Household Level Social Capital and Children's Schooling Decision in Cameroon: A Gender Analysis*

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ABSTRACT

This paper re-examines and incorporates household level social capital amongst the determinants of children schooling in Cameroon. Reduced form demand equations of schooling for the entire sample, male and female children as well as for rural and urban children are estimated separately. Results indicate that social capital especially female related, mothers' education and income strongly influences parental decisions towards a child schooling. However, social capital as well as its female component is more important as both male and female children are equally given the opportunity to school and there is neither gender bias nor rural-urban difference in children schooling outcome when parents participate in groups or associations. Thus, we recommend the building of social capital by strengthening local community networks.

INRODUCTION

Cameroon is a country of 15.7 million people in western Africa, and is home to over 7 million children. The net primary enrolment rate for girls is 71%, compared to 76% for boys. Regional disparities also exist within the country and girls' national dropout rates are so high that the net enrolment figure for secondary school is a mere 20% (UNICEF 2003). It is said that the main issues affecting girls' participation in education or the factors that contribute to adverse schooling outcomes for females relative to males include, among others; low parental incomes and education, ability to use children's labor, non-availability or high cost of schooling, low returns to schooling for females relative to men, and the influence of cultural and social factors (see Alderman and King, 1998 for details).

Education which is a variant of human capital generates substantial private and social benefits to a household and thus, the economy. Early work by economists in the field of human capital analysis recognised the importance of a variety of human attributes, including health, to the understanding of human capital, and not just skills and knowledge acquired through formal education or on-the-job experience (Becker, 1993: 54-55). The positive correlation, at the level of individuals, between completed formal education and subsequent lifetime earnings and employment is well documented (OECD, 1998). Still, the evidence is highly suggestive and important for establishing the importance of knowledge and skills in sustaining economic

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growth and social development. It is likely that some of the impact of human capital is mediated through social capital as well as more effective political and institutional arrangements. Research findings suggest a link between levels of trust and growth in productivity as well as between levels of trust and investment in physical capital (Knack and Keefer, 1997 and Knack, 2001). Some of the most striking evidence on the impact of human and social capital is in relation to personal and social benefits which extend beyond measurable improvements in productivity and employment (see for instance Helliwell, 2001; OECD, 1998 and Schuller et al, 2001). However, these are direct effects of social capital. What is less known is the extent to which social capital indirectly affects human capital via the decision to invest in children education and if it could also exacerbate the gender gap in schooling attainment.

The returns on investment in the education of females have been found to be much higher (Alayande et al. 2000, Tawah 1998). Therefore it is worthwhile to examine the factors that may reduce the persistence of male-female disparities in access to schooling. This would help to reverse the existing drop out rates which appears higher for females than male students. Though public investment in education may be gender neutral, parent's decision to invest on children's education is always gender bias in favour of boys (see the literature on gender differences in schooling outcomes e.g. Gertler and Alderman 1989; Zhang and Davies, 1995; Kingdon 1998; Dollar and Gatti, 1999; Olanrewaju 2003). Gender inequality in schooling may hinder the socioeconomic development of a country if one has to recall the multiple roles of women, viz health agent, educator, mother, farmer in most families in sub Saharan Africa. In this paper, we incorporate social capital among the determinants of schooling outcome that could help narrow down the gender gap in children's schooling.

SOCIAL CAPITAL AND RELATED WORKS: AN OVERVIEW

The literature on social capital and educational achievements just like the links between social capital and children's schooling decision remains scarce. Both Putnam (2000) and Halpern (1999) identified education as a key to the creation of social capital and greater educational achievement as an important outcome. Meier (1999) also suggests that the quality of social relationships and the assistance provided through them may explain part of those relationships on academic achievement among adolescents. Evidence of correlation exists between high levels of social capital and schooling enrolment (to see Smith et al., 1995 and Teachman et al., 1996). This paper however, examines whether household level social capital including its gender character influences parental decision to invest in the education of their children.

Education or human capital includes the skills and knowledge we gather in formal and informal learning. Social capital, built through meaningful interactions between people, facilitates the learning and use of these skills and knowledge and could be a powerful force to influence parental decision to send their children to school. The notion of social capital first appeared in Lyda Judson Hanifan's discussion of rural school community centres (see, for example, Hanifan 1916; 1920) that used the term to describe those tangible substances that count for most in the daily lives of people. He was particularly concerned with the cultivation of good will, fellowship, sympathy and social intercourse among those that 'make up' a social unit (Mark Smith, 2001). Most recently, it has been the work of Putnam (1993, 2000) that has launched social capital as a focus for research and policy discussion. According to Putnam, whereas physical capital refers to physical objects and human capital refers to the properties

of individuals, social capital refers to connections among individuals-social networks and the norms of reciprocity and trustworthiness that arise from them.

