Social Safety Nets: The Role of Education, Remittances and Migration

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Abstract: We study the role of education as a social protection mechanism. We compare the effectiveness of direct cash handouts as opposed to education over the long term in reducing the vulnerability to poverty. We also look at the role of three inter-related mechanisms related to protection against shocks: Education, Remittances and Migration. We compute internal rates of return to investments education when the objective is social protection or poverty and not just the value of incomes. We use Ghanaian Livings Survey data and show that for benchmark interest rates, the returns to primary and secondary education are positive for social protection. This suggests that for the long run, education may be a more important means of social protection than cash transfers.

KEY WORDS: EDUCATION, MIGRATION, REMITTANCES, SAFETY NET, AFRICA

JEL: O, O55, F35, F43

I. INTRODUCTION

Today, many sub-Saharan nations are celebrating the 50th anniversary of the end of the European colonial era. With the end of the colonial experience, many newly independent African nations embarked upon a rapid expansion in their education systems. It was believed that having a large trained and skilled labor force is important in attaining the rapid economic development that the new nations thought they could and should attain. Many countries were of the opinion that the colonial administrations had not invested sufficiently in education, at all levels -- primary, secondary and tertiary. From that time until today, education has been believed to be very important for economic development. This has been the case both in the policy world as well as in the academic literature.
Education has been expanded in Africa - at considerable cost. African nations spend large percentages of their government spending on education, among the highest levels in the world.

In this paper, we focus on a second question. In particular, we ask whether education is important not only for the levels of income but also in reducing "vulnerability." In particular, could education be important as a means of reducing the vulnerability of individuals, particularly the poor, to shocks to their incomes? Could education be justified as a large scale social protection mechanism for poor countries in Sub-Saharan Africa? Indeed, is spending on schooling a more efficient way of providing social protection than direct cash transfers? In particular, is it better to give cash transfers to those whose incomes fall or is it better to spend money increasing their education which could in turn permanently increase incomes? Simply put: is it Cash or Education that is a better method of social protection?

There is a saying "Give me a fish and I eat for a day. Teach me to fish and I eat for a lifetime," generally believed to be Confucian. We ask in this paper whether by investing in education one may help prevent hunger much better than giving cash handouts (or fish). By investing in education is there a better long run return to reductions in vulnerability to poverty as compared to direct cash transfers each year when people fall below a poverty line.

There are two related aspects to the education proposition above, which perhaps did not loom large in the consciousness of the national leaders at independence when they were thinking of the benefits of education. First, there has been a significant migration of Africans out of the continent. This has occurred among both the educated and the uneducated. Second, as a consequence of this migration, African nations are now receiving large amounts of income from remittances of those migrants outside the continent. Both these facts have been well-documented in the literature. (See Nyarko, Y. (2009).)
The remittances and migration are of course also important parts of the social protection story. When a negative income shock occurs there may be increased remittances from relatives. There may also be migration to greener pastures.

Presumably, the three concepts Education, Remittances and migration are related. Increasing education levels would make it easier for nationals to migrate out of the country - those migrating legally would, one would imagine, have a better chance of obtaining visas if they can at least speak the language of the destination country, usually a European one. One would further suspect that those with higher education would do better in the destination country if they have better education and (although there is a lot of debate on this) that those who do better abroad would send more remittances back home.

To the extent that education levels may enhance the amount of remittances and to the extent that these are important when there are adverse shocks to the economy, then indirectly education gets another boost in its influence on vulnerability of the poor.

There may also be feedback loops. The remittances of those who migrate may be used in the education of relatives who remain in the home country. The migration of one group may encourage others to invest in education through imitation and through the establishment of migrant networks abroad which make the migration easier and publicizes the opportunities, thereby increasing perceived benefits to migration.

