Policy Brief

RH_No. 02/
May 2013

Production of Child Health, Economic Growth and Poverty Reduction in Cameroon

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1. Context and State of Reproductive health in Cameroon

Notwithstanding the impressive economic growth rates registered in the early 1980s, high incidences of poverty were still recorded in Cameroon, not to mention marked inequalities in the distribution of income and considerable regional disparities. The deep recession which struck the country between 1986 and 1994 led to a sharp increase in poverty, mainly urban poverty, and to serious public finance imbalances at the national level. This dismal economic outlook led to a deterioration of sectors such as education, health, public services, and infrastructures of all kinds. However, following the economic recovery subsequent to the 1994 devaluation of the CFA franc, the National Institute of Statistic conducted three household surveys, in 1996, 2001 and 2007, which showed a remarkable fall in monetary poverty in 2001. The proportion of Cameroonians below the poverty line (generally set at US $ 1/day) declined from about 53.3% in 1996 to 40.2% in 2001 and 39.9 in 2007. Thus, the significant reduction in poverty recorded during the period 1996-2001 gave way to virtual stability in monetary poverty between 2001 and 2007. The analysis of trends in poverty shows a contrasting situation with a slight improvement in the situation of the urban population (National Institute of Statistics, 2008).

Cameroon is one of the African countries to which were granted substantial debt relief in the context of the heavily indebted poor countries (HIPC) initiative and the Multilateral Debt Relief Initiative (MDRI), and these funds were allocated to priority social sectors. As in most other African countries, foreign donors significantly contribute to health service financing. Households also contribute substantially to health care funding in Cameroon. Indeed, the health sector financing requirements were estimated at 320 billion CFA francs, or 5% of GDP for fiscal year 2002, while the health sector budget amounted to only 1.1% of GDP. As a consequence, households incur the largest share of health costs through direct payments (i.e. 76% of total financing) versus 18.5% for the State, and 5.5% from external sources (Government of Cameroon, 2003).

The millennium development goals (MDGs) health targets over the 1990-2015 horizon were adopted to improve the health of Cameroonians mainly by reducing malnutrition and infant mortality, and by enhancing maternal health, controlling Provide in full

(HIV/AIDS) and other pandemics (malaria, tuberculosis etc.), in combination with the other important objectives. In the 1990s, a series of laws and regulations were enacted with a view to reducing the role of the State in the provision of health care, and to facilitate the development of the private health sector. In 1992, in particular, the Ministry of Public Health published a national declaration aimed at implementing the new health strategy. When Cameroon was admitted into the decision point of the HIPC initiative in 2000, the authorities adopted a comprehensive and ambitious health strategy based on extended consultations with the main stakeholders. Its main objectives as captured in the 2003 Provide in full PRSP were to: (1) decentralize health services, encourage partnerships, and improve the transparency and efficiency of public resource management; (2) clarify the roles and responsibilities of all stakeholders in the provision and financing of health services; and (3) prepare sub-sector strategies for addressing priority public health issues such as HIV/AIDS, malaria, infant health, reproductive and maternal health – and for improving basic health services.

The rate of chronic malnutrition for infants aged below 36 months increased from 23 to 29% over the period 1991-1998. The predominance of malnutrition implies a higher risk of morbidity and mortality, and delays physical and cognitive development. During this period, the infant mortality rate witnessed a net increase of about 12 percentage points. The increase in infant mortality rate is explained by the poor quality of healthcare provision in terms of human resources and infrastructures, in addition to the out of pocket costs of healthcare. In addition, maternal mortality linked to pregnancy or complications during delivery is common. Deliveries assisted by qualified personnel declined by five percentage points over the period 1991-1998. However, expanded vaccination coverage [the rate of vaccination against (DPT3)] was about 76% by 2006 compared to 63% in 2002 and 43% in 2001. A national strategic plan against malaria was implemented and mosquito nets sprayed with anti-malaria chemicals were and are distributed to vulnerable groups. An HIV/AIDS strategic plan for the period 2000-05 was implemented, and the government subsidizes generic medicine and anti-retroviral drugs (Completion point document, 2006). The 2004 Demographic and Health Survey (DHS) indicates that with the exception of the progress made in the area of vaccination, most of the indicators related to the health of young children have deteriorated or at best stagnant. The mortality rate for children under five declined from 151 to 144 out of 1,000 births between 1998 and 2004. The maternal mortality rate was estimated at 669 deaths out of 100,000 births in 2004 against 430 in 1998. According to the 2004 DHS, the prevalence of AIDS nationally is 5.5% (women: 6.8%; men: 4.1%) among individuals aged 15-49.

