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Social protection and rural farmers

A microsimulation approach on poverty and inequality

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Social protection and rural farmers: A microsimulation approach on poverty and inequality

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Abstract

Social protection in the form of social assistance may provide cash transfers or in-kind benefits to economically inactive poor and vulnerable households in developing countries. However, In Ghana very little initiatives exist to target poor and vulnerable who are economically active (Ghana: SPA&PER 2015; FAO 2017). This study examines ex ante effects of expanding social protection to rural poor farmers. The study specifically uses the static tax-benefit microsimulation model GHAMOD to analyze the impact of social protection to rural poor farmers on poverty, inequality and government budget. The study uses data from the Ghana Living Standard Survey Round 6 (GLSS 6). The GLSS 6 is nationally represented. The findings suggest that extending social protection to rural poor farmers reduces poverty and inequality. The study further shows that such an intervention is very pronounced among households with older persons. The cost of the reform to government is approximately GHS493 million.

Keywords: Rural Farmers, Social Protection, Microsimulation, poverty, inequality,

JEL classification: C81, H23, H31, O12

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1 Introduction

In the last decade, social protection has become a useful social policy tool to reduce risk, vulnerability and extreme poverty in developing countries. In sub-Saharan Africa, social protection is developing rapidly (Garcia and Moore, 2012) as a response to tackle rising poverty, inequality and, governments' pursuit of ending hunger, poverty and inequality by 2030 - based on the Sustainable Development Goals (SDGs). Most of these policies, however, are being piloted on a small scale but with the possibility of scaling up. Also many of these policies target economically inactive poor and vulnerable groups. A growing number of studies on social protection have shown to have positive impact on food security, nutrition, health, education, poverty and inequality (Lomeli 2008; Davies and Davey 2007; IPC 2007; Barrientos and DeJong 2006; Farrington and Slater 2006; Slater et al. 2006; Oxfam 2005; Samson et al. 2004; Duflo 2003).

Despite the adoption and roll out of social protection in developing countries, very little attention has focused on rural poor farmers, even though they are most vulnerable and among the poorest (FAO 2017; IFPRI, 2005). However, in recent times, few researchers and policy advocates are proposing for the protection and promotion of the economic livelihoods of the poor and vulnerable (FAO 2017; Shephered et al., 2004; Cherrier et al., 2013) These proponents argue strongly that providing social transfer to the economically active poor and vulnerable has the potential to increase food security, productivity, boost economic activities, create wealth, and ultimately reduce vulnerability and poverty substantially (FAO and UNICEF 2017; FAO 2017) In any case, poverty is a rural phenomenon and most rural dwellers depend on farming for their livelihood. This makes protecting the livelihoods of the poor and vulnerable crucial in the fight against poverty and inequality. This paper contends that since poor and vulnerable people live in the rural areas and depend largely on farming, any intervention that seeks to reduce vulnerability and extreme poverty, should target rural farmers. This study used a microsimulation approach to evaluate the ex-ante effects of social cash transfers to rural farmers on poverty, inequality and the government budget.

Extending social protection to rural farmers is appropriate and important in the fight against poverty in developing countries for several reasons. First, rural farmers constitute the largest vulnerable and poor population in developing countries. They are vulnerable to all forms of social and economic risks and shocks, and among the poorest poor (FAO 2017; Gavrilovic et al., 2016; De La O Campos et al., 2018). In Sub-Saharan Africa, rural farmers represent about 70 per cent of the population and remain poor (FAO et al., 2015; Fraser 2009). Second, rural farmers play an important role in the socio-economic development of any nation – their activities can increase income levels, food security and employment. Third, the impact of such intervention on rural farmers will not only affect poverty and inequality but will also affect the social and economic livelihoods of beneficiaries in the community. Lastly, implementing such a policy will reduce administrative cost significantly, and limit the problems associated with eligibility and targeting.

Ghana, like many developing countries, has a national social protection strategy that seeks to lift the socially excluded and vulnerable groups from extreme poverty (GOG, 2007). Among its five flagship programme, is the Livelihood Empowerment Against Poverty (LEAP) – it provides social grants to extremely poor and vulnerable people, who may be orphans and vulnerable children, elderly above 65 years without any form of support, disabled persons who have no productive capacity and pregnant women. Since its inception in 2008, the programme has been found to facilitate access to education, healthcare, nutrition; improve standard of living of the poor and vulnerable as well as reduce poverty. Notwithstanding, its impact on poverty and inequality is minimal and limited, and poverty is still

prevalent particularly in rural areas and households headed by farmers are the poorest. A recent report by Ghana Statistical Service (GSS, 2018) on the Ghana Living Standard Survey Round 7 shows that poverty has increased from 2.2 million in 2012 to 2.4 million by 2017.