In this paper, we focus primarily on the education part of the cycle of feedbacks of education, migration and remittances. We provide a definition of social protection as the probability of falling below a particular level of income. We then measure the changes in these probabilities due to increases in investments in education (from primary to secondary for example). We use the Ghana Living
Standards Survey data\(^1\) to illustrate and we then compute the implied lifetime net benefit to this investment. We find that when measured in this way, for benchmark interest rates (5%) these investments yield positive values for primary and secondary school education. We also compute the internal rates of return to these investments in education. We then describe the connection with remittances and the impact on our computations. We leave the data work and description of the data sources to a companion piece (Gyimah and Nyarko (2010).)

II. Vulnerability and Education

Very often there is confusion in the literature between poverty and insurance on the one hand, and vulnerability, however defined, on the other. If vulnerability is taken to mean variability in incomes, then the extremely poor whose incomes are fixed at very low levels may be among the least vulnerable in society using this definition of vulnerability.

We will be working with the Ghana Livings Survey so this is probably a good time to illustrate some of the data there. We use wave 5 for the first few sections of this paper. There are 4 educational categories we consider "No Schooling", Primary, Secondary, and Tertiary with observations of size 7034, 5011, 7780 and 290 respectively. Figure 1 shows the total number of observations our dataset broken down into different education levels and age groups.

The diagram below shows the mean incomes of individuals of different ages with different education levels.

It is easy to see that there is much more variability in incomes of the higher educated, at least across age groups. Next we delve into a bit more detail and look at the variability of incomes within age groups and for a given education level. In the figure below, we plot we use the standard deviation as our measure of variability. We see that at almost all ages, the levels the variability of incomes is smaller among the poor.

For the appropriate measure of vulnerability, there should also be an income test on any definition we use. When a billionaire loses half of his or her wealth, we may or not feel sorry for the person, but we certainly do not include this in our conception of the vulnerable. Policy makers and governments all have much less concern by on smoothening out the consumption of the rich. The rich should be able to use commercial insurance markets to good effect. In particular, any definition of vulnerability must restrict attention to the poor, for it is the poor that is of concern. The concern is in providing support when incomes are low in an absolute rather than relative sense.

In poor nations, one could imagine extreme concern for the poor whose incomes may fall below an ex ante specified poverty line threshold. We think of the probability of starving - not getting the required food nutrients. There is often a threshold poverty line, with concern for individuals who fall below it.
The United Nations Millennium Goals are a set of some 8 goals or “Targets” nations are required to achieve by 2015. Target #1 is uses the threshold poverty line as defined as an objective. Part 1 of Target 1 asks for the proportion of the population below $1 a day should be reduced by one half from the starting year 2000 until the end (2015). For Ghana, the implied poverty rate is around 1/4 of the average income of the country. The bottom 20% of the income scale is therefore the poverty threshold under this measure.

We follow this approach in our definition of the objective of social protection. (In many studies, in contrast, the poverty lines are computed by determining the cost of getting the minimal nutrients for basic survival.) We think of a distribution of income levels, y, of individuals in the economy. We think of having a cutoff income level z, representing the poverty line. Those who fall below that level is recorded as a "minus" in our social protection welfare function. The further away the income is from this level, i.e., the bigger is the gap between actual income and the poverty line, z-y, the worse is the record of welfare. In particular, we suppose that the aggregate loss is the Foster-Greer-Thorbeck (FGT) measure:

\[ W = \int_0^z (z-y)g(y)dy \]  \hspace{1cm} (1)

