# Does Social Capital determine Poverty? Evidence from Cameroon Household Survey[1]

By

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**Abstract**

*This paper has examined the effect of social capital on household poverty using the 2001 Cameroon household survey. We rely on three indicators for social capital – network membership, decision making index and network support or solidarity– and employ alternative procedures to consistently estimate the impact of social capital on household per capita expenditure. Memberships in organizations, social support or decision making indices are choice variables implying that social capital indicators are by definition endogenously determined and depend on household specificities. We exploit the advantages of longitudinal data and community fixed effects to mitigate some of the concerns about spuriousness and reverse causality that predominate in this literature.*

 *Our results show that, membership in associations and the indicator for decision making index are positively correlated with household per capita expenditure (i.e. poverty reducing), this being true with classical OLS estimates as well as when we control for the endogeneity and reverse causality bias. However, the indicator for network support  significantly mitigate household poverty when we control for endogeneity and reverse causality bias, an indication that households with higher incomes tend to group together. Secondly, there are limited economies of scale in social capital (i.e. more than one member of the same household belonging to networks does not necessarily mean more benefits). Our analysis suggest that policy makers interested in improving the living conditions of households may be advised  to consider promoting social capital as one relevant ingredient to achieve the Millennium development goals of reducing poverty by half.*

## 1. Background Issues

### 1.1 Introduction

There is a growing recognition that differences in economic outcomes, whether at the individual, household or at the level of the state, cannot be explained fully by differences in "traditional" inputs such as labor, land, and physical capital. Growing attention is given to the role of "social capital" in affecting the well-being of households and the level of development of communities and nations. The World Bank, which previously followed and promoted a markedly neo-liberal approach, now acknowledges social capital as a useful tool for poverty reduction (World Bank, 1998)[2].

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[2] According to Paldam (2000, p. 631), social capital is "close to becoming a joint concept for all social sciences." The burgeoning literature has exerted a major influence on the ideas that shape development policy.

Much of the interest on social capital stems from the view that the absence of social capital represents one of the major impediments to economic development. It is beyond the scope of this paper to discuss every study that has attempted to measure social capital and estimate its effect on economic variables. A range of the purported link between social capital and economic performance or economic development can be collected in Dasgupta and Serageldin (2000), Grootaert and van Bastelear (2002), Wallis et al (2003) and Durlauf and Fafchamps (2004). However, we provide below an overview of empirical precedents.

Narayan and Pritchett (1999) construct a measure of social capital in rural Tanzania, using data from the Tanzania Social Capital and Poverty Survey (SCPS). This large-scale survey asked individuals about the extent and characteristics of their associational activity, and their trust in various institutions and individual organisations. They match this measure of social capital with data on household income in the same villages and find that village-level social capital raises household incomes.

Two other studies (Grootaert, 1999; Maluccio et al., 2000) use survey information on household membership in groups as a proxy for social capital and find positive and significant effects of this measure of social capital on household welfare. To Grootaert, the effects of social capital operate through (at least) three mechanisms: sharing of information among association members, reduction of opportunistic behavior, and improved collective decision making. However, Maluccio et al. (2000) replicated the methods of the studies in South Africa and then extended it to assess whether the influence of social capital has changed over time. Using a panel data set collected in South Africa's largest province, which allows the possibility of controlling for unobserved time-invariant factors at the household and community levels, they find no impact of social capital on per capita expenditure in 1993 but a positive and significant effect in 1998. They concluded that the result conformed to the economic, political and social changes experienced in South Africa. The opening of new opportunities, in part due to lifting of the various legal restrictions on labour and capital markets, property rights, and residential location that underlay the policy of apartheid, suggested that there had been structural shifts in the economy and, as a

result, had to change the returns to various factors of production (Maluccio et al., 2000).

Adeyeye (2004) provides results of the impact of village level social capital on poverty in the south western part of Nigeria. A major policy thrust that emerged from the study was that it is economically expedient for the Nigerian government to invest in social capital development so as to urgently tackle the problem of poverty with speed and in a cost effective manner at the village level. He also found that differential returns to social capital exists between the poor and non poor and by gender but however, aver that the results remain inconclusive (i.e. that social capital differentiates between poor and non poor male or female-headed households. Though most of the studies reviewed above used per capita household expenditure, others have used per capita output growth to evaluate the impact of social capital on poverty.

Knack and keepfer (1997) use indicators of trust and civic norms from the World Values Surveys for a sample of 29 market economies. They used these measures as proxies for the strength of civic associations in order to test two different propositions on the effects of social capital on economic growth, the "Olson effects", (associations stifle growth through rent-seeking) and "Putnam effects" (associations facilitates growth by increasing trust)[3].

