Remittances, schooling, and child labor.

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Abstract

Financial transfers from relatives can have a large impact on the consumption choices made by households. We develop a Stackelberg-type model wherein the parent who remained at the home location decides on the level of education the child acquires depending on the migrant's remittances and other sources of income. In a repeated game we find equilibria in which the effect of an increase in the remittances has a larger effect on schooling than an increase in other source of income. We test the empirical implications of this model using data from the Republic of Congo.

1 Introduction

There has been a renewed interest in recent years about the impact of migration and remittances on development (see for example Maimbo and Ratha, 2005; Page and Plaza, 2005; Ozden and Schiff, 2006; and World Bank, 2006). One of the issues of interest is whether financial transfers from relatives can have a large impact on the consumption choices made by households. This has been discussed in the literature mainly in reference to children. Del Boca and Flinn (1994, 1995) show for example that income from child support affects the expenditure decisions of divorced mothers, and Folbre (1994) reviews some of the literature on children as public goods.

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In this note, we consider the impact of financial transfers from migrants, a special type of relatives, on the school enrollment of children in a developing country, specifically the Republic of Congo. We develop a Stackelberg-type model wherein the family members who remain at home develop gratitude towards the migrant when receiving remittances, and thereby chooses to invest more in children because the education acquired by the children is a public good since it will benefit the migrant upon his/her return (among others through transfers from the child when the parents become old, these transfers being especially important when there are no social security systems to rely on for a larger part of the population, especially in rural areas). The gratitude (or to some extent self-interest) assumption is similar to the one found on Stark and Falk (1998) in a different context.

In a repeated game we find equilibria in which the effect of an increase in the remittances has a larger effect on schooling than an increase in other source of income. We test the empirical implications of this model using data from the Republic of Congo, and find that indeed, the impact of remittances on schooling is larger than that of other income sources for girls in rural areas, the group with the lowest rates of school enrollment in the sample (as compared to urban boys and girls, and rural boys). Sections 2 to 5 of the note provide the model, and Section 6 presents the empirical test. A brief conclusion follows.

2 Model

We consider three individuals: An emigrant (say, the father) who lives at the foreign location, the emigrant's spouse who lives at the home location (say, the mother), and their child. Each parent's utility depends on his/her own consumption and the child's education.[1] In other words, the parents have altruistic preferences with respect to their child but not with respect to each other.

The child has only two uses for his time: education and work. The child's time is normalized to 1 and its allocation is decided by the mother since she, unlike the father, is at the same geographical location and the child is assumed to be too young to be able to make his own decisions. The father, the mother, and the child are identified respectively through superscripts f, m

[1]For simplicity, it is assumed that the child's consumption does not enter on either parent's utility.

and c. Since the child does not make any decision on his own, his utility is considered only to the extent that it affects his parents' utility. The utilities of the father and the mother are given by:

$$\begin{array}{lll} U^f = & U^f(x^f, e) & \text{for the father, and} \\ U^m = & U^m(x^m, e) & \text{for the mother,} \end{array} \tag{1}$$

where x^i is the consumption of each parent $i \in \{m, f\}$ (the consumption for the mother includes that for the child), e is the time spent by the child in school and $(1 - e)$ the time spent working.

The timing of the game is as follows. The father sends an amount of remittances ρ which determines his consumption level and maximizes his utility. Given the remittances she receives, the mother then maximizes her own utility by choosing her own consumption level and the time spent by the child in school and at work. The game is repeated infinitely.[2]

Without loss of generality we normalize the price of consumption to 1 and the cost of education to zero. That is, there is no extra cost to education apart from the forgone wage for the child. Let x and e be normal goods. The utility functions of the father and the mother are assumed to be increasingly concave in both consumption and schooling. The budget constraint for the mother is:

$$x^m = w^m + (1 - e)w^c + \rho \tag{2}$$

where w^m, w^c are the respective wages for the mother and the child.