where g(y) represents the income distribution in the country and w utility function expressing the “costs” associated with income y being below the level z. In particular, our concern is only with individuals having incomes less than the poverty line z and, in addition, we are more concerned the further away the income is from the poverty line. (The original FGT measure would normalize W by z; as we discuss later, in our dynamic analysis there will be an implicit normalization by discount factors which captures the spirit of the need for the normalization in FGT.) A similar formalization has also been used by Sarris, A. and P. Karfakis (2010), in their study of vulnerability.
If our social welfare function \( w(x) \) is equal to 1 over the relevant range, then (1) becomes the probability of lying below the poverty line. It is also the fraction of those below the poverty line. If this number is high, then there is a high probability of being poor. It can therefore be considered as a measure of vulnerability. Note also that when \( w(x) = x \) over the relevant range, then \( w(z-y) \) is the payment or cash transfer by the government to bring the individual to the poverty line. In this case \( W \) can be considered the (normalized by population) cost of a social protection scheme which guarantees all individuals the poverty line income. In this case, multiplying (1) by the population would be the government's cost of bringing everybody who falls under the poverty line up to that line. In a static model, the objective of policy would be to minimize the social objective \( W \).

Figure 4 below shows the evolution across age groups of poverty - the fraction of poor of each age group of different education levels. As expected, the level of poverty is generally higher for all ages the lower is the education level. (There are some interesting but justifiable outliers with the tertiary educated - when they are younger and presumably in college and again at retirement age at 60).

Figure 4 here

Now suppose that anytime an individual falls below the poverty line, the government incurs a Social Protection cost (SP) equal to the amount of money needed to bring this person up to the poverty line. If the government was, for example, constitutionally required to make sure everyone is at the poverty line, then this amount \( SP \) would be the cost to the government. (In particular, we now use the formulation in (1) with \( w(x) = x \). We normalize and consider the average per person cost - or the expected cost given the distribution of different types of people with different income levels. This is the expected transfer per person from the government to eliminate poverty. Even when the government does not actually transfer money to the poor, this could still be considered a measure of how bad
poverty is. This is a measure which could therefore be used in evaluating different social programs for eliminating poverty. Indeed, what we will do later is to look at a social program - Education, and determine how effective it is in reducing poverty. The Ghana data we are using enables us to plot the expected transfers to combat poverty. This is provided in the figure 5 below.

Figure 5 around here.

Dynamics and Two Views of the Poor

We now consider a dynamic version of the earlier simple formulation. What we will attempt to do is straightforward. We will take as given the society's current educational levels and their implied income levels. We look at the trajectory of incomes and the implications for the evolution of poverty. We then look at the dynamics where there is an increase in education levels. We then ask the simple question: over time, is education a better lever for reducing poverty? In particular, by helping people become educated, do we teach them to better be able to stay out of poverty?

Of course, our results will depend upon discount factors and the current shocks in the society. Clearly the greater is the concern for the poverty today with its low values of consumption as opposed to future poverty levels, the more will be the desire to postpone investments in people which could help reduce the poverty in the future. There will therefore be a tradeoff between now and the future. Our analyses will therefore depend upon our assumptions about time preferences - or interest rates.

Our computations will use an analytic approach which is standard in the Economics of Education literature, and involves computing rates of return to education. We will discount the future (so that the present is more valued than the future), but will have a parameter which measures how much more is the valuation.
We shall consider a single representative individual. That individual lives over a number of periods \( t=1,2,\ldots \) until death. As before, we suppose that in period \( t \) the individual will have income in period \( t \) equal to some value \( y_t \) which is random. There will be at each date \( t \) an official poverty line which we denote by \( z_t \). Following the description in the static case, the expectation of the poverty of the typical individual (or the normalized poverty of the general population) for period \( t \) is therefore given by

\[
W_t = \int_0^z w_t (z_t - y_t) g_t (y_t) dy_t \tag{2}
\]

with all relevant variables subscripted by the date \( t \).

Fix an interest rate \( r \). Define the discount factor by \( \delta = 1/(1+r) \). The expected net present value of poverty is given by:

\[
PV = - \sum_{t=0}^{\infty} \delta^t W_t . \tag{3}
\]

We use a negative sign in (3) to denote the fact that it is a cost outlay or a negative utility to the government. We should stress that present value computation above has the discount factor \( \delta = 1/(1+r) \) has embedded in it. The smaller is the value of \( \delta \), or the bigger is the interest rate \( r \), the more importance is attached to the present rather than the future. A value of \( \delta = 0 \) models the situation where there is no concern about the future at all. As \( \delta \) goes to 1, there is increasingly more weight placed on the future.

