CONTEMPORANEOUS HEALTH CONSEQUENCES OF CHILD LABOUR IN CAMEROON

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ABSTRACT

This study attempted to investigate the contemporaneous effect of child labour on child health, using individual records of the 2007 Cameroon household consumption survey. Specifically, the study aimed at; investigating whether child labour effectively displaces excellent or good health, scrutinizing the extent of the contemporaneous effect of child labour on child health and investigating the sector where children can work in order to enhance family income without jeopardizing their health if they must work. In order to resolve in a step wise manner, potential estimation related problems, use was made of the bivariate probit model, the ordered probit model and the two-stage residual inclusion technique. Among the several econometric results, the correlation coefficient suggested the absence of any trade-off relationship between child labour and health status. In addition, though working children were more likely to report better self-assessed health status as a whole, those working in the agricultural sector were more likely to report poorer health status. This results policy wise, suggests that if children must work, then they should be oriented toward non-agricultural related activities.

Key Words: *child labour, child's health, contemporaneous effect*

INTRODUCTION

The immense contribution of good health in human capital theories has been strongly emphasized in the literature (Grossman, 1972; Barro and Lee, 1993 and Grossman and Kaestner, 1997) as it contributes to economic outcome at both the individual and national level (Bloom et al., 2001 and Howitt, 2005). While these studies focused on health in general, childhood health has been viewed as most vital (McCain and Mustard, 1999) because adulthood health depends largely on childhood health since damage from childhood disease may be hard to undo (Hoyt, 2010). Childhood is hence a key period for building health stock as the benefits of good childhood health are numerous. It increases creativity in children (McCain and Mustard, 1999), enhance learning capacity for the young (Howitt, 2005), develops better coping skills in early life (McCain and Mustard, 1999), reduces inequality (Deaton, 2003), and increases children life expectancy and productive efficiency (Howitt, 2005).

In this light, anything whatsoever that might impede childhood health must arouse concerns both at the national and international levels, especially if children are to be considered as tomorrow's growth locomotives. Theories and empirical evidence have identified childhood labour as one of the key threats that seriously damage child's health (Nashir et al., 2009; Miwa et al., 2008). This is because dangerous materials like asbestos or molten glasses that children often work with in dangerous environment like mines and swampy farms were not originally designed for them but for adult (Bequele and Myres, 1995). Health risks faced by child labourers may be greater than those confronted by adults because children; (i) are more vulnerable (Fassa et al., 2000), (ii) are concentrated in dangerous sectors like agriculture with the poorest safety record (O'Donnelle et al., 2002) (iii) work in informal sector which

are very difficult to regulate and hence cannot access protection promised by health regulations (ILO, 1998) (iv) receive insignificant amount (Ndjanyou and Djiénouassi, 2010) unable to compensate health lost.

Child labour affects growing bones and may lead to stunted growth and spinal injury (ILO, 2002), it exposes children to toxic pesticide and herbicide (Gill, 1994) and can lead to childhood-work related death as in USA (BLS,[1] 2000). According to convention 138 and 182, of the ILO[2], the category of childhood labour to be eliminated involves hazardous work that "jeopardise the health, safety, or morals of young persons." In 2004, out of the 191 million working children, 74.4 million were considered to be involved in work that could jeopardise their physical and/ or mental health (ILO, 2004).

Childhood labour does not only result to health problems as one might wrongly think. The income in cash or in kind generated for family survival by working children is consistent according to Basu and Van (1998) and the helping hand received by parents from these activities cannot be neglected. This makes it very difficult to advocate for its eradication right away especially in poor society where some families cannot do without child labour. This positive effect of child labour on contemporaneous child health might not be consistent when long-term analysis is considered as longer gestation period may be needed for the negative effect to be manifested.

Despite the alarming life time health related child labour problems and the constitutional free primary education system, households still opt for child labour in Cameroon. In this society, childhood labour is welcome and regarded as a process of social integration that teaches the child survival skills (Bekombo, 1981). With a children-dominated population and 250 different ethnic groups, child labour is engrained in certain cultural practices in Cameroon. This is evident in Cameroon's child labour statistic. While ILO estimated a 23.7% of child labour rate in 2000, in 2010 the rate was 31% according to the 2010 UNICEF statistics. In the same light, the NIS (2008) estimated the rate at 41% with 51.3% and 61.9% in rural areas and in the Adamawa region, respectively. Adamawa with the highest rates of child labour equally registered the poorest rates in terms of health (NIS 2008). This suggests a likely trade-off relation between child labour and child health in Cameroon.

In the light of the above background, the key question that arises is: What is the implication of child labour and working sector on childhood health in Cameroon? In line with this question, the broad objective of this study is to investigate the effects of child labour and working sector on their health.
Specifically, the study seeks:

- to investigate whether child labour effectively displaces excellent or good health.
- to scrutinize the extent of the contemporaneous effect of child labour on child health.
- to determine the degree of the effect of hours worked on child's health

[1] Bureau of Labour Statistics
[2] Section 1 of article 3 defines 18 as the minimum age of employment for activities considered hazardous.

- to determine the sector where children can work in order to enhance family income without jeopardizing their health if they must work.

In order to achieve these specific objectives, all other things being equal, we test the following hypotheses:

- Child labour significantly displaces excellent or good health.
- Child labour has a negative and significantly effect on child's health.
- As the number of hours worked increases, the likelihood of reporting poorer health state increases
- A child working in the agricultural sector has a poorer health state than one working in non-agricultural sector in the short run.

The present study is motivated by the non-existence, to the best of our knowledge of any empirical evidence linking childhood labour to their health in Cameroon. Secondly, determining the sectors where children can work (if they must work) is policy wise relevant as children can be oriented to less health-harmful sector in order to enhance family income while at the same time minimising the negative health effect that could originate from harmful sectors. This is vital because a total ban on childhood labour as requested by the European Union countries under the World Trade Organization (WTO) framework will imply putting poor household members at starvation risk especially in the poverty context of Cameroon.

The rest of the study is structured as follows: The next Section is aimed at reviewing the literature and Section 3 presents the theoretical framework and methodology while Section 4 describes the data. Empirical results are presented in Section 5 and Section 6 concludes the paper.

LITERATURE REVIEW

The relation between childhood labour and child health can be explored from a trade-off and causal contemporaneous view point.