It has also been picked up by the World Bank as a useful organising idea. In the words of the World Bank, social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the institutions which underpin a society but more of the glue that holds them together (World Bank, 1999). A narrow view of social capital regards it as a set of horizontal associations between people (Putnam 1993), consisting of social net works and associated norms that have an effect on community productivity and well being via a reduction in production costs.

METHODOLOGY AND DATA

We have used a simple binary logit technique in this study which involves an estimation of a reduced-form demand equation for schooling outcome. This is done for both male and female children aged between 5 and 17 years[1]. The schooling outcome is a dichotomous variable with 1 being a drop out case or not currently enrolled in a school and zero otherwise. The logistic model is defined in the following manner:

$$\Pi(E_i) = \log \frac{E_i}{1-E} = \sum_j \alpha_j Y_{ij} \qquad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

and $E_i = E(S_i = 1 \backslash y_i) = \exp \dfrac{\sum_j \alpha_{ij} Y_{ij}}{1 + \exp \sum_j \alpha_{ij} Y_{ij}}$ ……..... (2)

In the above expressions, E represents the likelihood of a child being currently enrolled in school, S_i is enrolment status of the ith child with S_i =1, for a child who is currently enrolled in a formal institution. Y_i is a vector of individual and household characteristics which may influence the likelihood that a child is enrolled in a school, α is a vector of unknown parameters to be estimated. The variable of interest among the household characteristics is the household level of social capital. Since the issue of gender influence in child schooling is considered in the study, in addition to the child's gender, we also incorporate other household specific gender variables such as female headship, the level of schooling of the household head's spouse and the gender element of social capital.

The study has made use of the 2001 Cameroon household survey (ECAM 2). The survey covers about 12000 households undertaken by the Department of Statistics and National Accounts in the last quarter of the year 2001. The survey is a large longitudinal household-level survey that covers the ten provinces of the country, divided into 22 strata including 10 rural and 12 urban regions respectively. Of the entire households, there were 425921 individuals comprising 49.1 percent of males and 50.9 percent of females. However, our analysis is limited to children aged 5 to 17 years which now practically corresponds to the primary and secondary school age range in Cameroon. Below in Table 1 is the descriptive statistics of the variables used in the study.

These variables highlight the empirical results that are obtained in the econometric estimations. The enrolment status of children which represents the primary variable of interest to this study is in the first five rows. It is presented according to gender and milieu of

[1] This age range practically corresponds to the primary and secondary school ages in Cameroon.

residence. The findings reveal that 87 percent of children are currently enrolled in school with gender gap of 1 percent. Of this total, 84 percent are in the rural area while 89 percent are enrolled in the urban area.

Table 1: Descriptive Statistics of Variables Used in the Study

Variable	Minimum	Maximum	Mean	Std dev.
Enrolment=1 if a child is current enrolled in school	0	1	0.8724	0.333
Girl child enrolment	0	1	0.8663	0.340
Boy child enrolment	0	1	0.8787	0.326
Urban enrolment	0	1	0.8890	0.314
Rural enrolment	0	1	0.8374	0.369
hsc Household level social capital	0	100	40.4109	36.566
hscpry Social capital if owner attended primary education	0	94.61	13.5506	28.476
hscppry Social if owner attended post primary education	0	92.43	15.3166	29.983
hscpsc Social capital if owner attended post secondary education	0	100	4.1404	17.157
hscml Male possessed social capital	0	100	30.135	36.320
hscfe Female possessed social capital	0	93.6	10.275	25.244
log income Household per capita expenditure	9.77	16.65	12.589	0.75166
age Age of child years	5	17	9.945	3.919
age2 The square of the age of child expressed in years	25	289	114.289	84.763
sexchild Gender of child=1 if female and 0 otherwise	0	1	0.5184	0.499
headsex Gender of household head=1 if female	0	1	0.2439	0.429
hhsize Size of the household	1	38	5.13	3.519
under5 number of persons in household aged below 5 years	0	9	0.71	0.962
adults number of persons in household aged 19 years and above	1	19	2.442	1.480
milieu Place of residence =1 if urban and 0 if rural	0	1	0.6470	0.4779

fathned Father attended no formal education	0	1	0.1336	0.3401
fathpry Father attended primary education	0	1	0.1770	0.3816
fathppry Father attended post primary education	0	1	0.1766	0.3813
fathned Father attended post secondary education	0	1	0.0445	0.2061
mothned Mother attended no formal education	0	1	0.1996	0.3997
mothpry Mother attended primary education	0	1	0.2598	0.4385
mothppry Mother attended post primary education	0	1	0.2380	0.4258
mothpsc Mother attended post secondary education	0	1	0.0199	0.1396