We shall now use superscripts \( (s) \) to denote the level of schooling. We shall look at an increase in schooling level from say level \( s \) to level \( s+1 \). We will let \( \Delta C^{s+1} \) denote the incremental cost of schooling - i.e., the cost of providing schooling of level \( s+1 \).
For our case study, Ghana, we obtain the cost information from the UNESCO datasets. We use 2005 data which indicates costs for primary, secondary and tertiary levels per student per year equal to respectively 0.127, 0.341 and 2.075 times GDP per capita for Ghana in 2005. (This is 570803.75, 1532630.53 and 9326124.21 in local Ghanaian cedis, or US$62, US$167 and US$1016).

The incremental net present value of the reduction in poverty due to the increased schooling, net of costs of schooling, which we denote by \( \Delta SP(s+1) \), is therefore given by

\[
\Delta SP(s+1) = PV^{s+1} - PV^s - \Delta C^{s+1} = \sum_{t=1}^{\infty} \delta_t [W_t^s - W_t^{s+1} - \Delta C^{s+1}].
\]  

(4)

The term \( \Delta SP(s+1) \) is the net gain or loss from increasing education to level \( s+1 \). This is equal to the lower Social Protection costs less the cost of providing the education.

We will use our sample from the Ghana GLSS 5 data to compute the value of the expectation above and in particular, the incremental social protection defined earlier. We will then compute the internal rate of return on this - the largest interest rate for which the Net Present Value is positive. As mentioned earlier, in this exercise we perform what is standard in the economics of education literature.

We begin with primary schooling. In particular, we ask we obtain two numbers: (A) for those who have never been to school and are likely never to go to school, what is the social protection cost or poverty index as defined earlier and (B) hat is benefit of primary schooling in terms of the reduction in social protection cost PLUS the cost of providing that primary schooling? As an illustration, suppose that the social protection cost of the individual in (A) at age at age 30 with no schooling is $250; and suppose that it costs $60 to provide primary schooling and that the social protection cost of the primary educated is 170. Then ignoring the timing issues (i.e., the fact that the primary education was provided
years ago), then the next benefit to that individual of primary education is the reduction in social protection cost ($250-$170) less the cost of primary education, $60, for a net of $20.

Of course we need to add up all the different ages, and do the time discounting appropriately. In particular, we take as the net benefit of primary education the expected lifetime discounted sum of improvements in the social protection cost due to the higher education level, less the lifetime cost of providing the primary education level (which is typically provided around years 6 through 12).

In figure 6 we there are two curves corresponding to the concepts described in (A) and (B) above respectively, each drawn as a function of the interest rate (which determines the rate of discounting the future versus the present). One curve is the social protection cost of those with No Education, corresponding to (A) above; the other curve is a the total expected lifetime social protection cost of the primary educated plus the lifetime cost of primary education - corresponding to (B) above. The figure shows that so long as the interest rate is not too high (i.e., the future is not discounted too much), and in particular so long as it is less than 7.1%, there is a net benefit to primary education for social protection. The value 7.1% is of therefore internal rate of return to primary education when the objective is maximizing our measure of social protection. Of course there are other benefits of primary education – particularly the possibly increased incomes of those above the poverty line. When incorporated into the calculation would possibly result in even higher internal rates of return. Here we are focusing ONLY on the social protection aspects of education.

A benchmark interest often used is the 5% level. For example used by many foundations in their return computations on endowments. At the 5% interest rate level, the lifetime present value of Social Protection costs plus the costs of education is equivalent to US $2924.48, while the Social Protection costs of No Education is even higher, at the equivalent of US $3170.20. The difference is US $ 245.72; this is the net present value (NPV) per person over the lifetime in terms only of social protection
investments in primary education at the benchmark interest rate of 5%. Figure 7 shows the NPV at all interest rates. The key point here is that the net present value of the investment in primary education is positive at benchmark interest rates.

