IMPACT OF REMITTANCE INFLOWS ON CHILD LABOUR PREVALENCE IN DEVELOPING COUNTRIES: AN APPLICATION OF SYSTEM-GMM APPROACH

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Abstract

The present study examined the impact of migrant workers' remittance on child labour predominance in developing countries. We intend to see whether financial inflows sent by migrant workers to their home countries could reduce the child labour threats in the countries under investigation using system-GMM approach. The result reveals that inflow of remittances reduce child labour prevalence in the sample countries, which means financial resources sent by the migrant workers improve the level of schooling as additional sources of income for the parents and hence they will send their children to schools rather than engaging them in under aged works. The implication is that authorities in these countries should formulate policies that will help in efficient utilization of remittances that will boost their investment drives as well as enhance educational level which will improve the skill human capital in the long-run and reduce child labouring which is a harmful to the overall economic growth and development.

Keywords: Child labour, Remittances, System-GMM, Developing countries, Inflow, Migration

INTRODUCTION

The contributions that migrant workers' remittances gave to the global economy cannot be ignored more especially in the developing countries. Migration phenomenon despite its shortcomings in the migrant sending countries (e.g. brain drain) still plays an important role in strengthening the migrant sending economies through the massive benefits enjoyed from the financial inflows into those economies which remain important financial resources in most receiving countries. Although the rate global poverty declines from 1990 to 2010, but still 1.2 billion people in the world are extremely poor (United nation, 2015). The extreme level of poverty necessitates numerous children to participate in under aged works in order to help themselves and their family members to attain basic necessities of life. Child laboring is a serious menace to societies considering its adverse effect of reducing skilled human capital because when those children participate in child labour, it denies them the chances of attending school and as such in the long run it affect the nature and quality of skill man power in an economy. The International labour organization (2012) shows that there are 168 million child laborers in the world, which means this proportion of children are either not attending schools regularly or quit prematurely. Financial inflows sent by migrant workers to their home countries is considered as a substitute of increasing liquidity restraints for the households, enhance investment and reduce the level of child laborers.

The objective of the paper is to estimate the impact of remittances on child labour prevalence in developing countries, as the main hypothesis remains that, does incoming financial inflows increases or reduces prevalence of child labour in the selected developing countries under investigation, or it have no effect on it at all?

LITERATURE REVIEW

Several empirical studies were conducted in various global economies on this issue with different outcomes based on single country studies and panel data evidences. For example, Bayot (2007) in his study on child labour and remittances nexus in Mexico using Mexican Migration Project (MMP) data set and applied probit model. Based on initial estimates while controlling for regional variation, the result shows that remittances do not have significant impact on child labour decision for those household with migrant workers. Decision on remittances and child labour however, are associated together which make the first estimate to be biased. While, when the estimates used information likelihood approach that consider probable correlation between remittances and error term in the probit equation, the result shows that remittances significantly reduce the likelihood that a family will send their children to work. Acosta (2011) conducted a study on the school attendance, child labour and remittance inflows in El Salvador.

The finding shows that remittances do not have any impact on school attendance, the rate of child laborers in household that receive remittances tend to decline and increase unpaid family work of that same family. Furthermore, the result shows essential gender variation and age of the children, whereas girls school enrolment increase with an increase in remittances, boys seems not to benefit from it rather become an alternative for family work activities. Ebeke (2012) in his article examined the association between remittances and child labour prevalence in developing countries. The paper is trying to find out whether remittances sent by migrant workers could assist to counterbalance financial difficulties and income problems on child labour menace. The result shows that remittances considerably reduce child labour prevalence in countries with fragile financial system and high income instability. Though, there is no any finding on significant relationship between adults' and child work at home.

Alcaraz, et al. (2012), in their study on the impacts of remittances from U.S. to one of the significant receiving country (Mexico) on child labour and school attendance of Mexican households during 2008-2009 U.S. economic recessions. The result shows that when the level of remittances declines due to recession in the U.S economy, the level of child labourers significantly increases and school attendance dropped in Mexico. Bargain and Boutin (2014) in their study on the relationship between child labour and migrant workers remittances in Burkina Faso show that, on average remittances do not have any significant impact on child labour, but it still reduce child labour prevalence in the long-run. Despite the fact that there is no any gender differences, but remittances seem to mostly influence the participation of younger children in the labour market. Menaca (2015) examined the links between remittances as an extra earning and its impacts on children school attendance and child labour using Colombian household being one of the higher recipient of remittances in their region. The finding shows that one percent (1%) increase in remittance inflows could probably leads to a decline of child labour and also increases the probability of attending school. The result indicated the importance of remittances which serve as an alternative that enhance welfare of children and reduce child labour and increase school attendance.