Child Labour and Child Health Trade-Off Relationship

The trade-off relation between child labour and child health has been carried through cross country analysis. Results from cross country analysis are even more mitigated, as indicated by O' Donnell et al. (2002). While it is positive in some set of countries, it is nevertheless negative in some countries. For instance, as reported by O' Donnell et al. (2002), the empirical investigation involving eighteen countries revealed no evidence of a robust correlation between child labour and reported health complications for many countries. However, five countries indicated a trade-off relation between children labour and their health status while three other countries revealed that none working school children had the poorest health. This study seems to suggest that no pattern exists across countries as far as the correlation between child labour and reported health state is concerned.

The correlation between child labour and health was studied by O' Donnell et al., (2003), who, using Vietnam data and by means of a bivariate probit specification, realised that there was very little evidence as concern contemporaneous relations between today's work and today's health. Evidence from Brazil by Kassouf et al. (2001) has revealed a negative correlation between hazardous child work and health in adulthood. However, controlling for education weakened the correlation coefficient. This result was confirmed by the Brazilian study conducted by Guiffrida et al (2001).

Nevertheless, we should be hesitant about drawing causal inference because of the difficulty linked to the bivariate model to yield causal coefficient between child labour and health due to it specification properties. Because of this, some studies have employed alternative specifications to investigate the contemporaneous causal impact of child labour on health and injuries.

Contemporaneous Child Labour-Health Causal Relation

The contemporaneous effects of childhood labour on child's health can either be positive, negative or neither. Child work often leads to chronic illnesses and/or fatal injuries (ILO, 2002; Roy, 2009). A clinical evaluation, performed in Indonesia by Bose-O'Reilly et al. (2008) revealed that the symptoms of intoxication for non-working children were 0% and 8% for working children. This was confirmed in USA, where children working on farms on full time bases where medically proven to be pesticide poisoned Kishk et al. (2004). In the same vein, in Bangladesh, Mamun et al. (2008) aimed at examining issues that affect health complication in child labour. They discovered that, health complications were increased as hours worked increased, as children worked in hazardous sectors and as they enter into the labour market at very early age.

However, because health is a multidimensional concept, the use of one indicator had been criticised. In addition, the effect of child labour will depend on a child's working sector. In this light, Nashir et al. (2009) found that 72.5% of working children had breathing problems, slightly more than 71% had eye sight complications, 45.5% revealed to be suffering from skin diseases. Graitcer and Lerer (2000) found that morbidity risk linked to child work in different occupation was very high with the manufacturing and the agricultural sector posing concern.

With a control group of non-working children and with the use of nine self-reported health complains in Lebanon Nuwayhid et al. (2005), found that three health indicators proved significantly that working children had poorer health. Carusi-Machado et al. (2005), confirmed this result with data from Brazil. Introducing gender issues Wolff and Maliki (2008) found that the effect of work was greater on boys than girls. This suggests that boys often carry out hazardous activities than girls. Using the growth of children as a proxy of health Satyanarayanan et al. (1986) showed that working young boys, grow shorter and lighter than school going children. This RESULT was not confirmed by Fentiman et al. (2001) in Ghana as there existed no growth differences among working and none working

children. In addition, Francavilla and Lyon (2003), found no causal relation between childhood labour and body mass index.

Such a result could be due to two reasons. First, lumping together child labour activity without separating it with respect to hours worked or sectors of occupation may obviously reveal little or no effect on health. If there are no significant effects of child labour on health, separating child work into various categories might reveal different results. Our study therefore, endeavoured to incorporate the sectors where children worked and the hours worked. Second, while the BMI has the advantage of being objective, it is however, closely correlated with health as age increases and might be insensitive to some work related health problems, such as injury (Owen et al., 2004). The idea that our data is unable to provide us with BMI might hence not be judged as a limitation.

Health gains instigated by child work are not inconceivable (Rosati and Straub, 2006). Wages earned from child work can improve the living standard of poor households (Basu and Van 1998). The resultant improved food intake coupled with better living style can improve the health of the child (Roy, 2009) as nutrient intake contribute more in building young bones than matured once. This is affirmed by the result of Steckel (1995), Appleton and Song (1999), and Smith (1999) who revealed the existence of a positive impact of child work on household living standards thus on their health. Ralston (1997) employing intra-house allocation mechanisms confirmed this as allocation of calorie was strongly related to child labour contributions. These studies are nevertheless, limited because today's work may only affect health in future as many of the consequences of child labour might only develop and manifest at adulthood O'Donnel et al.(2003) such that immediate health damage of childhood labour becomes a small portion of the real consequences of childhood work.

THEORETICAL FRAMEWORK AND METHODOLOGY OF THE TRADE-OFF RELATION

Before investigating the causal link between child labour and health in the short-and long-term, we deemed it necessary to first explore the existence or non-existence of a trade-off relation between these two concepts. This, however, seems difficult to be attained since the 2007 CHCS has four indicators of self-assessed health. To tackle this difficulty, we created an artificial variable of self-assessed health by collapsing the underlying four categories scale into a two categories scale. In this light, individuals who reported excellent or good health are given the value 1 and 0 for those who reported fair or poor health. In such a context it becomes possible to estimate the probability of someone reporting good or excellent self-assessed health together with the probability that he is a child labourer. The coefficient of correlation will help to indicate the level of trade-off between the two outcomes, giving way for causal investigations. As O'Donnel et al. (2003) and Yunita (2006), we achieved this by using a bivariate probit model considering that it relaxes the Independence from Irrelevant Alternatives[3] (IIA) property of Luce (1959). This is a significant improvement over the logit models Hausman and Wise (1978) as it recognises the possibility of unobserved individual

[3] The IIA property states that, for a given individual, the ratio of the choice probabilities of any two alternatives is unaffected by other alternatives.

characteristics that influence both child labour and child health. The bivariate model in this situation is specified as a continuous latent variable regression model of child labour W_i^* and child health H_i^* of the form:

$$W_i^* = X_{1i}\lambda_1 + \varepsilon_{1i}, \; and \; H_i^* = X_{2i}\lambda_2 + \varepsilon_{2i} \; \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