Figure 6 here.

The difference between the two curves in figure 6 is the net benefit to primary education. In figure 7 we plot that difference between the two curves. It shows that so long as the interest rate is in excess of 7.1%, there is a positive net social protection benefit of primary education. The number 7.1%, where the net present value is exactly zero is often referred to as the internal rate of return - here of primary education. The interpretation of used is that if one can get money at an interest rate less than the internal rate of return, then there is a sense in which the project is "profitable."

Figure 7 here.

Figures 8 and 9 repeat the exercise above, but for the question of the net benefit to secondary education. In particular, they answer the question of whether the costs of secondary education can be justified in terms of the resulting reduction in social welfare costs. We find that for secondary education that this is indeed the case.

Figure 8 here.

The figure 8 shows that so long as the interest rate is not too high and in particular so long as it is less than 5.12%, there is a net benefit to secondary education for social protection. Again, of course there
are other benefits of secondary education, which when incorporated into the calculation would possibly result in even higher internal rates of return. At the benchmark 5% interest rate level, the lifetime present value of Social Protection costs plus the costs of secondary education is equivalent to US $3476.42, while the Social Protection costs of Primary Education is even higher, at the equivalent of US $3483.90. The difference is close to zero at the equivalent of US $7.48. When the added benefits of secondary education are factored in, we would obtain an even higher value of the Net Present Value of investments in secondary education.

Finally we repeat the exercise for tertiary education. Here we find that the social welfare benefits do NOT justify spending on tertiary education. Again, we stress here that the variable of interest is Social Protection. In particular, our conclusion is that when going from secondary to tertiary, the reduction in social costs are relatively low. Furthermore, the cost of tertiary education is relatively very high. This is reasonable as one would not expect the goal of tertiary education to be in social protection defined via the poverty line. There are not enough people who cross from being under the poverty line to being over it with tertiary education to justify the investment in tertiary education. In figure 9 we see that at all interest rates, the investments in tertiary education are not justified by its impact on Social Protection.

Figure 9 here.

Add Remittances to the Basic Equation

In the earlier section we looked at investments in education as a means of increasing social protection. We obtained positive results for both primary and secondary education.
If education spending on individual A results in that individual helping others via remittance payments then we get a second advantage of education, over and above the direct impact of the education on social protection. This channel boosts the returns to education at all levels.

Finally, if migration is correlated with education, then we get yet a third advantage of education. How do we get the importance of remittances into the basic cost-benefit analysis. In a companion piece we explore these remittances and migration channels (See Gyimah and Nyarko 2010). They all have the effect of boosting the Social Protection returns to Education.

Previous Studies on migration and remittances

The literature on migration and remittances in the development literature has been increasing at an exponential rate with the increase in emigration of workers from LDCs to developed world and the resultant increase in remittance flows to LDCs. Because of the rapidly expanding volume of the literature, we only present a very limited review in this paper. The literature on migration and remittances has generally focused on three broad areas: the determinants of migration, the determinants of remittances, and the effects of remittances in the sending countries. There is a subdivision of studies into those using household and individual level data (micro studies) and those using aggregate data (macro studies). Although our approach uses both micro and macro data, we will focus mainly on the micro approach since the paper uses household data in the empirical analysis.

By far the largest number of studies on remittances focus on the effects of remittances on some measure of household welfare in the sending countries. The results are mixed; while a large number of researchers find significant positive effects of remittances on the welfare of recipient households, others find no significant effects. For example Adams (2006a), Adams, Cuecuecha, and Page (2008a), Esquivel

While several studies conclude that remittances decrease poverty, an overwhelming proportion of studies that investigate the effects of remittances on inequality suggests that remittances tend to increase some measure of inequality. For example, Barhman and Boucher (1998), and Brown and Jimenez (2008) find that remittances increases income inequality in Nicaragua and and Tonga and Fiji respectively, while McKenzie and Rapoport (2007) find that remittances increases education inequality among Mexican households. Although there is a general agreement on how remittances affect the level of household consumption, there is little agreement on the effects of remittances on the pattern of consumption expenditures. Castaldo and Reilley (2007) and Misllitcaia and Vakhitova (2009) find that remittances significantly affect the pattern of household expenditures, Adams et al (2008b) find that remittances have no significant impact on the pattern of household expenditure, all things equal.