Conceptual framework

The conceptual frame work was derived from the pioneering contribution of Rogers and Swinnerton (2004), Baland and Robinson (2000), Dustman and speciale (2006) as well as Ebeke (2012). Let's presume that there exist a number of identical households in an economy which is represented by N. Furthermore, it is assumed that each household comprises of a child as well as an adult. The model is developed based on two distinct period, t = 1, 2. Discount rate is represented by β with $0 < \beta \leq 1$. It was also assumed that parent works only in the initial

period and supplies one unit of labour whose value is A_1 with ($A_1 \geq 1$). Households are assumed to commence its production activities with an initial level of wealth comprising of income from inheritance which includes farmland and or livestock and is represented by A_0. It follows that income of parents in the first period is considered to be the sum from his employment as well as his inheritance $A = A_0 + A_1$. At time $t = 1$, it is assumed that children may also have being working. Time not spent working is spent in school. The time children spend at work has a value of 1. The child has a unit time endowment. In the first instance parent decides how to allocate time endowed to their children between participating in labour activities by children (l) or attending school (1- l). In the subsequent time, children become adult and supply only a unit of labour represented by $h(1$- $l)$. Following Baland and Robinson (2000); Rogers and Swinnerton (2004) and Ebeke (2012), the function $h(1$- $l)$ possessed properties as follows: $h(0) = 1$, $h'(1 - l) > 0$, and $h''(1 - l) < 0$.

Let c_1 and c_2 represent the consumption by households at the initial and the subsequent periods. It is assumed that the utility derived by the households is separable as in below:

$w(c_1, c_2) = U(c_1) + \beta U(c_2)$ (1)

The function w is considered continuously differential twice; strictly increasing and is strictly concave. We distinguish in the analysis three likely situations which includes; the credit market work efficiently, the credit market do not work and uncertainties confronts households on parent initial income.

Financial constraints, child labour and remittance

Households are assumed to borrow and lend money freely from the credit market during the first best situation. For simplicity of the notion, interest rate is considered to be equal to zero. Parents allocate their children time endowment optimally between labour (l) and schooling (1-l) and the optimal value of savings (s):

$$\max_{l,s} U(c_1) + \beta U(c_2)$$
$$c_1 = A + l + R(1 - l) - s$$

$c_2 = h(1 - l) + s$ (2)

Where R are remittances which are aimed to 'buy' education of children (more precisely, to cover a fraction R of the opportunity cost of schooling where, (0 < R ≤ 1). The first order conditions with respect to l and s are respectively presented below:

$(1$- $R)U'(c_1) = \beta h'(1 - l)U'(c_2)$

$$U'(c_1) = \beta h'(c_2)$$

The first best children time allocation between labour and schooling is such that:

$$h'(1 - l) = 1 - R \qquad (3)$$

By implicit function theorem on $h'(1 - l)$ - 1 + R = 0, the impact of remittance on child labour can be analyse based on equation (4) below:

$$\frac{\delta l}{\delta R} = \frac{1}{h'(1-l)} < 0 \qquad (4)$$

It is concluded that child labour decreases with inflow of remittances. What will happen in the absence of efficient credit market in the economy? The problem is given as:

$$\max_{l} U(c_1) + \beta U(c_2)$$

$$c_1 = A + l + R\ (1- l) \qquad (5)$$

$$c_2 = h(1 - l)$$

The first order condition with respect to l leads to the following:

$$(1\text{-}R)U'(c_1) = \beta h'(1 - l)U'(c_2)$$

Children's time allocation between labour and schooling is such that:

$$h'(1 - l) = \frac{(1-R)U'(c_1)}{\beta U'(c_2)} \qquad (6)$$

By implicit function theorem on $h'(1 - l)$-((1-R)$U'(c_1)$) /($\beta U'(c_2)$) = 0 we get the impact of remittance on child labour where there exist no credit market:

$$\frac{\delta l}{\delta R} = \frac{U'(c_1)}{\beta U'(c_2)h''(1-l)} < 0 \qquad (7)$$

With $h''(1 - h) < 0$ when expression (7) is compared with expression (4), it is noticed that the effect of remittance on child labour when there exist no credit market is high in absolute term in comparison to the effect of remittance where there exist an efficient credit market. The theoretical model in other words predicts that the marginal impact of remittances on child labour reduction decreases with the level of financial development.