Beugelsdijk and van Schalk (2001) found that group participation but not trust in European countries helps explain output growth. Easterly and Levine (1997) using ethnic heterogeneity measured by ethnolinguistic diversity find that per capita output growth is negatively associated with ethnolinguistic heterogeneity and explain more importantly the poor performance of sub-Saharan Africa.

Helliwell (1996) determined that in Asian countries, social capital measures such as trust and participation in associations contribute little once other factors such as openness are accounted for whereas (Helliwell and Putnam, 2000) found that social capital could easily be used to predict output growth even when factors such as property rights are controlled for (Zak and Knack, 2001).

There is a growing interest in the area of poverty reduction and poverty studies in Cameroon (see Tachi, 2003 for a review), but none had examined nor introduced some aspects of participatory approach or the notion of social capital in poverty

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[3] Inglehart (1997) has done the most extensive work on the implications of the WVS's results for general theories of modernization and development.

reduction strategies. It is widely recognized that efficient and equitable development policies should encounter a broad base approach. This process allows, participation of populations in the decision making process, as well as the sharing of benefits and costs. As this process evolves, different segments of the society feel the need to pool resources within groups, which have more capabilities to voice their needs. This paper has explored the possible links that exist between social capital and household poverty in Cameroon.

### 1.2 Role of Social Capital and Cameroon Economic Performance

Economic development in Cameroon has passed through three main phases. From independence in 1960 until 1985, the economy experienced impressive growth performance thanks to oil exploration and a sustained agricultural production backed up by strong world market prices. Alongside, the government was able to meet up with its role of the provision of public goods and services, following a sustainable and consolidated public finances. After 1985, much of the progress of the previous two decades was undone due to lower export earnings that came as a result of a fall in oil and other export prices.

Cameroon's welfare indicators seemed to have moved closely to the level of income or economic progress outlined above. For instance as noted by Amin (1996), per capita income observed a steady rise since independence reaching its peak in 1984/85 and averaged as low as 249000 CFA francs subsequently. Food consumption inequalities aggravated as domestic food production witnessed a decline during the crisis period (i.e. from 1986) and consequently affected the living standards of Cameroonians (Amin, 1996). The two Cameroonian Household Surveys (ECAM I and II) that were conducted nationwide in 1996 and 2001 respectively provided a clear picture of the status of poverty and living conditions in Cameroonian households[4].

On the basis of the two household surveys, poverty as measured by the head count index declined by about thirteen percentage points over the five years, from

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[4] The 1996 household survey (ECAM I), which was the first of a series, was conducted just as Cameroon was emerging from a severe economic crisis that had lasted for nearly a decade. The 1996 survey measured the effects of the crisis and structural adjustment programs on household living standards. The ECAM II survey, which was undertaken in September 2001, updated the poverty profile and served in preparing benchmark indicators to monitor progress in reducing poverty.

53.3 percent to 40.2 percent. During the same period, the gap by which the average income of poor households fell below the poverty line, i.e. P1 or poverty depth also improved, shrinking from 19.1 percent in 1996 to 14.1 percent in 2001. This indicated that in 1996 it required an average annual supplementary transfer of 35,426 CFA francs to lift an individual out of poverty, compared with 26,154 francs in 2001 (INS,2002).

**Table 1: Poverty trends (percent)**

|  | 1996 | 2001 | Change |
|---|---|---|---|
| Incidence (P0) |  |  |  |
| Rural | 59.6 | 49.9 | -9.7 |
| Urban | 41.4 | 22.1 | -19.3 |
| Total | 53.3 | 40.2 | -13.1 |
| Depth (P1) |  |  |  |
| Rural | 21.5 | 18.3 | -3.2 |
| Urban | 14.7 | 6.3 | -8.2 |
| Total | 19.1 | 14.1 | -5.0 |

Source: INS, ECAM 1 and ECAM 11 Reports

The survey results as provided in table 1 above also show that poverty was more pronounced in rural than in urban areas. In 2001, eight poor people out of ten were living in the countryside, and the incidence of poverty there more than doubled the incidence in the cities. This phenomenon is common to many African countries south of the Sahara. In spite of the improvement in situation of the poor between 1996 and 2001, the prevalence of poverty and its non-welfarist dimensions still remained widespread with a greater proportion of the poor living in the rural areas. Consequently, the country still carried the umbrella of a highly indebted poor country (HIPC). Therefore, the fight to meet up with the development objective of the United Nations goal of reducing the 1990 poverty by half by the year 2015 still occupies an important place in policy debates.