Source: computed from Cameroon household survey (ECAM2)

In Table 2, we present the schooling status of children by age and by gender.

Table 2: An Overview of Children Schooling Status in Cameroon by Sex and Age of Child

Male

Female

Age in Years	Illiteracy Rate	Enrolment Rate	Withdrawal Rate	Illiteracy Rate	Enrolment Rate	Withdrawal Rate
5	50.2	39	10.8	53.2	35.2	11.6
6	34.3	57.3	8.4	35.7	55.9	8.4
7	21.5	73.2	5.3	25.9	68.1	6.0
8	14.7	80.7	4.6	18.6	78.7	2.7
9	9.8	87.8	2.4	16.6	81.6	1.8
10	11	87.3	1.6	14.8	83.2	2.1
11	4.9	93.8	1.3	12	84.8	3.2
Average primary school age	20.91	74.15	4.9	25.25	69.64	5.11
12	7.8	88.1	4.1	17	80.4	2.6
13	7.7	85.8	6.5	12.3	81.8	5.9
14	5.9	85	9.1	11.7	76.6	11.7
15	8.2	76.4	15.4	21.4	62	16.9
16	8.8	73.2	18	14.3	59.1	26.5
17	8.3	61.7	30	20.7	43.1	36.2
Average secondary	7.78	78.36	13.85	16.18	67.16	16.63

school age						
Total	15.5	76.1	8.4	21.16	68.60	9.7

Source: Computed by author from the 2001 Cameroon Household survey (ECAM 2)
Notes:
1. Illiteracy rate is computed as the proportion of children who have never been to school
2. Enrolment rate is the proportion of children who were enrolled in school in 2001
3. Withdrawal rate is calculated as the proportion of children who were in school before but dropped out of school in 2001

Like in Olanrewaju (2003), the highest figures for both male and female children occur at age 11 years old whereas at 17 years of age, enrolment rate is least coupled with the highest withdrawal rates from school. For the primary school, the average enrolment rate for children is 74 percent for males and 70 percent for females, giving a gender schooling gap of 4 percent. The average enrolment for children of secondary school age is 78 percent and 67 percent for males and females respectively which indicates a gender gap of 9 percent. Generally, the gender gap for all children at both the primary and secondary school levels is about 76 percent for males and 69 percent for females representing a gap of 7 percent.

These gender gaps in children schooling could be explained by the reasons for withdrawing from schools in Table 3 below.

Table 3: Reasons for Withdrawal from School

Reason	**Male**	**Female**	**Average**
Expensive	0.193	0.18	0.185
Employmet/Apprentiship	0.037	0.019	0.028
Failed out	0.056	0.059	0.059
Health problem	0.043	0.034	0.039
Marriage/Pregnancy	0.00	0.033	0.017
Distance	0.065	0.066	0.066
Below age	0.297	0.258	0.278
Others	0.308	0.351	0.330

Source: Computed by author from the 2001 Cameroon Household survey (ECAM 2

As observed, some 3.3 percent of girls withdrew from school for marriage reasons or due to pregnancy. Further, most children withdrew for other reasons not specified with the female constituting about 35 percent as opposed to 31 percent for the male. Lastly, financial constraint and health problems account for the withdrawal of relatively more males than females. In this paper, we find social capital at the household level as a possible factor that could generate a gender balance in parental decision towards the schooling of their children.