2.1 Stage equilibrium

To find the equilibrium in one period, we solve the model using backwards induction. We focus on the case of an interior solution, in which case a combination of some schooling and some child labor is optimal on the part of the mother. The other cases will be discussed later. The Lagrangean for the mother's problem is:

[2]Even though the nature of the problem suggests a finite horizon, assuming that the game is repeated infinitely is similar to assuming that the horizon is finite but the number of stages in the game is not commonly known (Neyman, 1999). It is also the case that assuming an infinitely repeated game together with discounting is similar to assuming that the game has some probability of ending in the next period, but it is not certain to end in any specific future period (Fudenberg and Tirole, 1991).

$$\mathcal{L} = U^m(x^m, e) - \lambda \left(x^m - w^m - \rho - (1-e)w^c\right), \tag{3}$$

and the first order conditions are:

$$\frac{\partial \mathcal{L}}{\partial x^m} = \frac{\partial U^m}{\partial x^m} - \lambda = 0 \tag{4}$$

$$\frac{\partial \mathcal{L}}{\partial e} = \frac{\partial U^m}{\partial e} - \lambda w^c = 0 \tag{5}$$

$$\frac{\partial \mathcal{L}}{\partial \lambda} = x^m - w^m - \rho - (1-e)w^c = 0, \tag{6}$$

which yields the standard optimal condition:

$$\frac{\partial U^m}{\partial e} = \frac{\partial U^m}{\partial x^m} w^c. \tag{7}$$

A higher wage for the child will lead to a reduction in the time spent in school. Note that the same optimal choice would be made by the mother if there was no child work and if the marginal cost of schooling was w^c. Let the Marshallian demand curves corresponding to condition (7) be:

$$x^m = x^m(m, w^c) \qquad e = e(m, w^c) \tag{8}$$

where $m = w^m + w^c + \rho$ is the mother's total income. The impact on the child's time spent in school of an increase in remittances is equal to that of an increase in the mother's wage since $\partial e(m, w^c)/\partial \rho = \partial e(m, w^c)/\partial m$. If the mother's wage remains constant, the amount of schooling depends only on the level of remittances. Given these Marshallian demand curves, the father maximizes his own utility. His maximization problem is:

$$\max_{\rho, x^f} U^f(x^f, e(m, w^c)) \tag{9}$$

subject to

$$\tag{10}$$

$$w^f - \rho - x^f = 0. \tag{11}$$

The first order condition for this problem is:

$$\frac{\partial U^f}{\partial x^f} = \frac{\partial U^f}{\partial e(m, w^c)} \frac{\partial e(m, w^c)}{\partial \rho}. \tag{12}$$

The solution to (12), labeled $(\hat{\rho}, \hat{e})$, is the equilibrium of the stage game.

2.2 Dynamic equilibria

In the dynamic setting, the parents maximize the discounted value of their future utility. As stated above, the mother's utility depends on her consumption and the child's education. Her lifetime discounted utility at time t is:

$$V^m(x^m, e, t) = \sum_{j=0}^{\infty} \delta^j U^m(x^m_{t+j}, e_{t+j}), \tag{13}$$

where x^m_i and e_i are the consumption of the mother and the education of the child in period i and δ is the discounting factor. Similarly, the father's lifetime discounted utility at time t is:

$$V^f(x^f, e, t) = \sum_{j=0}^{\infty} \delta^j U^f(x^f_{t+j}, e_{t+j}). \tag{14}$$

The stage equilibrium played indefinitely is a subgame perfect equilibrium regardless of the discount rate. The mother decides her consumption and the education of the child based on her total income m, and the father's remittances which are used in part for her consumption since both goods are normal goods. This implies that at the stage equilibrium, $\partial e/\partial \rho < 1/w^c$. The perceived price of schooling for the father is thus higher than w^c. If the mother spends any increment in the remittances exclusively on the child's schooling, the father's perceived price of schooling is reduced, and he will be willing to send more remittances, which would in turn increase his utility because the perceived price of schooling depends on the level of the remittances. In other words, the marginal benefit of more schooling is larger (at least in the limit as the increase approaches zero) than the marginal benefit of the father's own consumption. If the father increases the level of the remittances, both parents will be better off.[3] Since the child's schooling

[3] In the limit, the mother will be spending more on education without consuming less x.

is a public good between the two parents, it will be undersupplied in the noncooperative equilibrium. But a cooperative equilibrium with a higher payoff for both parents is feasible.