With the attainment of the completion point of the HIPC initiative, it would be useful for policy purposes to further examine the causes of poverty while incorporating some broad base approach. Reliance on primordial relationships for

support is equally significant between both the poor and non-poor households. The same is also true for neighbours. This feature called social capital is seriously shaping the social and economic sphere of African countries. This is particularly important in the rural areas where majority of the population are poor. With the relatively high poverty levels in the rural world, the pertinent question to ask is whether social capital can improve the well being of households in Cameroon. So far Cameroon poverty studies have not seriously addressed these problems.

Mayoux (2001) identifies some forms of indigenous social capital in Cameroon peculiar to West Africa. These are: tontines/njangi, money tontines/njangi or rotating savings and credit associations and family meetings. The features of these associations depending on the case include: working for cash and or in rotation on the farmland of each others; contribution of regular amounts with each member taking turns to receive the contribution of the whole group, thus getting a lump sum from the small contributions; contribute more than this regular amount into a savings fund which is then loaned out to others at interest; reserving a portion of the savings in a fund which members may access for serious health problems or funerals (sometimes interest free); solidarity including birth and death celebrations, revolving loans, savings etc.

The influence of social religious capital on the poverty of households in Cameroon has been determined (Ondia et al 2007). The determinants of religious social capital are identified on the basis of a composite indicator, obtained by taking into account the percentage of heads of families who respond affirmatively to the question: "Can you count on the financial support of your religious community, that is of its leaders or other members, in the form of a loan and/or a gift, in the case of illness, of the death of a family member, of a job loss or when you experience short-term financial difficulties?"

Our concern here is to fill this knowledge gap in poverty analysis in Cameroon by providing a robust econometric relationship between social capital and poverty. If we have to use the definition of social as put forward by Woolcock (2000): "It's not what you know, it's who you know."  According to Woolcock, this common aphorism sums up much of the conventional wisdom regarding social capital. "It is

wisdom born of our experience that gaining membership to exclusive clubs requires inside contacts, that close competitions for jobs and contracts are usually won by those with "friends in high places." When we fall upon hard times, we know it is our friends and family who constitute the final "safety net." In our context, we argue that such social ties or networks may increase household income.

The data for this study comes from the 2001 second Cameroonian household Survey (ECAMII) carried out by the Department of Statistics and National Accounts in the last quarter of the year 2001. The survey was carried out with administered questionnaires and provides information at the household and individual levels on various demographic, social, economic, education, anthropometry and labour market characteristics. Lastly, the survey contains some questions at the household level as described below that was used to compute the household endowment of social capital.

## 2. The Concept of Social Capital

### 2.1 What is social capital?

Social capital refers to the quality of human relationship and the opportunities that emanate from them that could be of benefit to the population concerned. It is generally interpreted as the degree of trust, co-operative norms and networks and associations within a society[5]. Coleman (1988) and Putnam et al. (1993), sees 'social capital as a "stock" of trust and an emotional attachment to a group or society at large that facilitate the provision of public goods'. The World Bank refers to it as institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. 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, 1998).

Two types of social capital can be distinguished. Coleman (1988) defines family social capital as the relationships between parents and their children (as well as between children and other family members who reside in the house) which encompass the time, efforts, resources and energy that parents (and other adult members within the house) devote to their children. Following Coleman (1988),

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[5] Though our data limits us to only account for "membership in association" (and various variables related to that) to measure social capital, other less informal, types of social capital in the Cameroon context have been discussed.

exterior social capital consists of the quality, structure and density of social relationships and interactions between and among parents and families, as well as the collective social relationships between parents and local community institutions, for instance schools.

## 2.2 Constructing an Index of Social Capital

The effectiveness with which social capital, in the form of local associations, can fulfill its role in disseminating information, reducing opportunistic behavior, and facilitating collective decision making depends on many aspects of the association, reflecting its structure, its membership and its functioning. Grootaert (1999) focused on six aspects of local associations as applied by Adeyeye (2004). The major problem surrounding studies that relates social capital to development is the measurement of social capital. 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. One of the main reasons is that the most comprehensive definitions of social capital are multidimensional, incorporating different levels and units of analysis.

Grootaet et al. (2004) provides a set of empirical tools for measuring social capital as a means of restoring dialogue and agreement in theoretical and empirical debates. They provided six dimensions of social capital including groups and networks; trust and solidarity; collective action and cooperation; information and communication; social cohesion and inclusion; empowerment and political action[6].

Our paper is based on the above approach using available and related information in our data set. Social capital is computed at the household level and this explores the average behaviour of groupings which define the social environment of the individuals that comprise them. One can think of such models as taking within group averages so that the social capital used is of the family (household) or group level averages that occurs at the community level. It is assumed that group level or household social capital is the average of individual social capital levels (Durlauf and

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[6] Grootaert (1999) also includes measures of democratic participation, meeting attendance and fees as various indices of social capital.