Remittance, income shocks and child labour

It is now assumed that households' faces risk on parent income in the first period in which case A automatically becomes stochastic and follows a distribution with mean A_m and variance σ^2. The household problem is written as:

$$\max_{l} E[U(c_1)] + \beta U(c_2)$$

$$\tilde{c}_1 = \tilde{A} + l + R\ (1\text{-}l) \qquad (8)$$

$$c_2 = h(1 - l)$$

With E, considered as the operator of mathematical expectations.

A second order Taylor's expansion around A$_m$ leads to the following expression of the expected utility function:

$$\max_l U(A_m + l + R(1-l)) + \beta U(1-l) + \frac{1}{2}\sigma^2 U''(A_m + l + R(1-l)) \qquad (9)$$

First order condition with respect to l gives:

$$h'(1-l) = \frac{(1-R)(1/2)\sigma 2 U''(c_1) + U'(c_1))}{\beta U'(c_2)} \qquad (10)$$

The impact of remittance on child labour is given as:

$$\frac{\delta l}{\delta R} = \frac{(1/2)\sigma 2 U''(c_1) + U'(c_1))}{\beta U'(c_2)h''(1-l)} < 0 \qquad (11)$$

With $U''(c_1) > 0$ when the parent is prudent, it can therefore be concluded that the greater the risk to the parent income, the greater will be the impact of remittance on the reduction of child labour.

RESEARCH METHODOLOGY

The conceptual framework of this study suggests that marginal effect of remittance inflow on child labour decreases with the level of financial development. However a slight deviation will be considered to ascertain the direct instead of the indirect effect of remittance inflow. The study hypothesized that, the efficiency of remittance inflow on child labour decrease with rises level of financial constraints. The model for the study is therefore specified using the following equation:

$$CL_{it} = \alpha + \delta CL_{it-1} + X'_{it}\beta + \gamma_1 RM_{it} + \gamma_2 DCP_{it} + Q_i u_t + \varepsilon_{it}$$

i=1,……,42 and t=1,……..,5 $\qquad (12)$

Where CL represents child labour prevalence, RM represents remittance inflow as a share of GDP and Domestic credit to private sector (DCP) represent financial development, Q_i represent country specific effect while u_t represent the time effect and ε_{it} represent the error term. The matrix X represents other determinants of child labour at macro level. GDP per capita is included in the model and is expected to reduce the child labour prevalence following the work by Edmonds and Pavcnik, 2006, Dehejia and Gatti, 2005.

We selected 42 developing countries for the period of 2009-2013 as the sample and duration of the study respectively. Data for remittance, GDP per capita, domestic credit to private sector, poverty, government final consumption expenditure and fertility are obtained from World development indicators, World Bank (WDI CD ROM, 2015), while that of child labour prevalence is obtained from the United State (U.S.) Department of Labour.

EMPIRICAL RESULTS AND DISCUSSION

Table 1: Descriptive statistics of the variables

Variables	Observation	Mean	Std-dev	Minimum	Maximum
Child labour	210	2.472	0.861	0.693	4.285
Poverty	210	4.043	1.131	0	5.094
Remittance	210	0.838	1.643	-4.044	3.215
Domestic credit to private sector	210	3.436	0.502	2.395	4.506
GDP per-capita	210	7.261	0.967	5.215	9.316
Government final consumption expenditure	210	2.641	0.393	1.941	3.226
Fertility	210	1.083	0.456	0.336	2.026

Table 2: Regression of remittances, financial development and child labour prevalence

	One step	Two step
Remittance	-0.029	-0.014*
	(0.049)	(0.008)
Domestic credit to private sector	-0.086	-0.125***
	(0.161)	(0.037)
Child labour prevalence	0.931	0.913***
	(0.086)	(0.006)
Poverty	-0.031	-0.039***
	(0.055)	(0.009)
Government final consumption expenditure	0.184	0.121**
	(0.242)	(0.052)
Fertility rate	0.038	0.097***
	(0.235)	(0.033)
Per-capita gross domestic product	0.004	0.009
	(0.037)	(0.006)
Constant		0.286*
		(0.141)
Observations	168	168

*$p < 0.1$, **$p < 0.05$ and ***$p < 0.01$.