W_i^* and H_i^* are not observed, and represent the net gain obtained by the household when child i is working and when he/she is in good or excellent health respectively. X_{1i} and X_{2i} denote a vector of child, family and community characteristics that determine W_i^* and H_i^* respectively. Where, λ_1 and λ_2 are the corresponding vectors of coefficients of the observed variables, and ε_{1i} and ε_{2i} represent the unobserved portions, which is assumed to be normal distributed. While we do not observe W_i^* and H_i^* we do observe the discrete choice made by the family, given that they maximize utility according to the following binary choice rule:

$$W_i = \begin{cases} 1 & if \; the \; child \; is \; working \; (W_i^* \succ 0) \\ 0 & if \quad W_i^* \le 0 \end{cases} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2a)$$

$$H_i = \begin{cases} 1 & if \; child \; i \; reported \; good \; or \; excellent \; health \; state \; (H_i^* \succ 0) \\ 0 & if \quad H_i^* \le 0 \end{cases} \quad \ldots\ldots\ldots\ldots(2b)$$

The combination of Equation $2a$ and $2b$ gives:

$$\text{Y}_i^* = \text{N}_i\beta + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2c)$$

Where $\text{Y}_i^* = \begin{pmatrix} W_i^* \\ S_i^* \end{pmatrix}, \text{N}_i = \begin{pmatrix} X_{1i} & 0 \\ 0 & X_{2i} \end{pmatrix}, \varepsilon_i = \begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \end{pmatrix} \; and \; \beta = \begin{pmatrix} \beta_1 \\ \beta_2 \end{pmatrix}$

ε_i is assumed to follow a bivariate standard normal distribution, such that:

$\begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \end{pmatrix} \sim \text{N}\left(0, \begin{bmatrix} 1 & \rho_{WS} \\ \rho_{SW} & 1 \end{bmatrix}\right)$ where $\rho_{WS} = \rho_{SW}$ is the correlation between the child labour and child health equation that will indicate the existence or non-existence of the trade-off relation. The joint probability of someone working together with the probability of reporting good or excellent health state $P_{W_iH_i}$ is given by:

$$P_{W_iH_i} = P\,(W_i = w_i; H_i) = \theta\,[f(X_{1i}), f(X_{2i}), \rho_{WS}] \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2d)$$

Where $\theta(.)$ is the joint normal cumulative distribution. Equation $2d$ is estimated using the Maximum Likelihood technique, in order to compute estimates of the vector of coefficients (βs).

Despite the merit of this model, in indicating the trade-off between work and health and the determinant of both working and health statuses, it however presents some shortcomings. First, the bivariate probit model is inaccurate when the decision is sequential. Secondly, and

most importantly, the result cannot be interpreted as causal. This calls for an alternative modelling strategy that can capture the causal effect of child labour on health.

CONTEMPORANEOUS THEORETICAL AND EMPIRICAL FRAMEWORK

The contemporaneous theoretical framework is constructed based on the health production function. Though not originally constructed for children health, its application to children's health status is gaining popularity (Behrman and Deolalikar, 1988; Arif, 2004). As in Grossman (1972), the health production function depends on several factors as child, community and household characteristics, market-purchase input as health services and food intake. This yields the reduced form health function of the form:

$$H_i = f(x_i, x_h, x_c, \varepsilon_i) \quad \ldots\ldots(3)$$

With H_i, x_i, x_h, x_c, and ε_i, representing the health outcome of child i, a vector of child characteristic (like working status, age and gender), a vector of household level characteristics, a vector of community level characteristics and the composite residual term of the unobserved child, household and community-level heterogeneity. Though, such a reduced form specification together with a structural equation is important in revealing the causal effect of child labour on child health, it is nevertheless limited because it does not bring to light all the health consequences of child labour as some health outcomes often require longer gestation period than others (Forasterie, 1997).

CONTEMPORANEOUS MEASUREMENT ISSUES AND EMPIRICAL MODEL

To capture and measure child labour, we went beyond the simple dummy specification by also considering the number of hours worked as child labour might become hazardous only when surpassing some particular thresholds. The nature of the contemporaneous relationship between child work and health is often examined through the use of Body Mass Index (BMI) as a proxy for health status. While anthropometric indicators have the advantage of being objective, they tend to be more closely correlated with health as age advances and also might be rather insensitive to some work related health problems, such as injury (Owen et al; 2004). To capture the morbidity of children, the World Bank (2002) proposed illness and injuries as proxies. The literature on epidemiological studies shows that self-reported health status based on the answer to the question as; *how do you judge your health status?* , is to be considered as one of the best indicators (Guarcello at al., 2004).

However, Allen and Velden (2005) argued that self-reported health status may be filled with intentional or unintentional error problem. This may be as a result of unclear or ambiguous content of the question, limitations to respondents' comprehension or memory, rationalization endogeneity[4] or finally from the so-called anchor problem[5]. In this case, there may be a discrepancy between the real and the reported value. Nevertheless, Falchikov and Boud (1989), Gordon (1991) reported strong correlations between self-assessed and external

[4] This is the situation where respondents have the tendency of rounding up figures.
[5] This is a situation of ambiguity where respondents lack clarity of the measurement scale used.

measures. This was confirmed in Kaplan and Camacho (1983), with Guarcello et al. (2004) arguing and pointing self-assess health as the best measure of health.

In this light, to minimize measurement error-related problems, we used both subjective and objective measure of health. As subjective measure we used the self-assessed health (SAH) status, ranging from 1=poor health, 2=fair health, 3=good health, to 4=excellent health. Such an indicator is interesting because an individual who is suffering is well placed to tell how he feels than a third party or a tool that might not reveal feelings. Moreover, the SAH status by virtue of involving feeling, indirectly incorporate injuries and hence adequate as an indicator of general health. The second health measure which is objective relies on whether the individual suffers from diarrhea or respiratory infection.

With respect to the aforementioned theoretical framework, the estimation of the contemporaneous relationship between health and child labour status is based on the following specification of the empirical model of health determination:

$$H = X\delta + \beta CL + \varepsilon \quad \text{...(4)}$$

H represents the child's health outcome captured as a subjective or an objective indicator of health when estimating, while X represents a vector of exogenous covariates that explains H. CL is the endogenous variable connecting the child to the labour market. It may be defining the labour market status of the child or for children who are working the number of hours worked. Separate estimates will be obtained for these alternative cases. β is a vector associated with the variable connecting the child to the labour market. And δ is a vector of exogenous parameters including the constant term, while ε is the error term.