Fafchamps, 2004). Below are the various social capital indices used in this paper and the method of calculation.

**i)** **Density of membership**: We use an indicator of individual participation in local organisations denoted by *membership*. The variable *membership* takes on the value 1, if individuals are members of organisations while it takes on the value 0 otherwise. As pointed out, among others, by Szreter and Woolcock (2004), social relationships between individuals sharing the same social identity are more likely to be associated with well-being while relationships between individuals situated at different levels of the social scale are more correlated with reciprocal respect but less likely to involve reciprocal trust[7]. Further, *membership* captures the collective dimension of social capital.

At the household level, it is measured by the total number of memberships of each household in existing associations. This number of active memberships in each household is then normalized by household size (Grootaet et al. 2004).

**ii)** **Decision making index**: It is argued that associations or groups that follow a democratic pattern of decision making are more effective than others. Some survey questionnaire asks association members to evaluate subjectively whether they were "very active" "somewhat active" or "not very active" in the group's decision making (Grootaet, 1999). The questionnaire in our data is 'whether an individual occupies any post of responsibility'. This is coded into 'very active' or 'not very active' and scaled on a 1 and 0 basis respectively. The total number of those holding post of responsibility in each household is normalized by the number of memberships to give the decision making index of a household.

It is argued that in the structure of a given network, who interacts with whom, how frequently, and on what terms has a major bearing on the flow of resources through that network. Those who occupy key strategic positions in the network, especially those whose ties span important groups, can be said to have more social

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[7] See Szreter and Woolcock (2004) for more information about the distinction between "bonding" versus "bridging" social capital.

capital than their peers, precisely because their network position gives them heightened access to more and better resources (Burt 2000).

**iii)     Network support or solidarity index**: This is a criterion for social cohesion and provides a kind of cohabitation which has proven to generate less conflict. Indicators of trust and solidarity, which capture cognitive social capital, can be derived from questions like generally speaking, would you say that most people can be trusted, or that you can't be too careful in your dealings with other people (see for instance, Knack and Keefer, 1997; Grootaert et al. 2004). The measures are based on respondents' expectations about and experiences with behavior requiring trust. An important aspect of this is the extent to which households received or would receive assistance from members of their community or network in case of need (Grootaert et al. 2004). In our data, we use a dichotomous indicator for social/network support denoted *financial and material support*. This variable takes on the value 1, if the respondent indicates that the association gives aids such as loans and assistance and zero otherwise. This social support indicator refers to the notion of social capital as a property of the individual. According to Troupa and Kla (2005), this indicator which they classified as transfer index is very important in rural societies. We obtain the value at the household level by dividing the total number of household members who receive support by the number of memberships.

Generally, we have computed social capital as the average of households' components social capital levels, which rules out any scale effects. However, it would be interesting to investigate the absolute amount of household's social capital as deterrent to poverty. We therefore provided this aspect in our analysis.

### 2.3 Endogeneity of Social Capital and the Validity of Instruments

In order to carry out the regression of social capital models, the problem of endogeneity must be accounted for between social capital and income since problems associated with reversed causality between measures of social capital and economic growth are serious. The social capital-welfare nexus depend critically on the assumption that social capital is part of the household's exogenous asset endowment, i.e. no bi-causal relationship between social capital and household welfare indicators.

The central fact that individuals choose who they want to be friends with and what groups they want to join means that much of the estimated effects of social capital simply reflects selection effects based on the myriad of nonrandom ways in which people become friends or group members (Mouw, 2006). This question is motivated, in part, by a recent survey paper by Durlauf and Fafchamps (2004), which argues that many of the claims made in the literature about social capital should be treated with caution. Durlauf and Fafchamps raised concerns about whether causal inferences can be drawn from the existing empirical work on the effects of social capital and depict the difficulties of estimating social capital models under the presence of friendships, groups, or neighborhood choice.

The formation of networks and associations can be costly in terms of time and other resources. Conceivably, therefore, households with higher income can devote more resources to network formation and thus acquire social capital more easily. This is not unlike the situation of human capital, the demand for which also increases with income. Possibility exists then, that social capital, like human capital, can be at least partly consumption good. For example, demand for participation in social groups pursuing leisure activities is quite likely to rise with income because leisure is usually a luxury good (Grootaet et al., 2004)[8].

From the above analysis, social capital becomes endogenous, and its estimated coefficient will be upward biased if the social capital model is not estimated by an instrumental variable regression[9]. Instrumental variables estimation uses the correlation between social capital and another variable, (the instrument) to estimate the impact of exogenous shifts in social capital on welfare indicator. This eliminates the difficulty created by the potentially simultaneous determination of well-being and social capital. Existing studies that have attempted to instrument social capital have been criticized on the validity of the choice of instruments.