Result of the specified model as estimated using System-GMM for both one and two steps are presented in table 2. The estimated result indicated that remittance inflows has correct sign for both one step and the two step system GMM, though the p values for one step is not statistically significant, this invariably indicated that the inflow of remittances into the sample countries greatly assisted in reducing child labour prevalence. There exist various mechanisms through which remittances could affect child labour in developing countries; when households are financially constrained, remittance inflows serves as an alternative source of fund which helps in reducing the possibility that a child will partake in child labouring. Remittance can as well reduce

child labour prevalence by providing insurance against income shocks. Other control variable such as fertility also expressed expected sign of being positively related to child labour prevalence. The over identification test (Sargan test) failed to reject the hypothesis that instruments are not correlated with the error terms of the structural equations, for both one and two step system-GMM there exist no autocorrelation in our model.

CONCLUSION AND POLICY RECOMMENDATIONS

We wanted to see whether the incoming migrant workers' remittances have any influence on reducing the level of child labour in the countries under investigation. Using 44 developing countries and applied system-GMM framework, the finding shows that remittance inflows which serve as an additional income to the parents' leads to a decline of child labourers in the countries under investigation. The efficiency of utilizing remittances in reducing child labour is also worth investigating and this is left for further research on this important aspect. The policy recommendation is that public authorities in these countries are left with no option than to initiate policies if presently not in place that help in efficient utilization of the financial inflows from developed countries. However, if the policies are already in place, they need to be properly implemented considering the roles remittances played in reducing child labour and poverty menaces. Creating good policy frameworks for effective retaining and sustaining the financial inflows received from migrant workers will be a good alternative for creating investment funds with moderate charges that will motivate the recipients to use formal mediums in receiving the inflows and this will enhance the level of financial inclusion and reduce financial exclusion in the economies. Investigating the impact of remittances on reducing income inequality in these countries could be a good area to explore and hence is suggested for future research.

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APPENDICES

1. System-GMM estimation result

```
System dynamic panel-data estimation          Number of obs      =        168
Group variable: code                           Number of groups   =         42
                        Time variable: year
                                               Obs per group:    min =         4
                                                                 avg =         4
                                                                 max =         4
Number of instruments =      41                Wald chi2(7)        = 177454.14
                                               Prob > chi2         =     0.0000
                        Two-step results
------------------------------------------------------------------------------
      lcl |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          lcl |
      L1. |   .9132824   .0056344    162.09   0.000     .9022392    .9243255
              |
     ldcp |  -.1252142   .0365429     -3.43   0.001     -.196837   -.0535914
     lgfc |   .1209264   .0518379      2.33   0.020     .0193261    .2225268
     lfer |   .0967394   .0334621      2.89   0.004     .0311548     .162324
    lgdpc |   .0085607   .0056511      1.51   0.130    -.0025154    .0196367
     lpov |  -.0388137   .0093391     -4.16   0.000     -.057118   -.0205093
     lrem |  -.0143816    .007549     -1.91   0.057    -.0291773    .0004141
    _cons |   .2859448   .1410266      2.03   0.043     .0095378    .5623518
------------------------------------------------------------------------------
                    Instruments for differenced equation
 GMM-type: L(2/.).lcl L(2/2).ldcp L(2/2).lgfc L(2/2).lfer L(2/2).lgdpc L(2/2).lpov
                        Standard: D.lrem
                    Instruments for level equation
        GMM-type: LD.lcl LD.ldcp LD.lgfc LD.lfer LD.lgdpc LD.lpov
                        Standard: _cons


                        . estat sargan
              Sargan test of overidentifying restrictions
                 H0: overidentifying restrictions are valid

                        chi2(33)    =   25.87693
                        Prob > chi2 =    0.8066



                            estat abond

     Arellano-Bond test for zero autocorrelation in first-differenced errors
                    +---------------------+
                    |Order |   z      Prob > z|
                    |------+--------------|
                    |   1  |-2.1063  0.0352 |
                    |   2  |-1.1965  0.2315 |
                    +---------------------+
                      H0: no autocorrelation
```
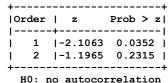
2. Scatter plot diagram that shows the linkage between child labour prevalence and remittances in developing countries