Estimating the contemporaneous relationship between the labour market status of the child or hours worked by a child and child health is not an easy task (Guarcello et al., 2004). It requires dealing appropriately with flooded statistical issues like potential endogeneity of child labour decision and hours worked, unobserved heterogeneity in an individuals' health endowment (O'Donnel et al., 2003; Bhalotra, 2000) and intra-household correlation related issues (Arceneaux, 2005).

ESTIMATION ISSUES FOR CAUSAL CONTEMPORANOUS RELATION

The first estimation issue is potential endogeneity, which may arise in 4 if: (1) some omitted variables are correlated with child health; (2) CL is measured with errors; and (3) child health is simultaneously determined with CL. A child with poor health might be unable to participate in child labour or even if he does, it will be difficult to work for longer hours. As such poor health will likely affects working status or the number of hours worked. Likewise working children, whose bones, joints and cells are not yet fully developed and are exposed to risk from hazardous work, are likely to encounter health problems.

Both child labour and health status are, at least to some extent, the results of household decisions and preferences that are not observable to the econometrician (Guarcello, et al.,

2004). A healthy worker selection effect (Guarcello et al., 2004 and Bhalotra, 2000) may arise due to unobserved heterogeneity when parents decide to send the healthiest child to work. If this is the case, there will be a positive effect of child labour on health. Nevertheless, the effect will be negative if parents on the contrary send healthier children to school. In addition, as highlighted by ILO (1998) Child labour is difficult to measure accurately. Intra-household correlation is another potential problem as children belonging to the same household are more likely to be similar than non-members with regard to health endowments, numbers of hours worked and household level indicators.

On the basis of these potential, estimation problems $\text{cov}(CL, error terms) \neq 0$. In addition as noted by Cameron and Trivedi (2010) in the presence of endogeneity, estimated coefficient no longer yields causal interpretation. In this case the classical linear regression becomes biased and inconsistent. Nevertheless, Guarcello et al. (2004) stressed that endogeneity is a major issue only when comparing the health of child workers with non-child workers. For this reason, they did not resolve potential endogeneity problem. This is however, inaccurate as endogeneity due to double causality remain an issue of concern even when only working children are considered. In addition, Intra-household correlation produce inflated standard errors and as such must not be ignored (Cornfield, 1978)[6]. We, therefore, dwell on how to handle the various problems so as to avoid results that are likely to err policy implications.

In the midst of these problems, O'Donnel et al. (2003) used a panel data analysis (Hausman and Taylor, 1981). This is not feasible in our case because of data limitation. In this light, to resolve potential endogeneity the auxiliary equation of the variable connecting the child to the labour market is specified as:

$$CL = Z\gamma + \mu \quad \text{.....(5)}$$

Where Z incorporates X in equation 4 together with instrumental variables. As instrument, we used child's employment rates per region, school availability and school quality. Evidence on these instruments is provided by Duflo (2001; 2004) and Bedi and Edwards (2002). While the availability of schools is captured by school density, the quality is captured by number of teachers per students per region. The higher, the school density, the lower the average cost of attending school (Chanyoung and Orazem, 2010) and decisions will favour school at the detriment of child labour. Insufficient teachers may instigate child labour. Card (1994) highlights the importance of having more than one instrument. Nevertheless, a test of over identification will permit to identify the instruments to be retained.

The auxiliary equation 5 is run using two estimators. It is estimated using a probit estimator when CL is defined by the labour market status of the child and by an OLS estimator when it is defined by the number of hours worked by a child. R represent the resultant residuals from the probit estimator or OLS estimator that is then saved. We saved the residual rather than the predicator because Terza et al., (2007) indicated the supremacy of the two-stage residual inclusion (2SRI) technique in yielding consistent estimators over the popular two-stage predictor substitution (2SPS). The second stage estimated equations is of the form:

[6] As highlighted in Arceneaux (2005).

$$H = X\delta + \beta\, CL + \upsilon\, R + \xi \quad \text{.....(6)}$$

where υ is a vector of parameters associated to the residuals from equation 5 while ξ is the error term. Equation 6 generates according to Smith and Blundel (1986), Datt and Ravallion (1994) and Ravallion and Wodon (2000) consistent estimates of β. While a significant υ provides a test of exogeneity of CL in 6, the residuals R controls for any unobservable variable correlated with CL.

When H is captured by the subjective measure of health, the second stage equations 6 can be estimated as a group data regression, however since the thresholds[7] $(u's)$ are unknown, we privileged an ordered probit estimation as Datt and Ravallion (1994) since self-health assessments are inherently ordered. The choice set has alternatives ranging from poor health, fair health, good health and excellent health state. The underlying continues latent variable is, therefore, of the form:

$$y^* = x\beta + \varepsilon \quad \text{.....(7)}$$

Where y^* is the child's true health state, x and ε represent a vector of exogenous variable (including child working status and the hours worked for working children) that determine y^* and the unobserved portions, which is assumed to be normal distributed respectively. In terms of probability, equation 7 can take the form:

$$\Pr ob\left[H = j\right] = \phi\left(\mu_j - x\beta\right) - \phi\left(\mu_{j-1} - x\beta\right) \quad \text{.....(8)}$$

where, H is a multiple choice indicator of child health status, j =1, 2, 3, and 4, representing poor health, fair health, good health to excellent health state, respectively. Where $\phi(\cdot)$ is the cumulative distribution function of the standard normal. Equation 8 and 6 is first run with CL being the labour market status of the child while introducing the resultant residual from the probit estimation of equation 5. Afterwards, equation 6 is run with CL being the hours worked for working children while introducing this time around the residual from the OLS estimation of 5. This is the case where the dependent variable is captured by subjective health status.

On the contrary, when H is captured by the objective health outcome the second stage equations 6 is estimated by employing a probit model, as the health status used is whether a child is suffering from diarrhoea or not and whether he is suffering from respiratory infection or not. The objective illness, diarrhoea and respiratory infection is run separately. Exposure to pesticides has been highlighted by Tucker, (2000) as children working in pesticides contaminated fields, can easily breath pesticide 'drift' as they often lack appropriate protective devices. Children, because of ignorance and carelessness, might eat pesticide contaminated fruits or contaminate the fruits with pesticide-contaminated hands. In the same

[7] This correspond to the cut off where one move from reporting one category of health state to another

light, equations 6 is first run with CL being the labour market status of the child while introducing the resultant residual from the probit estimation of equations 5 before considering CL as the hours worked for working children and then introducing the residual from the OLS estimation of equations 5.