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[8] Narayan and Pritchett (1999) further argues that "social capital" or associational life may simply be a normal consumption good so that richer households consume more, that is, perhaps associational life is not "capital" but "consumption" consumed more by households with greater income or leisure . If richer individuals live together then one would tend to find that richer villages are associated with higher village social capital.

[9] Illustration of this approach is now found in numerous papers on social capital produced by World Bank and others (see Durlauf and Fafchamps (2004) and Knowles (2006) for a review). This issue is also discussed in Chapter 3 of Grootaert and van Bastelaer (2002). Durlauf (2002) also provides a critical review of empirical social capital studies that focused on the endogeneity issue.

Zak and Knack (2001) use the shares of the population that are Catholic, Muslim or Eastern Orthodox as instruments, arguing that these hierarchical religions have negative effects on trust. In critiquing these instruments, Durlauf and Fafchamps (2004: 53) argue '*we are not aware of any social capital study using aggregate data that addresses causality versus correlation for social capital and growth in a persuasive way. While this is a broad brush with which to tar this empirical literature, we believe it is valid.*' However, Knowles (2006) argues that a useful starting point for thinking about addressing the problem of simultaneity, with regard to social capital (informal institutions), is to consider how this issue has been tackled to date with regards to formal institutions in the deep determinants literature.

Narayan and Pritchett (1999) use trust in strangers and trust in government officials as instruments for their index of group membership, and find that their results are robust when estimated using instrumental variables analysis. The instrument set passes the over-identification test for instrument validity of Davidson and MacKinnon (1993) when village-level data are used, but not when household data are used. However, even though the instrument set passes the test of instrument validity in one case, it should be noted that trust in either strangers of government officials is likely to have an independent effect on expenditure, and hence not be a valid instrument (Durlauf, 2002).

Grootaert (1999) also uses instrumental variables analysis to check the robustness of his key results. The instrument set used comprises: (1) an index of ethnic and religious diversity, (2) the number of existing associations in the village, (3) the percent of institutions deemed effective, and (4) indices of community involvement in the provision of health and education services, water supply, road maintenance and irrigation. This instrument set passes the over identification test for instrument validity of Davidson and Mackinnon (1993). Maluccio et al. (2000) use their community group membership index as an instrument for household community group membership, on the grounds that the community membership index was insignificant in the OLS and fixed-effects equations. This instrument also passes the over-identification test of Davidson and Mackinnon. Their OLS and fixed-effects results are robust to instrumental variables analysis.

As reviewed by Knowles (2005), perhaps the most plausible set of instruments at the micro level have been proposed by Haddad and Maluccio (2003). They use a variety of instruments for trust and group membership, including lagged values of variables. The use of lagged values as instruments is not that convincing in a cross-country context, as these will still be correlated with the error term if there is any time persistence in the error term. However, some of the other instruments they use could be more valid. They suggest that the amount of time a household has been in the area can be used as an instrument for group membership. This variable would be expected to be positively correlated with group membership, if it takes time for people to join groups once they have moved to a new area. It will be a valid instrument as long as it is not correlated with the error term in the expenditure equation. Although it may be possible to construct arguments that the length of time spent in an area may be correlated with household expenditure, the question has to be asked as to how plausible these arguments may be. The more implausible these arguments, the more valid the instrument is likely to be. Haddad and Maluccio also suggest that trust can be instrumented for by a measure of whether the household has been the victim of crime in the past. It seems likely that this would affect the level of trust. Again it may be possible to construct arguments as to why this variable may be correlated with expenditure, but one has to ask how plausible or otherwise these arguments might be.

Fafchamp and Mintens (2002) used includes age and age-squared, indicators of the place of birth, religion, number of siblings, number of children and education as instrument set. It is argued that these variables are beyond the control of respondents, or are the result of past activity. The instruments pass various tests of instrument validity. However, it is not clear that variables like age or religion are any more valid as instruments than some of the instruments used by Haddad and Maluccio (2003). If, on the other hand, variables like religion are considered to be valid instruments, they could also be used as instruments in the macro literature. Durlauf (2002) was also critical of the instruments used by Knack and Keefer (1997), arguing that the ethnolinguistic fractionalisation index (a measure of ethnic diversity) can have an independent effect on growth.