We can use the folk theorem (see Fudenberg and Tirole, 1991, among others) to find alternative equilibria. Any Pareto superior allocation can be implemented if the agents are sufficiently patient. Let the strategy of the father be to send the remittances $\bar{\rho}$ defined below, where $\bar{\rho} > \hat{\rho}$. If the mother sends the child to school at least $\bar{e}$, then the father sends $\bar{\rho}$ in the next period. Otherwise, the father sends the stage equilibrium remittances $\hat{\rho}$ forever after. For this strategy to be part of a subgame perfect equilibrium, two conditions must be met. First, the father needs to be at least as well off with $(\bar{\rho}, \bar{e})$ as he is with $(\hat{\rho}, \hat{e})$. That is:

$$U^f(w^f - \hat{\rho}, \hat{e}) \leq U^f(w^f - \bar{\rho}, \bar{e}). \tag{15}$$

Second, the mother must be patient enough so that she doesn't want to deviate from the proposed equilibrium $(\bar{\rho}, \bar{e})$, which implies that:

$$W^m(\bar{\rho}, \tilde{e}) + \sum_{j=1}^{\infty} \delta^j W^m(\hat{\rho}, \hat{e}) \leq \sum_{j=0}^{\infty} \delta^j W^m(\bar{\rho}, \bar{e}), \tag{16}$$

where $W^m(\rho, e) = U^m(w^m + \rho + (1-e)w^c, e)$ and $\tilde{e}$ maximizes the mother's stage utility when $\rho = \bar{\rho}$, i.e. $\tilde{e} = e(m(\bar{\rho}), w^c)$. Rearranging the terms we have:

$$W^m(\bar{\rho}, \tilde{e}) - W^m(\bar{\rho}, \bar{e}) \leq \sum_{j=1}^{\infty} \delta^j [W^m(\bar{\rho}, \bar{e}) - W^m(\hat{\rho}, \hat{e})]. \tag{17}$$

This implies that the future gains from cooperation ($\sum_{j=1}^{\infty} \delta^j [W^m(\bar{\rho}, \bar{e}) - W^m(\hat{\rho}, \hat{e})]$) must outweigh the present gains from deviating from the proposed equilibrium ($W^m(\bar{\rho}, \tilde{e}) - W^m(\bar{\rho}, \bar{e})$). Note that as $\bar{\rho} > \hat{\rho}, \bar{e} > \hat{e}$ and $\tilde{e}$ maximizes $W^m(\bar{\rho}, e)$, both sides of (17) are positive. Any pair $(\bar{\rho}, \bar{e})$ that satisfies equations (15) and (17) is a subgame perfect equilibrium given the strategies previously proposed. Note also that any of the proposed equilibria will have the characteristic that the marginal impact of an increase in the wage of the mother on schooling is smaller than the marginal impact of an increase in remittances.

When the mother decides to send the child to school full time ($e = 1$), the remittances of the father will be lower as to make the price of schooling lower than w_c. That is, the father will send enough remittances so that

$e(m, w_c) = 1$ and $\partial e/\partial \rho > 1/w_c$. The dynamic will be the stage equilibrium played forever.