PRESENTATION OF DATA

As data sources, this study uses the 2007 CHCS, conducted by the National Institute of Statistic (NIS). The data is representative as it concerns the entire household in the national territory as well as individuals who belong to this household. It involves 11391 households. The survey questionnaire contains issues related to poverty, education, economic activity and health status. Household health related issues were explicitly brought forth by section 2, education of each member of the family in section 3 while section 4 raised child labour related matters. As far as instruments are concerned children employment rate per region is gotten from the Survey of Employment and the Informal Sector (SEIS) carried out in 2005 while the rest of the instruments are from the 2008 statistical yearbook of the National Institute of Statistics (NIS).

EMPIRICAL RESULTS

Descriptive Statistics

Table 1: Children's activities and rates of health problems by age

Age	No activities	Study only	Work only	Work and study	**Total**
5	2.2	11.8	1.5	2.2	**8.4**
6	4.4	12.7	1.5	3.6	**9.4**
7	1.1	13.2	2.2	6.9	**10.6**
8	1.1	10.3	1.5	6.7	**8.5**
9	3.3	6.5	1.5	8.5	**6.7**
10	1.1	7.4	1.5	9.6	**7.5**
11	3.3	5.9	0.7	7.4	**6.0**
12	4.4	5.8	5.1	12.8	**7.6**
13	5.5	6.5	2.9	8.0	**6.7**
14	11.0	5.1	8.8	10.5	**6.9**
15	14.3	4.8	14.0	9.2	**6.7**
16	16.5	5.0	32.4	8.2	**7.6**
17	31.9	5.1	26.5	6.5	**7.5**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: from author's calculation using the CHCS 2007.

The age where the highest health problem is registered, independent of the activity carried out by the child is 7 with the rate of health problems being 10.6%. The lowest rate of health problems is registered at the age of 11. From the age of 5 to 13 working children seem not to have poor health as parents still have full control over all their activities. From the age of 13 and above, parents lost either part or the totality of this control power and are no longer in command of the type of work a child does. This is revealed by the remarkable increase in health problems for working children from the age 14 to 17. It is interesting to note that while the rates of health problems is 32.4% for children age 16 who are only working, it is only 5.1% for the school only category.

Table 2: Working sectors and health problems

Have been ill in the last two weeks?	Non-agricultural private enterprise			Agricultural exploitation including work on farms and plantations, rearing, fishing and hunting.		
	Have worked at least an hour in the last seven days?					
	No	Yes	**Total**	No	Yes	**Total**
No	80.2	81.8	**81.7**	77.2	82.7	**82.3**
Yes	19.8	18.2	**18.3**	22.8	17.3	**17.7**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
	Pearson chi2 = 0.388 df = 1 **P-value= 0.824**			Pearson chi2 = 5.986 df = 1 **P-value = 0.014**		

Source: from author's calculation using CHCS 2007

No relationship exist between working in a non-agricultural private enterprise and falling sick in the last two weeks as indicated by the P-value of 0.824 of the Pearson chi squared test in table 2. However, with a P-value of 0.014, carrying out an agricultural activity has something to do with health outcome. Children involved in non-agricultural activities are neither less likely nor more likely to be exposed to health hazards compared to those working in the agricultural sector. Relying on agricultural activity, working children seem to be less exposed to health hazards. This may be as a result of the domination of younger children in the sample as the percentage of children age 5 to 13 is 71.4% compared to 28.6% for those within 14 to 17.

In this light, we took a step further to consider only children who are aged 14 and above in table 3. The results show that out of 2234 children age 14 and above and working in the agricultural sector, 389 were sick while only 37 among those who were not working were sick. This could be suggesting that children working in the agricultural sectors are more likely to be exposed to risk than non-workers for the age 14 and above. This however, does not tell us that it is the work that triggers the poor health hence calling for an econometric approach adapted for this.

Table 3: Reported health and working status for agricultural child labourers aged 14 and above

Have been ill in the last two weeks?	Have worked at least an hour in the last seven days?		
	No	Yes	**Total**
No	153	1845	**1998**
Yes	37	389	**426**
Total	**190**	**2234**	**2424**

Source: from author's calculation using CHCS 2007

Table 4: Descriptive statistics of outcome, treatment and instrumental variables

Variables name	**Definition**	**Obs.**	**Weight**	**Mean**	**Std. Dev.**	**Min**	**Max**
Outcome variables							
Children's SAH	= 1 poor, 2= fair , 3= good and 4=excellent health	17479	5965905	0.90	0.70	0	4
Diarrhea	= 1 if the child is suffering from diarrhea, 0 = otherwise	17510	5977144	0.01	0.09	0	1
Respiration disease	= 1 if the child suffering from respiration disease, 0 = otherwise	17501	5972899	0.04	0.20	0	1
Independent variables							
Child characteristics							
Child gender	= 1 if male child, = 0 otherwise	17550	5999053	0.51	0.50	0	1
Age of child	Age of child (year)	17550	5999053	10.59	3.74	5	17
Biological link	= 1 if not a biological child, = 0 otherwise	17549	5998874	0.26	0.44	0	1
Muslim	= 1 if Muslim child, = 0 otherwise	17550	5999053	0.23	0.42	0	1
Hours worked	Number of hours in economic activities	6052	2437853	20.67	16.44	0.5	95
Sector of activity	= 1 if working in agricultural related sectors, 0 = otherwise	6002	2427973	0.85	0.36	0	1
Child's education	= 1 if child has never gone to school, = 0 otherwise	17477	5974192	0.26	0.44	0	1
Child labour	= 1 if child work according to UNCEF, = 0 otherwise	17550	5999053	0.26	0.44	0	1

Parental characteristics							
Entry age household head	= 1if he started working at age ≤ 17, = 0 otherwise	17321	5934258	0.85	0.36	0	1
Household head education	= 1 if household head has ever gone to school, = 0 otherwise	17485	5979615	0.34	0.47	0	1
Working status household head	= 1 if the household head works now, = 0 otherwise	17550	5999053	0.10	0.31	0	1
Household characteristics							
Income stability	= 1 if income is very unstable, = 0 otherwise	17537	5996423	0.52	0.50	0	1
Log annual consumption expenditure per adult equivalent	Annual consumption expenditure per adult equivalent in local currency	17550	5999053	13.37	0.64	7.12	16.69
Community variables							
Zone	= 1 if the child live in the urban area, = 0 otherwise	17550	5999053	0.68	0.46	0	1
Accessibility to the hospital	= 1 if the nearest hospital is not within one Km, = 0 otherwise	17550	5999053	0.37	0.48	0	1
Instrumental variables							
Child employment rate	Child Employment rate	17550	5999053	42.55	20.65	8.80	75.20
School density	Number of schools per Km^2	17550	5999053	1.18	0.85	0.26	4.95
School quality	Average number of students per teacher	17550	5999053	36.50	7.27	25	44