2. The Research Issues Investigated

The study endorses that the use of reproductive healthcare enhancing inputs is conditioned by both market and non-market environments. The market environment includes availability of reproductive health inputs and their prices, and household permanent income. The non-market environment comprises the individual, household, community and regional specific characteristics. The information that household members possess about the availability and quality of reproductive healthcare services is also an important factor, which may be influenced by the education or literacy status of household members. The importance given to parental education as a determinant of

child health status emanates from the observation that education has the potential of considerably alleviating poverty and vulnerability by producing direct advantages such as reduction in fertility rates, increased productivity, improved maternal health, as well as generating indirect effects such as reduced infant mortality, enhanced child nutritional status, its health and subsequent schooling.

Moreover, the importance of parental education in the production of child nutritional status is well established in health economics literature. As noted in Handa (1999), what is still at issue is how the effect of parental education is transmitted. Several studies have tried to identify the role of education in the production of child anthropometrics by examining the interaction of education with household and community variables, by including variables that capture information processing and acquisition, and by considering family background and genetic endowments (Thomas et al., 1991). In this study, education is captured by literacy status, which is simply the ability to read and write. Yet literacy is latent on the quality or level of educational attainment - elements that could be important in shaping the actual reproductive healthcare technologies adopted by household heads.

Demand analysis of reproductive health inputs can be instrumental in informing policies crafted to define ways and means of enhancing access to reproductive healthcare and child health. In much of the healthcare demand literature, attempts at establishing linkages between health consumption and health production are just beginning to take-shape (Gertler and Van de Gaag, 1990; Dow et al., 1999; Ajakaiye and Mwabu, 2007; Mwabu, 2009). Such works are yet to be conducted using Cameroon household data. In an effort to contribute to this literature, this study attempts to link-up demand for reproductive health care inputs with health production in Cameroon using an anthropometric indicator as a measure of reproductive health. In this analysis, since mother is generally the main person who is more likely to monitor the reproductive health inputs and outputs in a household, it would have been appropriate to glimpse at child health and nutrition through the demand behaviour for reproductive health services by the mother. In the absence of separate information on mothers and fathers in our data set, we view child health via demand behaviour of the household head. Another value added of this study is the attempt to link-up child health with economic growth in order to assess how additional healthy time can be used within and outside the home, which is likely to have a trickle-down effect on the poverty status, using both econometric and qualitative methods. This way, the link between reproductive health, economic and social activities, and well-being within the home is established in this study

The main objective of our endeavour is, therefore, to establish links between education of household head (captured by literacy status), child health (captured by weight - given age) and economic growth (captured by total expenditures per adult). The specific objectives are to:
(1) estimate the determinants of demand for literacy - an endogenous covariate in the health production technology; (2) evaluate the complementary effects of literacy on child health and disaggregating these effects by zone of residence, poverty status and gender; (3) evaluate the complementary effects of child health on economic growth and

poverty reduction both quantitatively and qualitatively; and (4) design policy recommendations on the basis of the findings.

3. Methods of Investigation (Quantitative and Qualitative)

We postulate a child health/nutrition production function in which in addition to a vector of exogenous correlates such as individual, household, community and regional characteristics, literacy status of household heads enters the production function as a separate explanatory variable, which is endogenous. Potential econometric problems are addressed by appealing to a range of econometric methods, which in a stepwise manner and simultaneously purge estimated parameters of potential sample selection bias, endogeneity, and unobserved heterogeneity. In this endeavour, we apply OLS, Heckman selection, 2SLS and control function approach estimation strategies.

To link reproductive health, economic activities, and well-being within the home, we use both quantitative and qualitative methods. Family health, especially child health is an important component of economic growth and poverty reduction because it shapes both present and future human capital and livelihood opportunities. Thus, good health at childhood does not only affect the growth potential, risk of morbidity and mortality in later years of life; but also releases potential household savings on medical expenditures and extra-time to adult household members to take more advantage of labour market opportunities, as well as the child's capacity to learn, and future standards of living. In this regard, children's health can be considered as an important input in the well-being production function of the household – registering mainly indirect effects on household income via the extra-time released because children are healthy. Child health is, therefore, hypothesized as having complementary effects on household well-being. The causal link between household well-being and child health is depicted by a set of equations that address potential endogeneity of child health in log of total expenditure per adult and unobserved heterogeneity of child health with other inputs not included in the well-being structural equation. In this case, the estimation methods used are OLS, 2SLS and the control function approach.

