Labor Income	-0.0922*	0.0492	-0.0195	0.0238	0.0727	0.0547
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	0.0600	0.8103	0.2500	0.6153		
Father's=Mother's Schooling	3.0200	0.0820	5.0700	0.0244		
Father's=Mother's Non-Labor Income	2.6300	0.1050	0.0600	0.8068		
School Attendance						
	Daughters		**Sons**		**Difference**	
Independent Variables	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	-0.1003**	0.0488	-0.1448***	0.0469	-0.0445	0.0677
Child Labor Mother	0.0355	0.0494	-0.0239	0.0476	-0.0594	0.0686
Father's Schooling	0.0399***	0.0077	0.0573***	0.0075	0.0175	0.0107
Mother's Schooling	0.0565***	0.0078	0.0591***	0.0074	0.0026	0.0107
Father's Non-Labor Income	-0.0028	0.0132	0.0691***	0.0257	0.0720**	0.0289
Mother's Non-Labor Income	-0.0260	0.0179	0.1612***	0.0557	0.1872***	0.0585
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	3.3600	0.0668	2.8500	0.0916		
Father's=Mother's Schooling	1.6300	0.2017	0.0200	0.8831		
Father's=Mother's Non-Labor Income	0.6800	0.4088	2.1600	0.1412		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.
Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.
White's Heteroskedastic consistent errors used in the regression.

Table A4:Probit on Child Labor

Work Strictly Positive Hours						
	Daughters		**Sons**		**Difference**	
Independent Variables	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	0.2451***	0.0490	0.2678***	0.0380	0.0227	0.0620
Child Labor Mother	0.3320***	0.0441	0.3156***	0.0360	-0.0165	0.0569
Father's Schooling	-0.0015	0.0062	-0.0450***	0.0051	-0.0435***	0.0080
Mother's Schooling	-0.0406***	0.0063	-0.0236***	0.0051	0.0170***	0.0081
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.5700	0.2102	0.7100	0.3989		
Father's=Mother's Schooling	12.4800	0.0004	5.7100	0.0169		

Work Strictly Positive Hours						
	Daughters		**Sons**		**Difference**	
Independent Variables	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	0.2519***	0.0497	0.2602***	0.0386	0.0083	0.0629
Child Labor Mother	0.3264***	0.0448	0.3180***	0.0366	-0.0083	0.0579
Father's Schooling	-0.0006	0.0063	-0.0446***	0.0051	-0.0440	0.0081
Mother's Schooling	-0.0403***	0.0065	-0.0216***	0.0051	0.0186***	0.0083
Father's Non-Labor Income	-0.0022	0.0103	-0.0078	0.0100	-0.0056**	0.0144
Mother's Non-Labor Income	-0.0634*	0.0326	-0.0187	0.0184	0.0447	0.0374
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	1.1200	0.2908	1.0100	0.3157		
Father's=Mother's Schooling	12.4700	0.0004	6.4700	0.0109		
Father's=Mother's Non-Labor Income	3.1700	0.0751	0.2900	0.5932		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.
Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.
White's Heteroskedastic consistent errors used in the regression.

Table A5:Probit on School Attendance

School Attendance						
	Daughters		**Sons**		**Difference**	
Independent Variables	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	-0.0831	0.0480	-0.1459	0.0465	-0.0627	0.0668
Child Labor Mother	0.0422	0.0484	-0.0370	0.0466	-0.0791	0.0672
Father's Schooling	0.0403	0.0075	0.0601	0.0073	0.0198	0.0105
Mother's Schooling	0.0552	0.0077	0.0620	0.0072	0.0068	0.0106
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	2.9900	0.0840	2.3900	0.1221		
Father's=Mother's Schooling	1.3400	0.2463	0.0200	0.8752		

School Attendance						
	Daughters		**Sons**		**Difference**	
Independent Variables	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**	**Coeff.**	**Std. Errors**
Child Labor Father	-0.0989	0.0487	-0.1411	0.0468	-0.0422	0.0675
Child Labor Mother	0.0348	0.0492	-0.0218	0.0475	-0.0566	0.0684
Father's Schooling	0.0402	0.0077	0.0578	0.0075	0.0175	0.0107
Mother's Schooling	0.0564	0.0078	0.0587	0.0073	0.0023	0.0107
Father's Non-Labor Income	-0.0032	0.0131	0.0683	0.0275	0.0714	0.0304
Mother's Non-Labor Income	-0.0256	0.0179	0.1700	0.0567	0.1956	0.0595
Chi-Square Test	**Chi-2**	**P > Chi-2**	**Chi-2**	**P > Chi-2**		
Father=Mother Child Labor	3.2800	0.0700	2.7900	0.0951		
Father's=Mother's Schooling	1.5500	0.2130	0.0100	0.9377		
Father's=Mother's Non-Labor Income	0.6400	0.4231	2.4900	0.1144		

***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.
Note: Additional explanatory variables include child's, father's and mother's ages; indicator variables that equal one if the family lives in an urban area, if the father is not in the labor market and if the mother is not in the labor market; family composition variables and a constant term.
White's Heteroskedastic consistent errors used in the regression.