REGRESSION RESULTS

Table 5: The contemporaneous determinant of health status and working status under different assumptions for the 5 to 17 years old children in Cameroon

	Bivariate(a)		SAH with endogenous work status(b)	Instrumented working status(c)	SAH with exogenous work status(d)	Diarrhoea: endogenous work status(e)	Diarrhoea: exogenous work status(f)	Respiratory : Endogenous work status(g)	Respiratory: exogenous work status(h)
	SAH	working status							
	Coefficient					Marginal effects			
Child's characteristics									
Male child	0.061	-0.012	0.040	-0.021	0.041	0.000	0.000	-0.009	-0.009
	(1.81)*	(0.42)	(1.69)*	(0.70)	(1.74)*	(0.28)	(0.24)	(2.11)**	(2.21)**
Child's age	0.103	0.774	0.015	0.725	0.016	-0.001	-0.001	-0.001	-0.002
	(2.97)***	(21.62)***	(4.18)***	(19.86)***	(4.49)***	(3.72)***	(3.94)***	(2.34)**	(2.71)***
Age squared	-0.407	-3.576		-3.373					
	(2.67)***	(21.92)***		(20.31)***					
Never gone to school	-0.128	0.263	0.120	0.087	-0.130	0.000	0.000	-0.001	-0.003
	(2.26)**	(5.56)***	(3.18)***	(1.76)*	(3.40)***	(0.10)	(0.02)	(0.22)	(0.58)
Child labourer			0.028		0.271	0.003	-0.004	-0.004	-0.041
			(0.83)		(2.94)***	(1.43)	(0.82)	(0.80)	(0.35)
Parental characteristics (Household head)									
Went to school			0.231	0.227	-0.204	0.003	-0.004	-0.006	-0.001
			(5.41)***	(4.87)***	(4.75)***	(1.29)	(1.87)*	(0.95)	(0.09)
Works			-0.113	-0.377	-0.093	0.002	0.001	0.006	0.002
			(2.25)**	(5.83)***	(1.83)*	(0.52)	(0.31)	(0.91)	(0.31)

Household characteristics									
Household size	0.008	0.032							
	(1.01)	(4.64)***							
Income very	-0.173	-0.116							
unstable	(3.36)***	(2.87)***							
Poor subjective	-0.029	0.185							
poverty	(0.53)	(3.89)***							
Log(ACE/AE)[1]	0.064	-0.201	0.062	-0.113	0.069	-0.000	-0.001	-0.005	-0.007
	(1.80)*	(5.33)***	(2.15)**	(3.07)***	(2.38)**	(0.41)	(1.79)*	(1.47)	(1.84)*
Community characteristics									
Urban areas	0.230	0.689	0.036	0.527	-0.003	0.004	0.005	0.008	0.014
	(4.86)***	(16.67)***	(0.97)	(12.11)***	(0.07)	(2.38)**	(2.57)**	(1.57)	(2.72)***
Hospital not	0.069	0.067	0.102	0.098	0.095	-0.002	-0.002	-0.004	-0.003
accessible	(1.37)	(1.68)*	(2.61)***	(2.33)**	(2.42)**	(1.00)	(0.90)	(0.75)	(0.51)
Constant	-0.344	-2.620							
	(0.64)	(4.93)***							
Instrumental variable									
Child's				0.008					
employ. rates				(6.97)***					
Control function variable									
Work status					-0.005		0.000		0.001
residual					(2.44)**		(1.24)		(4.10)***

Estimation statistics								
Observations	5970719	5921849	5954900	5921849	5933088	5933088	5928843	5928843
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0430	0.0001
RESET test Prob > chi2				Chi2(1)=0.08 0.783		chi2(1)=0.31 0.5779		Chi2(1)=3.07 0.0799
Rho	**0.274 (0.152)**							
Wald test of rho=0:	chi2(1) = 3.491 Prob > chi2 = 0.062							
cut1		-1.072		-0.927				
cut2		-0.132		0.013				
cut3		0.764		0.910				

Robust z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
1= Log annual consumption expenditure per adult equivalent in local currency

(5.a): Represent the Model of equation 2d run using a bivariate specification
(5.b): Represent the Model of equation 4 with SAH and endogeneity of working status problem unresolved
(5.c): Represent the Model of equation 5 which is the auxiliary equation use to resolve endogeneity of working status
(5.d): Represent the Model of equation 8 with SAH after accounting for endogeneity of working status
(5.e): Represent the Model of equation 4 with objective health (Diarrhoea) and endogeneity problem of working status unresolved
(5.f): Represent the Model of equation 6 with objective health (Diarrhoea) after accounting for endogeneity of working status
(5.g): Represent the Model of equation 4 with objective health (Respiratory problems) and endogeneity problem unresolved
(5.h): Represent the Model of equation 6 with objective health (Respiratory problems) after accounting for endogeneity

Table 6: The contemporaneous effect of hours worked by a child on their health status under different assumptions for the 5 to 17 years old children in Cameroon