This study uses data extracted from the second Cameroon Household Consumption Survey (CHCS II) collected by the National Institute of Statistics in the period September – December 2001. This survey includes 10992 households and 4516 children up to 36 months old, and was designed to construct poverty profiles at the national and regional levels. In this regard, Douala (economic capital) and Yaoundé (political capital) were considered as separate strata and each of the ten regions was divided into two strata – one rural and the other urban. The survey was, therefore, realized with 22 strata – 10 rural, 10 semi-urban and 2 urban.

The survey was based on the second General Population and Housing Census (GPHS) of April 1987 updated for its age. Two types of sampling designs were undertaken depending on the zone of residence. In the main cities of Yaoundé and Douala, a two-stage sampling frame was adopted. For semi-urban and rural areas, a three-stage random sampling frame was adopted following the sequence city-primary sampling unit-household. Such a sampling strategy allows for studies to be conducted at the national

level, as well as regional, rural and urban levels. At the level of individuals, the information compiled includes notably: demographic characteristics; health status; and education of household members, as well as anthropometric characteristics of children aged 0-36 months. At the household level, among other things, the survey gathered information on access to basic infrastructure, access to services, perception of conditions of livelihood, access to land and landed property, and health, food and total expenditures. Qualitative analysis is based on the focus group discussion (FGD) technique, which allows a small group of persons to express themselves freely on particular topics.

For reasons of cost-effectiveness, two FGDs were conducted in each of the following three regions of the country: i) the Centre region (Yaoundé – the political capital of the country), which captured the urban dimension of the analysis; ii) the West region (Bangou village); and iii) the Northwest region (NKar village), which gives the rural dimension. Conducting only six focus groups permitted us to treat the relevant topics in greater detail.

Participants in the various FGDs ranged between 6-8 members. The total number of participants was 37 persons of whom 18 were women. There were single sexes as well as mixed sex groups. The socio-demographic characteristics of FGD participants are presented in Appendix 3.

Each FGD was administered by four persons: a moderator in charge of leading the discussion and a co-leader to ensure that all participants contribute in the discussion or eventually to stimulate those who express themselves very little to contribute. In addition to the group leaders (who were also taking some notes), two secretaries were in charge of note-taking. The discussions proceeded in such a way that it was possible not only to gather the views of each participant on the different topics, but also to register detailed views for subsequent transcription. The main concern of the FGD was to elicit qualitative linkages between better health for children and parents, and growth and poverty reduction to supplement the quantitative findings. Better health is expected to provide households with additional time for poverty reduction now and in the future through enhanced labour market participation, schooling opportunities, income and asset growth and their redistribution.

4. Main Findings

In the full sample, the evidence was that ownership of unexploited land is significant in positively explaining the demand for literacy by household heads. Time taken to reach the health centre and log of distances in meters to access public goods (government primary schools, integrated health centres, tarred roads, and waste disposal points) were individually significant in negatively explaining demand for literacy. These results are consistent with the theory of demand. Similar results were obtained in rural, poor, non-poor and male sub-samples. Thus, the opportunity cost of time and distance to access public goods is, on the average, unambiguously negatively associated with demand for literacy programmes.

Concerning the production of child health and nutritional status, although the control function modelling was shown to be having an advantage over other modelling approaches because it is capable of purging the structural parameters of most potential econometric problems, the 2SLS estimates performed better in capturing effects of literacy on child health. Literacy status of household heads and nutrition status of children were positively and significantly associated. Literacy of household heads, therefore, has prominent effect on nutritional status of children. This is probably attributable to the prospects that literate parents may adopt many improved behaviours related to maternal/child healthcare and feeding and eating practices, which ultimately affect the nutritional status of children. Since there are no biomedical channels through which literacy affects child weight, these were considered as spill-over effects of literacy, which validate the complementary hypothesis. The IV estimates or control function estimates that put aside interactions of literacy with its residual were the appropriate estimation strategies for the full sample.

The non-poor and male sub-samples registered complementary effects of literacy that are in excess of the national average. In particular, the male household head sub-sample captured effects of literacy on child nutrition that were spectacular compared to the pooled sample. This indicates that the education of the male head is more influential in seeking useful health tips than that of their female counterparts. At first sight, this finding appears to run counter to intuition held in the literature. This result is, however, probable since female headed households tend to grapple with a wide range of issues single-handedly as they are generally single-parents. Meanwhile, male heads are generally assisted by their spouses when grappling with family issues and seeking for quality information on nutrition and health that may enhance child health and nutritional status. The literacy effect on child nutrition depicted in the male sub-sample could, therefore, be conjectured as including the unobserved contribution of their spouses since this effect is likely to be the synergy achieved by working as a couple when seeking healthcare technologies. The significance of the interaction of literacy with its residual lends some support to this reasoning. These results indicate the importance of using sub-samples alongside the full sample in empirically establishing the linkage between demand for literacy and the production of child nutritional outcomes to gain more insights in terms of magnitudes and verification of potential econometric problems.