CONSTRUCTING AN INDEX OF SOCIAL

We need an index of social capital in order to incorporate it in the econometric equation as a determinant of schooling outcome. Social capital has been measured in a variety of innovative ways, and as Woolcock and Narayan (2000) observe, obtaining a single “true” measure is probably not possible, or perhaps even desirable for a number of reasons. We construct a household level social capital measure, which incorporates the most comprehensive

definitions of social capital based on the characteristics of group membership at the household level[2]. It involves different units of analysis such as density of membership, heterogeneity, decision-making or civic engagement, trust and community involvement. This approach gathers inspiration from Narayan and Pritchett (1999), Grootaet (1999) and Maluccio et al., (2002) with some modifications[3]. While there are weaknesses to this approach it has the merit of being more directly comparable to the existing literature (Maluccio et al., 2002). The components available in the survey relevant for these kinds of exercises and the methods of calculation are:

i) Density: It is not simply the number of household members belonging to an association. The total number of active memberships in each household is added up across the community. Nevertheless, we treat one or more individuals in a household belonging to the same group as a single group membership at the household level. This implies having more than one member in a group does not increase social capital.
ii) Decision making index: It is argued that associations or groups that follow a democratic pattern of decision making are more effective than others. In the data this measure is the response to the question 'whether an individual occupies any post of responsibility' which is scaled into 'very active' or 'not very active' in the groups decision making scaled on a 2 or 1 basis.
iii) trust index: This is a criterion for social cohesion and provides a kind of cohabitation which has proven to generate less conflict. This involves the response to the question, 'whether a person is satisfactory belonging to an association' scaled between 2 and 1 on the yes or no answer.
iv) Community orientation: This is an aspect of collective action or community involvement. It consists mostly of volunteering acts from community members and goes beyond simple participation in specific activities in associations. It is evaluated from responses to the question 'main reason for belonging to the association'. These responses are scaled from 4 to 1 in the following order of importance: participation in the management of the community, mutual aid/assurance, savings and the possibility to borrow. The total for each group is determined across households.

Finally, each of these sub-dimensions originally scaled from 1 to n according to the modalities is averaged across the groups for all households and re-scaled from 0 to 100. The composite index is computed as the arithmetic weighted mean of its sub-dimensions on a 0 to 100 basis.

ECONOMETRIC RESULTS

The results of the estimation are presented in the Table 4 below. The results indicate that increases in social capital just like household income leads to greater and equal investment opportunities in schooling for both boys and girls (columns 5 and 6). However, the coefficient on income for boys exceeds that of girls. Furthermore, in the rural areas, income does not determine child schooling (column 8) and the reason is explained by the low income level in the rural areas that stands as a resource constraints thus increasing direct schooling costs. Thus, social capital is more important as a determinant of schooling for both urban and rural children no matter the sex.

[2] Most studies e.g. Knack and Keefer (1997), La Porta et al., (1992) and Alesina and La Ferrara (2000) used single measures like density or trust index etc.
[3] Grootaert also includes measures of democratic participation, meeting attendance, fees and whether the community was founded by the group, in his index of social capital. Unfortunately, the latter three measures are not available in our data.

Looking at the possession of social capital by gender, there appears to be a greater increment for child schooling for a female accumulated social capital. The coefficient on female related social capital exceeds that for male. The analysis further supports the hypothesis that males are more likely to be enrolled than female children. It is also observed that urban residential areas increase the odds of children being currently enrolled than rural children as most urban parents are likely to invest in the schooling of their children. However, the gender effect is felt in the urban location which tends to favour the schooling outcome for females. The study therefore contradicts most findings that assume that being male and living in urban areas significantly improves schooling outcomes.

Table 4: Results from Logit Regressions (Current Enrolment =1)

	All children			**Male**	**Female**	**Urban children**	**Rural children**
hsc	0.004***	0.003		0.004**	0.004**	0.003***	0.003**
hscpry		0.003					
hscppry		0.002					
hscpsc		0.003					
hscml			0.003***				
hscfe			0.004***				
Log income	0.348***	0.344***	0.348***	0.426***	0.309***	0.500***	0.04
age	1.29***	1.29***	1.29***	1.24***	1.35***	1.13***	1.51***
age^2	-0.065***	-0.065***	-0.065***	-0.061***	-0.069***	-0.058***	-0.073***
sex child	-0.152*	-0.151*	-0.152*			-0.126	-0.214
headsex	0.107	0.126	0.094	0.087	0.166	0.135	0.002
hhsize	0.063***	0.062***	0.063***	0.085***	0.036	0.074**	0.052
under5	-0.089*	-0.089*	-0.089*	-0.105	-0.050	-0.135**	-0.026
adults	-0.028	-0.026	-0.029	-0.088	0.388	-0.027	-0.052
milieu	0.208**	0.199**	0.207**	0.012	0.373***		
fathned	-0.204	-0.186	-0.206	-0.367	-0.033	-0.347	0.154
fathpry	-0.001	0.016	-0.002	-0.180	0.169	0.017	-0.113
fathppry	0.137	0.101	0.136	-0.034	0.340	0.310	0.261
fathpsc	0.428	0.479	0.430	0.604	0.410	-0.045	0.057
mothned	0.107	0.109	0.108	0.142	0.079	-0.045	0.171
mothpry	0.179	0.180	0.180	0.207	0.159	0.356**	-0.072
mothppry	0.665***	0.654***	0.665***	0.883***	0.460**	0.899***	0.104
mothpsc	0.825*	0.852*	0.827*		0.465	0.908**	0.098
Number of obs.	6120	6120	6120	2929	3133	4129	1991
LR chi2 (n)	558.40	559.92	558.51	219.34	352.93	392.66	183.55
Prob>chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.128	0.128	0.128	0.108	0.152	0.146	0.11
Log Likelihood	-1911.2	-1910.44	-1911.15	-909.05	-987.06	-1146.16	-741