	Short run						
	SAH with endogenous hours worked (a)	Instrumented economics hours worked (b)	SAH with exogenous hours worked (c)	Diarrhoea: endogenous hours worked (d)	Diarrhoea: exogenous hours worked (e)	Respiratory : endogenous hours worked (f)	Respiratory: exogenous hours worked (g)
Child's characteristics							
Male	0.059	1.362	0.053	-0.002	-0.002	-0.010	-0.002
	(1.54)	(2.99)***	(1.36)	(0.57)	(0.85)	(1.51)	(0.36)
Age	0.008	-0.677	0.003	-0.002	-0.002	0.001	0.006
	(1.18)	(1.31)	(0.29)	(3.35)***	(4.08)***	(0.62)	(4.28)***
Age squared		8.968					
		(4.09)***					
Never gone to school	0.214	7.427	-0.178	-0.004	-0.006	0.006	0.058
	(3.42)***	(10.30)***	(2.12)**	(1.14)	(1.72)*	(0.58)	(3.72)***
Hours worked	0.005		0.008	0.000	0.000	-0.001	-0.004
	(3.02)***		(1.38)	(1.09)	(1.48)	(1.45)	(0.92)
Agricultural Sector work	-0.010	-6.889	-0.010	-0.007	-0.003	0.005	0.019
	(0.16)	(6.84)***	(1.75)*	(1.63)	(0.80)	(0.50)	(1.72)*
Parental characteristics							
Went to school	0.148	2.930	-0.128	0.003	0.001	0.003	0.021
	(2.43)**	(4.39)***	(1.92)*	(0.90)	(0.37)	(0.36)	(2.35)**
Working	-0.220	-2.306	-0.210	0.003	0.004	-0.008	-0.015
	(2.51)**	(2.17)**	(2.39)**	(0.42)	(0.60)	(0.66)	(1.36)
Household characteristics							
Income very unstable							
Log(ACE/AE)	0.023	-1.250	0.026	0.004	0.004	-0.003	-0.008
	(0.47)	(2.17)**	(0.54)	(1.68)*	(1.81)*	(0.45)	(1.35)

Community characteristics							
Urban areas	-0.018	-0.723	-0.024	0.006	0.006	0.004	0.007
	(0.26)	(0.79)	(0.35)	(2.35)**	(2.12)**	(0.51)	(0.87)
Hospital not accessible	-0.177	-0.208	-0.181	-0.001	-0.001	-0.009	-0.012
	(2.99)***	(0.33)	(3.08)***	(0.41)	(0.28)	(1.19)	(1.75)*
Instrumental variable							
Child's employ. rates		0.324					
		(15.16)***					
Control function variable							
Hours' work residual			-0.004		-0.000		0.004
			(1.70)*		(1.18)		(5.66)***
Estimation statistics							
Observations	2386271	2409417	2386271	2402064	2402064	2398237	2398237
Prob >chi2(F)	0.0000	0.0000	0.0000	0.0002	0.0002	0.0184	0.0000
Reset test P.V			0.7117		0.0424		0.5844
/cut1	-1.670		-1.616				
/cut2	-0.749		-0.695				
/cut3	0.238		0.293				

(6a): Represent the Model of equation 4 with SAH with the endogeneity problem on hours worked unresolved

(6b): Represent the Model of equation 5 which is the auxiliary equation use to resolve endogeneity base on hours worked

(6c): Represent the Model of equation 8 with SAH after accounting for endogeneity on working hours

(6d): Represent the Model of equation 4 with objective health (Diarrhoea) with endogeneity problem on hour worked unresolved

(6e): Represent the Model of equation 6 with objective health (Diarrhoea) after accounting for endogeneity on hours worked

(6f): Represent the Model of equation 4 with objective health (Respiratory problems) with endogeneity problem on hours worked unresolved

(6g): Represent the Model of equation 6 with objective health (Respiratory problems) after accounting for endogeneity on hours worked

Table 7: Collinearity Diagnostics Test using Tolerance and VIF indicators

	VIF	SQRT VIF	Tolerance	R-Squared		Eigenval	Index
Child labourer	2.65	1.63	0.3777	0.6223	1	12.0065	1.0000
Hours worked	1.99	1.41	0.5030	0.4970	2	1.2155	3.1428
Work sector	1.38	1.18	0.7221	0.2779	3	0.9419	3.5704
Child Education	1.42	1.19	0.7034	0.2966	4	0.7296	4.0565
Male child	1.02	1.01	0.9825	0.0175	5	0.6957	4.1543
Child's age	3.10	1.76	0.3227	0.6773	6	0.5666	4.6032
Not biological child	1.07	1.03	0.9336	0.0664	7	0.4805	4.9989
Muslim	1.33	1.15	0.7527	0.2473	8	0.4724	5.0413
Household head went to school	1.38	1.17	0.7246	0.2754	9	0.4375	5.2389
Household head works	1.02	1.01	0.9762	0.0238	10	0.4140	5.3850
Worked in wave one	1.15	1.07	0.8718	0.1282	11	0.3640	5.7432
Log(ACE/AE)	1.12	1.06	0.8955	0.1045	12	0.2432	7.0269
Income very unstable	1.06	1.03	0.9414	0.0586	13	0.1654	8.5204
Urban zones	1.38	1.17	0.7256	0.2744	14	0.1243	9.8275
Hospital not accessible	1.12	1.06	0.8894	0.1106	15	0.0713	12.9779
School density	1.29	1.14	0.7743	0.2257	16	0.0377	17.8561
School quality	1.35	1.16	0.7393	0.2607	17	0.0217	23.5099
Child employment rate	1.60	1.26	0.6251	0.3749	18	0.0114	32.4287
					19	0.0008	119.5127
Mean VIF	1.47						
Condition Number					**119.5127**		
Det(correlation matrix)					**0.0439**		

Eigenvalues and Cond Index computed from scaled raw sscp (w/intercept)

***SQRT** means Square root*

To avoid unreliable estimated regression coefficients resulting from inflated standard errors which arise when two or more independent variables in the model are approximately determined by a linear combination of other independent variables in the model, we carried out a multicolinearity diagnostic test. As measures of the strength of the interrelationships among the variables we privileged an indicator of how much collinearity that a regression analysis can tolerate (tolerance) and an indicator of how much of the inflation of the standard error could be caused by collinearity (VIF). While the tolerance of a variable is given as one minus the R^2 resulting from the regression of the other variables on that variable, the VIF is given by the reciprocal of tolerance. Variables that raised serious concern were retrieved from

the model. Evidence from table 7 suggests that the interrelationship among the various variables left is not a cause for concern as both indicators pass the rule of thumb.

Child Labour and Health Trade-Off Relation: Bivariate Probit Model

The first column of Table 5 shows the results for the bivariate probit model of working status and self-assessed health. This result reveals that the correlation coefficient between child labour and the SAH equation error terms is significant. It is estimated to be 0.27 and significantly different from zero as indicated by the chi-squared test of 3.49.This coefficient is positive, suggesting the absence of any trade-off relationship between child labour and health status. In addition, its significance at 10% reveals that working and reporting good or excellent SAH are not independent. This is a plausible result that indicates that unobservable factors that are positively related to working are equally positively related to good or excellent health. While this result does not corroborate those of O'Donnell et al. (2004) they are however consistent to those of Cigno et al. (2000) and O'Donnell and Doorslaer, (2002) who all revealed that working children were far better in health status than their non-working counterparts.