2.3 A simple example

As an example, let the preferences of both the mother and the father be represented by a Cobb-Douglass utility function:

$$U^m = \alpha \ln(w^m + \rho + (1 - e)w^c) + \ln(e) \tag{18}$$

$$U^f = \beta \ln(w^f - \rho) + \ln(e). \tag{19}$$

The optimal allocation for the mother in the static game is given by:

$$\hat{e}(\rho) = \frac{w^m + \rho + w^c}{w^c(1 + \alpha)} \tag{20}$$

in which case the father's optimal remittance is:

$$\hat{\rho} = \frac{w^f - \beta(w^m + w^c)}{1 + \beta}. \tag{21}$$

Equations (20) and (21) determine the stage equilibrium. From (20) and (21), we can see that an increase in the mother's wage reduces the father's remittances and, therefore, has a smaller impact on schooling that an increase in remittances. Only if remittances were held constant would the mother's wages and the father's remittances have the same impact on schooling (see (20)).

The father's remittances are determined by his maximization's first order condition, whereby he equates the marginal rate of substitution to the ratio of the perceived prices for both goods:

$$\frac{\partial U^f/\partial x^f}{\partial U^f/\partial e} = e'(\rho). \tag{22}$$

Since the price of x^f is one, the perceived price of education is $1/e'(\rho)$. From (20), $1/e'(\rho) = w^c(1+\alpha)$, which is greater than the price for the mother (w^c) (as consumption for the mother is beneficial, $\alpha > 0$).

In the dynamic game, the stage equilibrium can be implemented as an equilibrium at all stages regardless of the discount rate. But we can find a

Pareto superior allocation that can also be sustained as a subgame perfect equilibrium. To see this, let the father increase remittances by $\epsilon > 0$ and let the mother spend the whole increase on schooling. This will improve the child's schooling by ϵ/w^c, so that total schooling and remittances become:

$$e(\rho) = \frac{w^m + \rho + w^c + \epsilon(1+\alpha)}{w^c(1+\alpha)} \tag{23}$$

$$\rho = \frac{w^f - \beta(w^m + w^c)}{1+\beta} + \epsilon. \tag{24}$$

From (20) and (22) we see that at the stage equilibrium,

$$\frac{\partial U^f/\partial x^f}{\partial U^f/\partial e} = \frac{1}{w^c(1+\alpha)}. \tag{25}$$

At least for a small ϵ, the extra schooling resulting from the higher remittances increase the father's utility. This is because as the price of the extra schooling is lower, the marginal utility of schooling divided by its price is larger than the marginal utility of consumption. The mother is also better off, with more schooling and the same consumption, in which case we this is a Pareto superior allocation. Again, two conditions must be met for this new allocation to be a subgame perfect equilibrium. First, ϵ can't be too large, for otherwise the marginal benefit from schooling would be outweighed by the marginal benefit of forgone consumption. Second, the mother must be sufficiently patient so as to allocate the entire increase in remittances to schooling; that is, (17) must be satisfied.

Note that if the child's education were not a public good, and if the father were able to spend on it freely (not through the mother), his demand for child schooling would be:

$$e^n = \frac{w^f}{w^c(1+\beta)}. \tag{26}$$

Spending on the child's schooling would be smaller in (21) than in (26). Moreover, the proportion of w^f spent for schooling in (26) is, for a given w^c, constant, while in (21) it depends on the mother's wage, w^m.

3 Data and Estimation

The prediction of the above model is that the marginal impact of remittances sent by migrants on child schooling should be at least as large, and probably larger, than that of the wage income of the mother or more generally the family members that have remained at the place of origin. This prediction is tested in this section using data from the Republic of Congo in Central Africa. This is a relatively large country (342,200 squared kilometers) that derives much of its income from oil, but it has a population of less than 4 million people. While the GDP per capita of the country has decreased substantially in the 1990s in part due to repeated conflict, the country still has comparatively good social indicators as compared to its neighbors, with 94 percent of boys and 93 percent of girls between the ages of 6 and 14 enrolled in school in urban areas, and corresponding values for rural areas of 89 percent for boys and 84 percent for girls. We use the unit level data from the 2005 ECOM (*Enquete sur les Conditions de Vie des Menages*), a comprehensive and nationally representative survey. Our empirical strategy is straightforward: since we can distinguish income from remittances from other sources of income, we can assess the marginal impact on schooling of both (on average, the income from remittances represent one tenth of wage income, which is substantial).