Generally, studies suggest that migration and remittances, at worse, have no significant positive effect on household welfare; at best they have significantly positive impacts on the welfare of households who receive remittances. A few studies, however, find significant negative effects. Using Australian immigration lottery data, Gibson, McKenzie, and Stillman (2009) conclude that emigration has short term significantly net negative effects on a wide range of outcomes of households, especially emigrant households, in source countries in the Pacific. The distinguishing feature of this paper is the use of a
natural experiment resulting from the introduction of the Australian immigration lottery which allowed the authors to control for endogeneity of emigration. Similarly, McKenzie and Rapoport (2007) conclude that migration has no significant effect on schooling for 12-15 year olds but has strong disincentive effects on 16 to 18 year olds to acquire education.

Quisumbing and McNiven (2010) uses panel data from Filipino households to investigate the effects of migration and remittances on a host of outcomes. Treating the number of migrants and remittances as endogenous, they find that a large number of migrant children decreases the value of non land assets and total expenditure but remittances have a positive effect on housing, consumer durables, educational expenditures, non land assets, and total expenditures per adult equivalent. The focus of the paper is however on internal migration. Yang (2008) uses Filipino data to investigate the effects of exchange rate shocks on remittances and finds that there is a positive response to remittances when remitters' exchange rate appreciate. He calculates an elasticity of 0.6. Yang and Choi (2005) use Filipino data to investigate whether remittances act as insurance for recipients. Using a panel data, the paper finds that remittances indeed function as insurance. Our paper follows a similar pattern. Other researchers that find positive and significant effect of remittances on poverty alleviation include Selim et al (2009) and Ang, Sugiyarto and Jha (2009) among others.

Besides consumption, researchers have investigated the effects of remittances on investment in education, health or productive assets. Kugler and Lotti (2007) investigates the effects of remittances on education and health investment in Latin America and finds positive and significant effects on investment in these areas. Elbadawy and Roushdy (2009) finds that remittances increase enrollment and completion rates of men and women at the university level while reducing child labor (at least labor market participation). Osili (2007) investigates the effects of remittances on savings and investment in the "home" country and finds that in addition to increasing the consumption of household members at
home, remittances increase savings and investment in business, housing, other assets and human capital in their home countries. In addition to increasing consumption or increasing household incomes in the current period, Selim et al (2009), and Ang, Suqiyaro and Jha (2009) find that remittances increase investment in human capital as well as business formation. These results suggest that the benefits of emigration and remittances exceed the short-run benefit of increased consumption and may include reduction in inter-generational poverty reduction.

Emigrant remittance and its role as a social safety net is apparently not new and limited to the current wave of globalization. Magee and Thompson (2006) report that Britain was a net receiver of substantial amounts of remittances from its colonies and the US in the 18th to early 20th centuries that amounted about 1 to 2 percent of export earnings. The amount and intensity of these remittances increases in real terms, over time and with increasing economic fortunes in the remitting countries, suggesting that while the stock of emigrants in a country partly determines the amount of remittances from that country, economic conditions in the host country is equally important in determining the amount of remittances sent out. While a substantial proportion of these remittances went to support consumption and business formation, the paper argues that a substantial share of the remittances to Britain during the period went to finance further emigration to the new world and the colonies in particular, a finding that is consistent with the idea that remittances finance the development of human capital in sending countries besides its social safety net role.