Note: *** indicates significance at 1 % probability level; ** = significant at 5% probability level and * equals significant at 10% probability level.

Female-headship improves the chances of being able to go to school no matter the milieu of residence. Though our result is insignificant, other analyses like Lloyd and Gage-Brandon (1994) and Canagarajah and Coulombe (1998) supports the hypothesis. Household size is also a significant determinant of the likelihood for children to enroll in schools for all categories included in the analysis, except for the rural children. Majority of household members in the rural areas may not be involved in income generating activities that could help raise household income.

The greater the number of pre-school age siblings, the less likely for children to be currently enrolled and this adverse effect is greater in the urban areas. However, Lloyd and Gage-Brandon (1994) find that schooling outcomes in sub-Saharan Africa, particularly for girls, are more likely to be adversely affected by the presence of younger siblings. Our results do not find this fact. Further, improvements in the education of mothers raise the schooling of both sons and daughters, while education of fathers has no effect on the schooling of children. This result contradicts that of Glick and Sahn (2002) where the reverse is true. In the same vein according to Grootaert (1998), Dreze and Kingdon (2001), parental schooling affects the probability of whether or not the child will go to school. However, Handa (1996) and others also show that parental schooling affects girls and boys differently. While father's schooling is more likely to influence the schooling of boys, mother's schooling has a favorable affect on the education of female children. In this case, where the education of the mother counts, there is no gender bias towards children schooling decision and the effect is mostly significant only in the urban location which host most educated parents.

Lastly, the interaction between human capital and social capital was modeled considering indicators of educational level of possessors of social capital (column 3). A growing body of literature lend support on the evidence that education does indeed have an impact on individuals' propensity to participate in associations and may have better skills to accumulate more social capital (see recent facts in Gibson (2001), Millgan et al., (2003), Dee (2003). Thus, the final effect of social capital as an influential factor in parental decision towards the schooling of their children via human capital accumulation is determined by estimating another specification that allows for such interactions. There is however, a weak support for the interaction between human and social capital as none of the interaction is significant. However, the precise mechanism is often not clearly specified but it partly relies on the notion that schools impart good standards of behaviour, help to socialize young people and also enable them to engage in society by virtue of being better informed (Kevin, 2003). The relationship between human and social capital may be much more complex than previous research has shown.

CONCLUSION AND POLICY IMPLICATIONS

The determinants of children' schooling in sub Saharan Africa and other low income countries have been widely studied. This paper has attempted to incorporate social capital and its gender characteristic in the demand equation for children schooling. The importance of social capital especially female related, mothers' education and income should be emphasized as they strongly influence parental decisions towards a child schooling. However, social capital as well as its female component is more important as it is not gender bias. Both male and female children are equally given the opportunity to school and there is no rural-urban

difference in children schooling outcome when parents participate in groups or associations. How then, does the evidence translate into policies which can make a difference?

Woolcock suggests the policy response should not be a call for more choirs. Indeed he emphasises that social capital is not a panacea, and more of it is not necessarily better (Woolcock, 2001:15). However, social capital has a well established relationship with the outcomes policy makers are concerned with e.g. economic growth, social exclusion, better health and well being (Halpern, 1999). The policy responses so far have focused on civic regeneration, volunteering and community self help. The aim is to build social capital by strengthening local community networks. Thus, policies that encourage the formation of associations, more importantly female groups will increase gender equity in schooling for both urban and rural children.

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