Two comments must be made in terms of the correspondence between the theoretical model presented in the previous section and the empirical finding presented in this section. The first comment relates to the relationship between schooling and child labor. In the theoretical model, we assume that the time of the child is fully allocated to schooling and work. In reality, the child also has time for leisure, which is likely to be valued by the mother and the father in their respective utility functions. We did not consider leisure in the previous section because this would have complicated the model. Empirically, the implication of leisure is that an increase in income, whether from remittances or from other sources, may not have the same impact on schooling and on child labor. Specifically, as argued by Ravallion and Wodon (2000) in the context of the evaluation of a stipend program in Bangladesh, it is likely that an increase in income will have a larger impact on schooling than on child labor, because the parents may reduce the time allocated to leisure in order to send their children to work. In this section, we discuss only the impact of remittances on schooling because the data on child labor in the ECOM survey is very limited.

The second comment relates to the fact that in the model, we assume an interior solution, which is reasonable since many children in Central Africa combine schooling and some form of work (wage labor or domestic work). Yet the surveys do not have information on the number of hours spent in school and the number of hours spent working. We only know whether the children are in school, and as mentioned earlier, the information on child labor is not very good in order to assess whether the child is working to any large extent (individuals above the age of 10 are asked whether they have worked for at least one hour over the last week). It is likely that parents will not report that the child is working if the number of hours spent at work is very low, even though the question is specified to try to capture low levels of work. The implication of these data limitations is that we cannot capture the marginal impact of remittances and other sources of income on small amounts of child labor, which is why we focus hereafter on the impact of schooling instead.

Given the data available to us, we estimate a simple probit model. The dependent variable is the school enrollment status of the child, and the sample includes all children between 6 and 14 years of age. The independent variables include (a) the geographic location of the household to which the child belongs (the capital city of Brazzaville, the other major city of Pointe Noire, other urban areas, semi-urban areas and rural areas) as well as the time it takes to reach the nearest primary and secondary school; (b) a number of child level variables, including his/her age, whether this is the oldest child or not, and whether the child is handicapped or not; (c) a larger number of household level variables, including whether the household head is a woman, the level of schooling of the head as well as that of the spouse (when there is one), the sector of activity of the head and his/her type of employment, the type of organization the head works for (public versus private or self-employment), and the marital status of the head; (c) the land ownership of the household as well as the quintiles of consumption per capita to which the household belongs (as a general indicator of wealth); and (d) the wage income of the household and the amount of remittances received. The regression is applied to four separate samples: urban boys, urban girls, rural boys, and rural girls. Note that because other urban areas and semi-urban areas are much closer to rural areas in terms of characteristics, they are combined for the rural regression, with the urban regression focusing on the two major cities of Brazzaville and Pointe Noire.

Table 1 provides the results. In terms of geographic location, within urban

areas girls in the capital city of Brazzaville are more likely to be enrolled than girls in Pointe Noire (lower probability of 2.6 points in Pointe Noire). Within the rural sample (which includes other urban areas and semi-urban areas), enrollment is actually lower in other urban areas than in rural areas, with a statistically significant impact for boys. Older children are less likely to go to school if they are girls living in rural areas. When the child is handicapped, the probability of going to school is drastically reduced in rural areas.