In a study of social capital and labour force participation while Tabi (2007) recognize and discuss the endogeneity issue in detail, the IV approach fails to convince. In particular, for each of the instruments they use, it is hard to defend the exogeneity assumption. This in turn also implies that the over-identification test has no value, as it assumes exogeneity of all but the excluded instruments. Some specific reasons to worry about the validity of each instrument are: 1) Reasons for belonging to an association as instrument for membership in an association. First of all, it looks like the reason is only known for households who actually are a member of the association, in which case the instrument is directly related to the endogenous variable. Even if that's not the case, the reason to belong to an association most certainly must be related to unobservables that themselves affect household welfare, e.g. if more vulnerable households (e.g. with older or sick household members) are more likely to report they belong to an association, and these households are also more likely to have lower household welfare the instrument would not be valid. 2) "Does the association give aid" is instrument with membership. But as recognized by the authors themselves, membership is an endogenous variable (see point 1), so it can't serve as instrument. 3) "Does person occupy a post of responsibility" is instrumented with a variable of satisfaction of belonging to the group and with a dummy indicating language skill. Satisfaction is likely to be related to many household unobservables that themselves might affect household welfare (e.g. people that are more positive about everything might have higher household welfare because they invest more, etc). And language skills clearly could directly affect household welfare, and be related to other unobservables affecting household welfare. Hence, for none of the instruments proposed the exogeneity assumption seems plausible.

As argued by Durlauf and Fachamps (2004), the choice of a valid instrument is a difficult one and this is due to the absence of explicit modeling of the process by which groups are formed and social capital created means and so a researcher is forced to rely on intuition and guesswork.

In this study, we are unable to find valid instruments and so the issue of simultaneity could be mitigated providing estimations that include community fixed-effects. These models, which can be interpreted as including a dummy variable for

each community, provide an assessment of the relationship between social capital and poverty outcomes, net of time-invariant features of the community that may affect both characteristics. Fixed effects models could be used to control the unobserved factors (e.g. community level heterogeneity) which are not taken into consideration by the OLS estimates. Since community variables often correlate with household and with personal attributes, the inclusion of community fixed effects control for endogenous variation in explanatory variables and thus, avoids producing bias estimates of parameters.

## 3. Empirical Approach of Social Capital and Economic Development

Our approach draws on the existing theories and empirical results that social capital is correlated with income/consumption and thus, poverty. Thus, analyzing the contribution of social capital to household income poverty can be done in the context of a simple conceptual framework which views social capital as one class of assets available to households for generating income and making consumption possible. The household has an asset endowment consisting of physical assets, human capital, and social capital. The household combines these assets to engage in productive activities, either in enterprises within the household or in the external labor market. A model is formalized in as a set of structural equations making up a conventional model of household economic behavior under constrained utility maximization. By recognizing that household consumption behavior is a function of the level and composition of income, the set of structural equations can be summarized by a reduced-form equation that expresses household consumption directly as a function of the asset endowments and other exogenous characteristics of the household, and of the economic environment in which it makes decisions. This leads to the following generic estimation equation[10].

$$Y_i = \alpha X_i + \beta HSC_i + \alpha CC_c + \mu_i \ \dots\dots\dots\dots\dots\dots\dots\dots\dots \ (1)$$

In the above equation, $Y_i$ represents household per capita expenditure, X is a set of control variables including a constant, individual characteristics such age and sex of

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[10] See for instance Narayan and Pritchett (1999), Grootaert (1999, 2001, 2004), Maluccio et al., (2000) and Chapter 3 in Grootaert and van Bastelaer (2002).

household head, parental educational level (both father and mother), indicators for milieu of residence of parents, household size and some household endowments of assets[11] (ownership of land, labour and capital).  HSC is the household endowment of social capital, CC is a community level fixed effect and    is a random error term that represents the unobservable individual, household and community characteristics that affect income. The above model is specified in line with the common practices in the development literature (Narayan and Pritchett, 1999; Malucio et al. 2000; Grootaert, 1999, 2001). After the specification, the income equation is estimated using ordinary least squares including community level dummy variables.

## 4. Results of Social Capital and Household income

**Descriptive Statistics of Sample**

   Table 2 below provides the means of the variables used in the analyses of the relationship between social capital and household monetary poverty. In terms of the dependent variable, income (household per capita expenditure) the mean is about 405853 CFA francs.

   With reference to social capital, weighted group membership stands at 22 percent. Thirty-one percent of individuals at the household level hold post of responsibility or are actively involved in the decision making process of associations whereas on average, 91 percent of associations provide assistance or financial support to members.

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[11] Land is per capita arable land, while capital is a dummy for whether materials were bought for business purpose or new investment undertaken within the year by the family.