Kapur (2004) provides a comprehensive review of the literature on remittances---trends, sources, destination, the determinants of its growth, and its development impact. The paper argues that remittances have been the most stable and rapidly growing source of private resource transfer to the developing world; that remittances to the developing have grown rapidly due increased emigration, especially of skilled workers from the developed world, combined with increasingly frequent and
intensive financial crisis in the developing world has meant that these emigrants will have to send money home to support their extended families at home. Although he argues that remittances may have some positive effects in reducing transient poverty, the paper is generally not optimistic in using remittances to finance development in recipient countries. The paper nevertheless provides some policy guidelines for improving the transfers more efficient.

At the macro level, some studies find remittances to have significantly positive effect while others find no significant effect. To the extent that increased GDP growth generate employment for those at the bottom of the income distribution, one can argue that increased income growth could be considered a social safety net. Vargas-Silva, Jha, and Suguyarto (2009) find that remittances have positive and significant effect on income growth in Asian countries; a 10% increase in remittances/GDP ratio is associated with a 0.9 - 1.2% increase in GDP growth rate. Gupta et al (2007) argue that remittances are an importance source of development finance that should be properly harnessed for Sub-Saharan Africa's development. Glytsor (2009) find growth effect of remittances with a lag. Gapen et al (2009) conclude while workers' remittances have no significant growth impact in recipient countries, they nonetheless act as automatic stabilizers to cushion macroeconomic shocks. In this regard, remittances act as social safety net at the aggregate level. Sherman (2009) on the other hand cautions against drawing broad generalizations about the macro impact of remittances since the effects depends upon several factors, including the characteristics of migrants and the policies of both home and host countries.

Another group of studies concerns itself with the determinants of remittances without regard to its effect on the welfare of recipients or what induces emigration to begin with. Dustman and Mestres (2010) uses panel data of German immigrants to investigate the effects of permanency of migration on the probability and amount of remittance migrants send to their home countries. They conclude that
conditional on all other variables, permanency of migration reduces the probability, and amount of remittances sent home. Niimi et al (2009) argue that remittances are negatively correlated with the education attainment of the immigrants; on the other hand, Bollard et al (2009) find that the amount remittances is positively correlated with the educational attainment of the migrant, conditional on the probability of sending a remittance. Aredo (2005) uses panel data from urban Ethiopian households to investigate the motivation for sending remittances. He finds support for the hypothesis that remittances are in response to distress in recipient families (risk-sharing hypothesis). Acosta et al (2009) finds evidence of Dutch disease effect of international remittances.

Conclusion

In this paper we have studied the role of education in providing social protection. We define social protection as the probability of falling below the poverty line weighted by the value of the poverty gap. This is also the expected payment of a government who is required to provide a cash transfer to bring up to the poverty line anyone who falls below it. We have defined the net benefit of education to be the decreased social protection (or cash transfers) as defined above, less the costs of education. We have found that the social investment returns to primary and secondary education are positive, while those of tertiary are negative.

There are of course other benefits of primary and secondary education. Our arguments suggest that if the goal is social protection, then instead of setting money aside for cash transfers, nations and possibly donors may want accelerate the education at the primary and secondary level. Over the long term and on the margin, tradeoffs in that direction may be beneficial.
We have also remarked that education has an added boost because of the role of education on increasing remittances. A companion paper (Gyimah and Nyarko (2010)) goes into much more detail on this channel for education.

References


measures”, Econometrica, 52(3), 761-766.


Sharma, K. (2009), The Impact of Remittances on Economic Insecurity, UN Department of Economics and Social Affairs Working Papers.


FIGURES

Figure 1.

Life Cycle Mean Earnings Profiles for Education Groups (2006)
Figure 2.

![Figure 2](image)

Figure 3.

![Figure 3](image)

Figure 4.

![Figure 4](image)
Figure 5: Expected Social Transfers for each Education Group (2006)

- Never in School
- Primary
- Secondary
- Tertiary
Figure 6.
Figure 9.