Having a female head boosts enrollment for girls in urban areas. The education of the head does not have a statistically significant impact in most cases, but it leads to higher enrollment for boys in urban areas. The education of the spouse (typically the mother) does have a larger impact, especially for girls in rural areas. In urban areas, the sector of employment of the head does not make much of a difference, but in rural areas, heads in the service sector as well as inactive/non-working heads (who tend to be richer, because they can afford to not be working) tend to send their children more to school. Similarly, the type of employment of the head and the type of employer do not seem to make a difference in urban areas, while the impact is sometimes statistically significant in rural areas. When the head is divorced, separated or widowed, this leads to a rather large reduction in the probability of boys to be enrolled in rural areas, presumably because most such households are female headed and need the boy to work. The time it takes to go to school typically has a limited impact, which is surprising. Land ownership and the rank of the child within the household do not affect in a statistically significant way school enrollment.

The quintile of per capita consumption to which the household belongs does affect the probability of school enrollment for urban girls, as well as in rural areas, with richer households more likely to send their children to school (the fact that the impact is not statistically significant for the richest quintile in rural areas is due to the small sample size of that group as very few rural households belong to the top quintile). We used the quintile level variables to minimize the endogeneity bias (even if the child is not in school because he/she is working, this is not likely to affect much the position of the household in terms of quintile, while it could potentially affect more the precise consumption level of the household). Finally, the main variables of interest are the wage income of the household and the remittances received. Controlling for other variables, the wage income of the household does not affect in a statistically significant way the probability of the child to go to school. But remittances do have an impact for girls in rural areas, which

suggests that the prediction of the model is verified for that specific group of children, which is also the group with the lowest overall rate of school enrollment, and thereby the group for which remittances can make a difference the most.

4 Conclusion

In this note, we have developed a Stackelberg-type model wherein the family members who remain at the place of origin decide to use remittances received from other family members who have migrated in order to invest in the education of their joint children. The model suggests that in a repeated game, the effect on school enrollment of an increase in the remittances received should be at least as large, if not larger than the effect of an increase in other sources of income. We have tested the implications of this model using data from the Republic of Congo. The prediction of the model that that the marginal impact of remittances on child schooling should be at least as large, and probably larger, than the marginal impact of wage income for family members at the place of origin was verified. For urban boys and girls and rural boys, both wages and remittances had no impact on schooling once other controls were introduced in the regression analysis. But for rural girls, the group with the lowest average rate of school enrollment, remittances had a statistically significant and positive impact on schooling, while wage income did not. Those results suggest that for the groups most at risk of not receiving a good education, remittances can make a substantial difference, thereby contributing to long-term improvements in standards of living and overall economic development.

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Table 1: determinants of school enrollment in the Republic of Congo (age 6-14), 2005