Empirical results show that child health was positively associated with household economic well-being, surrogated by log of household total expenditures per adult. The magnitude of the influence of better child health on production of female headed households is larger than that of their male counterparts. This indicates that when children are healthy, female heads are likely to exploit the resulting extra-time, budgetary savings and peace of mind at work to increase household economic well-being more effectively than their male counterparts. This result has implications for policy interventions that can enable women to take additional advantage of labour market/training opportunities, if any. These results suggest that investment in child health might improve household economic well-being, reduce monetary poverty and enhance household capabilities, voice and participation in social, economic and political activities. This process will be more effective if access to financial services (micro-credit, micro-insurance) is improved. Investing in health, especially child health can therefore

eliminate poverty-traps and engender intergenerational transmission of socio-economic status, which this paper glimpses through the impact of children's health on household economic well-being.

After presenting what the data say above, we now present what people say as distilled from the six FGDs. We briefly summarise opinions on only 4 topics on what the people say.

On health inputs

Parental education (particularly mothers) determines the health status of the child: type of medical centre, type of nutrition, type of medication; or decision to participate in vaccination campaigns. Participants acknowledged and appreciated Vaccination campaign programs. However, the costs of vaccines during off-campaign periods were considered prohibitive, especially for (hepatitis, meningitis, cholera). *Access to water was m*ore appropriate in rural than urban centres. Public stand pipes under village water projects were financed by the communities, elite and donor organizations, whereas, the urban poor use wells for generally and only purchase drinkable water from the better-offs. Low income dwellers in urban areas use communal pit toilets; meanwhile most households in rural areas own a pit toilet. Generally infants are promptly taken to health centres/hospitals each time they are ill, but children aged five and above are taken to medical facilities only when the illness becomes serious. Sanitation conditions in public health facilities were revealed to be generally inadequate.

On benefits derived from better health status

The different FGDs noted a wide range of uses of money not spent because of better child health. The different FGD noted that money not spent on child health may be used to improve the nutrition of the child by buying more quality food, vegetables, and fruits; augment existing family budget; saved in a credit union or tontine and perhaps invested in financing future education of the child and/or to meet unforeseen expenses (deaths, accidents, job loss by parents); or invested in some additional income-generating activities such as hairdressing saloons, motorcycle-transport, etc. Discussants observed that the additional time liberated because of good health status of the child may: (1) allow for more "quality time" with the children, thus providing them with moral and spiritual upbringing, as well as civic instruction; (2) be used to boost farm activities, engage in informal small-scale trade, raise the general well-being of members of the family, etc.; and (3) allow some women to take extra care of their husbands and other extended family members.

On better health and complementary activities

The different FGDs noted that child health has a psychological effect on their parents, on the children themselves; and on family harmony. Moreover, as revealed by discussants, when the child is in good health, the on-the-job productivity of (active) parents increases because they enjoy a peace of mind, and they may effectively concentrate on the job in hand and even work over-time. In addition, better child and mother health reduces the likelihood that the parents will borrow money, and consequently keep them from getting into debt, thus improving the household's prestige and financial situation.

5. Policy Implications

The paper linked-up parental literacy to child health and child health to household economic growth and potential for poverty reduction, while controlling for other covariates using the Cameroon household consumption survey. FGDs were then used to elicit qualitative linkages between better health for children and parents, and growth and poverty reduction to supplement the quantitative findings. Better health for child and mother is expected to provide households with additional time for poverty reduction now and in the future through enhanced labour market participation, schooling opportunities, income and asset growth and their redistribution.

Literacy status of household heads and nutrition status of children were positively and significantly associated. Literacy of household heads, therefore, has prominent effect on nutritional status of children. This is probably attributable to the prospects that literate parents may adopt improved behaviours related to maternal/child healthcare and feeding and eating practices, which ultimately affect the nutritional status of children. Since there are no biomedical channels through which literacy affects child weight, these are considered spill-over effects of literacy, which validate the complementary hypothesis.