Table 2: Weighted means from the 2001 survey of households

| Variables | Definition | Mean | StD. Deviation |
|---|---|---|---|
| Income | Per capita household expenditure | 405852 | 51173 |
| Membership | Membership index | 0.226 | 0.291 |
| Decision | Decision-making index | 0.311 | 0.411 |
| Solidarity | Network support | 0.910 | 0.276 |
| agehhd | Age of household head | 42.92 | 15.06 |
| sexhhd | Female head | 0.243 | 0.429 |
| sizeh | Household size | 5.13 | 3.518 |
| region | Urban resident | 0.647 | 0.447 |
| land | Acreage range of arable land owned[a] | 3.24 | 12.143 |
| labour | Average hours worked per week by family | 128.42 | 83.80 |
| capital | Dummy for family investment | 0.368 | 0.482 |
| fathpry | Father attended primary school | 0.225 | 0.415 |
| fathppry | Father attended secondary school | 0.241 | 0.427 |
| fathpsc | Mother attended post Secondary school | 0.061 | 0.329 |
| mthpry | Mother attended primary school | 0.335 | 0.472 |
| mthppry | Mother attended post secondary school | 0.306 | 0.460 |
| mthpsc | Mother attended post secondary school | 0.026 | 0.161 |
| N | Observations | 2293 | |

a : Land is given in ranges of hectares owned and coded from 1 to 5. 1=0 -1, 2=1-2, 3= 2-5, 4= 5-10 and 5 =above 10 hectares.

Regarding demographic and other household characteristics, we found that on average a head of the household is 42 years old and slightly less than 25 percent are female heads of homes with an average size of five persons in number. Most of the households are urban dwellers, about 65 percent. On average, the possessions of production inputs are as follows: 3.2 hectares of arable land; 128 hours of work per week with just 37 percent owning and running non agricultural family businesses.

Turning to parental human capital, 22 percent of male parents and 33 percent of female parents attained primary level of education, whereas 24 percent and 30 percent have secondary education respectively, an indication that mothers are more educated

that fathers. However, more male parents had post secondary education, i.e. 6 percent relative to a mere 2 percent for female parents.


**Multivariate Results**

This section provides the results on the empirical relationship between combinations of household social capital dimensions including other household characteristics and endowments that predict household per capita expenditure. Table 3 provides OLS regression estimates of household expenditure with and without the community level fixed effects. We have considered three dimensions of social capital including, network membership, decision making index and network support or solidarity.

The results generally conform to the typical findings in the literature as seen in columns (1) to (4) of Table 3. Households with male heads, household in urban areas and more educated households all have higher per capita expenditures. Following the standard Mincer model where human capital theory and production function combined indicate the consideration of skills variables (education, age or experience) and standard inputs (land, labour and capital), we find land, capital and to a little extent labour as positively related to per capita income or expenditure. Finally, larger households have lower per capita expenditures.

Turning to the social capital variables, the first thing to note is that group membership is highly significant in every specification considered. However, when social capital is computed as the average of households' components social capital levels, which rules out any scale effects we found that the absolute number of group memberships in the household becomes deterrent to poverty though the coefficient was insignificant. This result is supported by the coefficient of the decision making index and the index as measured by network support which both realized a reduction in the level of significance as opposed to when the estimations are based on average level of social capital as observed in columns (2) and (3).