	Boys		Girls		Boys		Girls	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Geographic location								
Brazzaville	réf.		réf.					
Pointe Noir	-0.013	(.0120)	-0.026**	(.0130)				
Other urban areas					-0.071**	(.0310)	-0.017	(.0290)
Semi-urban areas					-0.036	(.0280)	-0.004	(.0270)
Rural areas					réf.		réf.	
Age of the child								
Age	0.075	(.0560)	0.01	(.0600)	0.069	(.0790)	0.124	(.0820)
Age squared	-0.003	(.0020)	-0.001	(.0020)	-0.004	(.0030)	-0.006*	(.0030)
Gender of household head								
Male	réf.		réf.		réf.		réf.	
Female	0.019	(.0140)	0.043***	(.0130)	0.031	(.0230)	-0.003	(.0290)
Education of head								
None	réf.		réf.		réf.		réf.	
Primary	0.017	(.0120)	0.006	(.0180)	0.038*	(.0200)	-0.001	(.0230)
Secondary	0.048**	(.0230)	0.015	(.0190)	0.033	(.0220)	0.031	(.0220)
Superior	0.047**	(.0230)	0.017	(.0200)	0.035	(.0290)	0.019	(.0320)
Education of spouse								
None	réf.		réf.		réf.		réf.	
Primary	0.024**	(.0120)	0.002	(.0160)	0.004	(.0250)	0.071***	(.0160)
Secondary	0.022	(.0160)	0.009	(.0150)	0.042*	(.0220)	0.100***	(.0190)
Superior	0.029**	(.0150)	0.030***	(.0110)	0.049	(.0320)	0.063***	(.0240)
Sector of employment of head								
Agriculture	réf.		réf.		réf.		réf.	
Industry	0.015	(.0170)	0.022	(.0130)	0.02	(.0210)	0.005	(.0230)
Service	0.009	(.0240)	0.032	(.0290)	0.041*	(.0230)	0.066***	(.0240)
Not working/unemployed	0.012	(.0190)	0.023	(.0160)	0.054***	(.0190)	0.048**	(.0220)
Type of employment of head								
Employer or management	-0.023	(.0420)	0.008	(.0240)	0.089***	(.0330)	-0.08	(.1020)
Employee/laborer	-0.06	(.0520)	0.014	(.0160)	0.064**	(.0320)	-0.101	(.0990)
Self-employed	réf.		réf.		réf.		réf.	
Type of employer of head								
Public sector	0.018	(.0220)	0.006	(.0250)	-0.047	(.0790)	0.054	(.0520)
Private firm	0.025	(.0170)	-0.034	(.0330)	-0.113	(.0960)	0.068**	(.0310)
Self-employed	réf.		réf.		réf.		réf.	
Marital status of head								
Never married	0.009		0.01	(.0380)	-0.023	(.0980)	0.031	(.0840)
Married	réf.	(.0130)	réf.	(.0140)	réf.	(.0280)	réf.	(.0240)
Other (widowed, divorced)			-0.007		-0.229**		-0.075	
Time to closest school								
Primary	-1.085	(.7780)	-0.74	(.5770)	0.038	(.3840)	-0.406	(.5670)
Secondary	1.090*	(.0080)	1.018*	(.0020)	-0.016	(.0010)	-0.031	(.0020)
Primary, squared	0.003	(.5910)	0.001	(.5450)	0.000	(.1030)	0.002	(.1230)
Secondary, squared	-0.008*	(.0040)	-0.007**	(.0030)	0.000	(.0000)	0.000	(.0000)
Land ownership								
Hectares owned	0.015	(.2180)	-0.105	(.0980)	-0.028	(.0470)	0.035	(.0580)
Hectares owned, squared	0.853	(4.0940)	-0.765	(1.6240)	0.07	(.3960)	0.326	(.8180)
Rank of child								
First child	réf.		réf.		réf.		réf.	
Second/more	-0.038	(.0580)	-0.136	(.1100)	-0.016	(.0400)	-0.084	(.0530)
Quintile of consumption								
Poorest quintile	réf.		réf.		réf.		réf.	
2nd quintile	-0.005	(.0160)	0.019*	(.0110)	0.029	(.0190)	-0.005	(.0210)

3rd quintile	0.005	(.0140)	0.043***	(.0110)	0.049**	(.0190)	-0.01	(.0240)
4th quintile	-0.017	(.0220)	0.023**	(.0110)	0.045**	(.0200)	0.044**	(.0220)
Richest quintile	-0.001	(.0210)	0.024**	(.0110)	-0.024	(.0400)	0.034	(.0310)
Handicap for child								
Yes	réf.		réf.		réf.		réf.	
No	0.159	(.1290)	0.225	(.1510)	0.617***	(.1310)	0.587***	(.1530)
Income								
Household wage income	0.011	(.0080)	0.005	(.0050)	0.003	(.0040)	0.006	(.0070)
Remittances	0.017	(.0230)	-0.007	(.0100)	0.097	(.0770)	0.256**	(.1240)
Basic statistics								
Number of observations	722		814		1252		1217	
R2	0.21		0.220		0.15		0.19	

Source: Authors using ECOM 2005 survey
Note: (*) implies statistical significance at 10% level; (**) at 5% level; (***) at 1% level.