The indication is that the education of the male head is more instrumental in seeking useful health tips than that of their female counterparts. At first sight, this outcome appears to run counter to intuition held in the literature. This result is, however, probable since female headed households tend to grapple with a wide range of issues single-handedly as they are generally single-parents. Meanwhile, male heads are generally assisted by their spouses when grappling with family issues and seeking for quality information on nutrition and health that may enhance child health and nutritional status. The literacy effect on child nutrition depicted in the male sub-sample could, therefore, be conjectured as including the unobserved contribution of their spouses since this effect is likely to be the synergy achieved by working as a couple when seeking healthcare technologies.

The magnitude of the influence of better child health on production in female headed households was larger than that of their male counterparts. This was taken as indicating that when children are enjoying better health, female heads are likely to exploit the resulting extra-time, budgetary savings and peace of mind at work to increase household well-being more effectively than their male counterparts. These results have implications for public interventions in the promotion of crèche/pre-nursery school centres as an important incentive for women to use extra-time at their disposal to participate additionally in labour market or training opportunities as a means of enhancing income growth and alleviating household poverty.

The down-side of female labour market participation is the propensity to unstable relationships and broken homes, if having to work entails migration. This highlights the need for relative equity considerations in the regional allocation of labour intensive projects that can absorb the extra-time released because of better child health. Thus a critical consideration is whether people can find work or self-employ themselves to

absorb the extra-time released because of improvements in child health. It is also important that the goods produced use techniques that are intensive in skills possessed by the poor. By the same token, markets for labour intensive products are needed for poverty to decline. These findings indicate that there is nothing automatic in translating reproductive health into economic growth and poverty reduction because it depends on a number of if conditions.

The different FGDs noted a wide range of uses of money not spent because of better child health. Discussants observed that the additional time liberated because of good health status of the child may: (1) allow for more "quality time" with the children, thus providing them with moral and spiritual upbringing, as well as civic instruction; (2) be used to boost farm activities, engage in informal small-scale trade, raise the general well-being of members of the family, etc.; and (3) allow some women to take extra care of their husbands and other extended family members. The different FGDs noted that child health has a psychological effect on their parents, on the children themselves; and on family harmony. Moreover, as revealed by discussants, when the child is in good health, the on-the-job productivity of (active) parents increases because they enjoy a peace of mind, and they may effectively concentrate on the job in hand and even work over-time. In addition, better child and mother health reduces the likelihood that the parents will borrow money, and consequently keep them from getting into debt, thus improving the household's prestige and financial situation.

On potential public interventions, FGD discussants thought that government could, among other things: (1) Improve its health policies in general and those related to mother and child, in particular, by building new infrastructures and improving existing ones. Such infrastructures include health centres, public schools, public water supply, roads, markets, electric power supply networks, and improved sanitary system; (2) develop programmes which will subsidize health treatment costs – health insurance, reduce the costs of medical tests, and make consultations free-of-charge for women and children; (3) Increase the frequency of vaccination campaigns; (4) Provide free primary education/literacy programmes for women and, create jobs for the youth, reduce the costs of building materials in order to keep house rents low; (5) control the prices of basic foodstuffs with a view to enhancing the nutritional status of households; and (6) join the International Organizations and NGOs to combat climate change and pollution, which have a negative impact on water sources and food systems.

The implication of these results is that adult literacy programmes would raise the health and nutritional status of children in the short-term, while having longer-term implications. In particular, nutritionists and economists expect that healthy and well nourished children would enhance future schooling outcomes and productivity of these children when they become adults and thereby fostering more rapid economic growth. Thus, adult literacy programmes are helpful in the accumulation of child health human capital that creates brighter future economic opportunities and prospects. Linking child health and economic growth, empirical results showed prominent complementarities attributable to savings on medical expenditures, extra-time, and future human capital of the child.

Moreover, it has been shown that healthy and well-fed children have higher attendance rates and are able to concentrate better while they are in school (Filmer and Pritchett, 1999). Thus, reproductive health services would increase the quality of human resources, both now and in the future. This implies that better child health and nutrition, while engendering savings on medical expenditures and extra labour time, it also promotes future productivity by helping children develop into stronger and healthier adults capable of finding gainful employment in the productive sectors of the economy and contributing to economic growth and poverty alleviation. This is indication that public expenditures on literacy programmes can have both short- and long-term implications for reproductive health and child nutritional status, as well as economic growth and development. In this context, addressing reproductive health concerns through the linkages established in the study is akin to upgrading reproductive health to a development strategy than simply considering it as family planning.