**Table 3: Impact of household level social capital on income poverty (log of per capita household expenditure)**

| Variable | OLS Estimates, with and without community fixed effects | | | |
|---|---|---|---|---|
| | No Scale effect/Average household level of social capital | | Scale effect/Absolute amount of social capital | |
| | **Model 1** | **Model 2** | **Model 3** | **Model 4** |
| Constant | 11.596(90.21) [a] | 11.63 (89.8) [a] | 11.94 (98.03) [a] | 11.98 (97.73) [a] |
| **Social capital dimensions** | | | | |
| Density of memberships | 0.717(7.93) [a] | 0.701(7.74) [a] | -0.015(-0.76) | -0.017(-0.85) |
| Decision-making index | 0.160(5.82) [a] | 0.160(5.83) [a] | 0.105(6.05) [a] | 0.107(6.17) [a] |
| Network support | 0.060(1.63) | 0.061(1.65) [c] | 0.046(2.42) [b] | 0.047(2.45) [b] |
| **Joint signif. of social capital variables (p-value)** | 0.000 | 0.000 | 0.000 | 0.000 |
| **Control variables** | | | | |
| Agehhd | 0.018(3.74) [a] | 0.016(3.39) [b] | 0.016(3.29) [a] | 0.014(2.91) [b] |
| Agehhd squared | -0.0001 (-3.85) [a] | -0.0001 (-3.46) [b] | -0.0001 (-3.34) [a] | -0.0001 (-2.94) [b] |
| Sexhhd | -0.105(-3.10) [a] | -0.107(-3.18) [b] | -0.101 -(2.29) [b] | -0.104 -(3.07) [a] |
| Sizeh | -0.041(-10.03) [a] | -0.042(-10.07) [a] | -0.062(-16.02) [a] | -0.061(-15.95) [a] |
| Region | 0.429(17.82) [a] | 0.432(17.82) [a] | 0.436(18.05) [a] | 0.439(18.07) [a] |
| land | 0.003(4.27) [a] | 0.003(4.32) [a] | 0.003(4.51) [a] | 0.003(4.57) [a] |
| labour | 0.0001(0.52) | 0.0001(0.42) | 0.001(1.64) [c] | 0.0003(1.51) |
| capital | 0.062(2.70) [b] | 0.067(2.89) [b] | 0.064(2.75) [b] | 0.069(2.96) [b] |
| Fathpry | -0.11 (-3.68) [a] | -0.112(-3.47) [a] | -0.101(3.13) [a] | -0.094(2.92) [b] |
| Fathppry | 0.088(2.51) [b] | 0.094(2.68) [b] | 0.093(2.63) [b] | 0.099(2.79) [b] |
| Fathpsc | 0.474(7.57) [a] | 0.456(7.27) [a] | 0.504(7.94) [a] | 0.485(7.62) [a] |
| Mothpry | -0.068(-2.62) [b] | -0.070(-2.70) [b] | -0.069(-2.63) [c] | -0.071(-2.72) [c] |
| Mothppry | 0.080(2.70) [b] | 0.077(2.59) [b] | 0.071(2.38) [c] | 0.067(2.25) [c] |
| Mothpsc | 0.612(6.76) [a] | 0.588(6.44) [a] | 0.599(6.47) [a] | 0.572(6.14) [a] |
| Community fixed effect | NO | YES | NO | YES |
| $R^2$ adjusted | 0.36 | 0.35 | 0.34 | 0.34 |

Note: Absolute t-values in parentheses. a significance at 1 % probability level; b- significant at 5% probability level and c equals significant at 10% probability level.

A Finally, an interesting finding is the fact that both specifications with community fixed effects improved the estimates of the impact of social capital on poverty as measured by per capita expenditure. For instance, the indicator for network support significantly reduces household poverty when we control for endogeneity and reverse causality bias, an indication that households with higher incomes tend to group together. Globally, the joint significance of all the measures (i.e. membership, decision making index and network support), strongly rejects the null hypothesis

(with p-value =0.000) that social capital has a lower probability of helping ameliorating the poor conditions of households. Thus, we find that there is a positive relationship between social capital and income, an indication that social capital has a strong positive effect in moving households out of income poverty. The reliability of our results is further supported by the estimation with community fixed effects.

What can be inferred from the above findings is that investing in social capital is desirable as the effects on the development process as well as alleviating poverty can be emphasized. The understanding of local-level social capital is important in designing poverty reduction programmes.

## 4. Conclusion and Policy Implication

In this paper, we investigated the impact of household level social capital on poverty. The number of memberships, solidarity (i.e. network support) and active participation in decision making were the key dimensions of social capital used. Data for the analysis is the 2001 Cameroon household survey.

It has been determined that like human capital, social capital can be, at least partly, consumption good. This is certainly possible in case of participation in non-mandatory social groups pursuing leisure activities. Since leisure is usually a luxury good, demand for it will rise with income resulting to a reverse causality from welfare level to social capital. The extent of two-way causality is empirically testable by means of instrumental variable estimation. The real challenge is to find a suitable instrument set for social capital. We mitigate this problem of endogeneity of social capital using community fixed effects specifications.

Based on what we determined as the most important and most robust results presented in this paper (i.e. OLS estimate with community fixed effects), there are significant evidence to suggest that policymakers interested in improving household wellbeing in terms of increasing household income and thus reducing poverty should be advised to consider promoting social capital as one relevant means to achieve these objectives.

Our empirical analysis indicated a strong and positive correlation between social capital and household welfare: households with high social capital have higher

expenditure per capita and thus are less likely to be poor. However, the strongest effect comes from group membership as opposed to decision making index and network support. The result is similar to that of Grootaert (1999) and many others. However, there are limited economies of scale in social capital (i.e. more than one member of the same household belonging to networks does not necessarily mean more benefits). It might mean that only those who actively participate in networks, however, capture the gains; just being a member of a high trust group is not enough. It is the interaction of the household level behavior and the group's trust level that leads to improved benefits for the household. For instance,  based on the absolute level of social capital as measured by active participation and network support, the gains in terms of per capita expenditure diminishes.

Our findings support policies by donors and governments to invest in social capital—either directly or by creating an environment friendly to the emergence of local associations.

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