In addition, the bivariate probit model reveals that when household income is unstable, children are less likely to report good or excellent health. Children who have never gone to school have a higher likelihood of reporting poor health when compared to their counterpart who are schooling or went to school. This result is consistent with previous result in this domain as postulated by Grossman (1972). This finding may be attributed to the idea that education augments efficiency in the production of health and permits to avoid health-risky behaviours. Further, children from poor families are less likely to report good or excellent health as poverty may influence their food intake which greatly impacts health state. Though the correlation coefficient indicates that there exist a positive relation between working and reporting good or excellent health one should however, be hesitant in giving causal interpretation to this coefficient. This coefficient though significant, tells nothing as to what concerns the causal relation between child labour and child health status.

Contemporaneous Causal Effect of Child Labour Status and Child's Health

In column d of table 5, potential endogeneity is accounted for. The instrument used as exclusion restriction is statistically significant and it t-ratio of 6.97 suggest that, it is correlated with child working status and is likely not a weak instrument. In addition, the coefficient associated to the reduced form child labour status equation (column c) is statistically significant with t-ratio = 2.44 as indicated in column d. This indicates that child working status is endogenous to SAH and suggests that the results from column d have value added when compared to those of column b which ignore endogeneity related problems.

In addition, to avoid spurious policy implication, we applied a regression error specification test (RESET) by re-estimating the model in column d with the square of the predicted values added to it as a new variable. The test gives a chi-square statistic of 0.08 with a p-value well above conventional significance levels (p=0.783) indicating that there is no evidence of misspecification. This further fortifies the strength of column d results for policy

implications. Estimates of ancillary threshold parameters in column d, cut 1, cut 2 and cut 3 reveal that a value of the latent variable less than -0.927 corresponds to poor health, a value between 0.927 and 0.013 corresponds to fair health, a value between 0.013 and 0.910 corresponds to good health, and a value above 0.910 corresponds to excellent health.

Results show a positive and significant relation between child working status and self-assessed health. The child labour coefficient indicates that working children are more likely to report better self-assessed health status. This suggests that child labour does not necessarily expose children to health risks. This is comforting and is consistent with the results of Cigno et al., (2000); O'Donnell and Doorslaer (2002) and Cooper (1995). The justification of such a result is threefold. First, as indicated by Basu and Van (1998) and Bhalotra and Head (2003) wages earned from child work can improve the living standard of poor households and hence their health status through improved nutrient intake. In addition, Cooper (1995) showed that early entry into the labour market instigates the child to be more responsible and disciplined as he acquires new skills, enhancing therefore new opportunities to explore new career goals. Finally, considering household chores is likely to neutralise some of the negative health effect of child labour.

In addition, result confirms the idea to which education is vital in the production of good health and that the higher the annual consumption expenditure per adult equivalent, the more likely will children report better health status. When specific diseases are considered, the result according to which working children are likely to report higher health status no longer persist. In effect, the effect of work on the likelihood of suffering from diarrhoea or respiratory problems is insignificant. Results point out that the likelihood of suffering from diarrhoea is increased when the family is poor.

Contemporaneous Causal Effect OF Hours Worked on Child's Health

In table 6, results (from column a) reveal that the likelihood of reporting better category of SAH increases as the number of hours worked increases. This unexpected result is consistent with the healthy worker selection effect in which healthier children may be selected for work. In order to take account of this selection effect that can be caused by endogeneity of hours worked, we estimated the reduced form hour worked equation (column b) and considered the resultant residual in column c. The coefficient associated to the reduced form working hours residual is statistically significant indicating that, hours worked is endogenous to SAH. After addressing this endogeneity problem, the results seem to suggest that hours worked by children did not affect their self-assessed health status. This is evident in column c. Turning to specific diseases, hours worked does not significantly affect the probability of either having diarrhea or suffering from respiratory problems.

Among children working, those specialized in the agricultural related sectors are likely to report poorer health status. In the same light, children working in the agricultural related sector have higher probability of suffering from respiratory problems. In effect, the probability of having respiratory diseases increases by 0.019 for children working in the agricultural sector when compared to those working out of this sector. This affirms the

hypothesis that children working in agricultural related sectors are indeed exposed to higher risk than those in commercial related sectors as it is difficult to regulate child work especially in the agricultural environment. This obviously suggests that children working in farms for example are exposed to very high or very low temperature, to chemical, to mosquitoes, to dust, to heavy rain fall, to pesticides, to poor sanitation condition, excessive noise, contact with animals and carcinogenic agents which threaten their immediate health.

In addition, control variables suggest that when the household head is uneducated or is not working, children are likely to report poor self-assessed health status. Moreover, when the hospital is not accessible the likelihood of reporting poor self-assessed health status is increased.

CONCLUSION AND POLICY IMPLICATIONS

The ILO convention 182 calls for the prohibition and elimination of worst forms of child labour. This worst form of child labour involves work likely to jeopardize the health, safety or morale of children (ILO, 1999). This study examined if child labour effectively displaced good or excellent health state in children. Nevertheless, because the trade-off relation between child labur status and self-assessed health status tells nothing as to whether the poor health state is effectively caused by child labour we further employed an appropriate econometric model. Further, considering the poverty context of Cameroon in which some very poor households still depend on child labour resources for survival, a legal ban of child labour may cause more harm than good. To this effect we determined the sector where the child can work without jeopardizing his health while enhancing family income.

Results from the descriptive statistics revealed a remarkable increase in health problems for working children for the ages 14, 15, 16 and 17. Considering the 16 years old children, working children registered a 32.2% of health problems while only 5% of health problems was registered for their schooling only counterparts. The P-value of Person chi-squared test reveals that carrying out an agricultural activity has something to do with health outcome.

Results from the bivariate probit model showed that child labour is positively related with good or excellent self-assessed health status. This is confirmed in the contemporaneous health regression. Nevertheless, the regression with hours worked suggests that the number of hours worked does not significantly affect health status. In addition, children working in agricultural related activities have higher likelihood of reporting poor self-assessed health status. This finding is policy wise important as it suggests that if children must work to enhance family income then working in non-agricultural activities is likely to keep the children save from excessive work related health problems. This result suggests that priority in improving surveillance, monitoring and raising awareness should be given to agricultural related child labour.

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