The LEAP programme currently covers only the bottom 25 per cent of the extremely poor and vulnerable. As a result, the government is in the process of scaling up the programme to cover all extreme poor and vulnerable households. However, financing the expansion may require sustainable funding through domestic tax revenue – since the current donor funding or debt will not be sustainable and prudent. It is worth noting that in developing countries raising enough domestic revenue to support government programmes is a big challenge due to the large informal sector, rising income inequalities and weak tax administration. In view of this, using domestic revenue to finance this expenditure will require understanding the system-wide impact of the different choice in financing the expansion, and the best tool capable of analyzing the effect on poverty and inequality is of great importance. The tax-benefit microsimulation model is well suited for such analysis. It is a useful tool and widely used in developed countries to simulate the impact of existing and new social policies (Sutherland and Figari 2013). However, in developing countries except for Latin America, the tax-benefit microsimulation model has been used to expand social protection policies successfully. In sub-Saharan Africa such models are hardly used (Osei et al., 2017).

This paper will contribute to literature in three important ways. First, the study will add to existing literature on how to use the microsimulation model to expand social protection policies in developing countries, particularly Ghana. Second, the study will present an economic case for social protection to economically active poor and vulnerable people. Third, the study provides new empirical evidence for static tax-benefits microsimulation to simulate social benefit for rural farmers. The study has three main objectives. First, to assess the impact of a social benefit to rural farmers on household poverty and inequality. Second, to examine how much it will cost government to implement such policy. Third, recommend to government the best option to finance the policy.

The remainder of the paper is as follows: Section 2 reviews literature on social protection and its economic and productive impact. Section 3 describes the data, methodology and microsimulation model and policy reform. Section 4 presents and discusses the results. Section 5 concludes and provides recommendations for future research.

2 Social Protection and its economic and productive impact

According to FAO (2015), social protection is a set of interventions whose objective is to reduce social and economic risk and vulnerability, and to alleviate extreme poverty and deprivation. Most of these programmes are in the form of social assistance – where cash or in-kind transfers are made to the poor and vulnerable who are mostly economically inactive.

Even though, social protection has been widely acknowledged in literature to reduce poverty, vulnerability, inequality; and improve food security, education, health, nutrition and the standard of living of the poor, there are quite a number of studies that shows that social protection increases economic livelihoods of the poor and vulnerable through agriculture production, employment and productive asset accumulation (Gertler et al.2012; Soares et al. 2010; Barrientos and Sabates-Wheeler 2006; Gertler et al. 2005; Martinez 2004). These studies were conducted in Latin America.

However, an ex post evaluation by Daidore et al.,(2017) on the economic and productive impacts of cash transfers in seven countries in sub-Saharan Africa, Ethiopia, Ghana, Lesotho, Kenya, Malawi, Zambia and Zimbabwe also found a positive relationship between cash transfers and productive activities. The main areas of investment identified in the evaluation are agricultural inputs including seeds, fertilizers, pesticides, hired labour, purchase of farmland and ownership of livestock. All these interventions increased agricultural production, employment and boosted the local economy. In Ghana, a growing number of studies on the LEAP programme also found similar results. For example, a survey conducted by CDD-Ghana (2017) on the utilization of LEAP transfers found out that beneficiaries used transfers to purchase agricultural tools such as cutlass, spraying machines and wellington boots. The study revealed further that about 55 percent of respondents purchased seeds, 62 percent purchased fertilizers and 54 percent weedicides and pesticides.

3 Data and Methodology

The source of data for this study was from the Ghana Living Standard Survey Round 6 (GLSS 6). This is a nationwide household survey designed to generate information on living conditions in the country and well-being of households in Ghana. The GLSS 6 sampled about 18,000 households in 1,200 enumeration areas and out of the 18,000 sampled, 16,772 were successfully enumerated leading to a high response rate of 93.2 per cent. This survey has been conducted since 1987 and for this particular round, it covered a period of twelve (12) months from 18th October 2012 to 17th October 2013. The GLSS 6 contains detailed information about households demographic characteristics, education, household agriculture, housing condition, health and time use, migration and tourism, and access to financial services and asset ownership. The study used a microsimulation approach to examine the ex-ante of introducing a new social assistance benefit to rural farmers and its impact on poverty, inequality and the cost of funding the programme.

3.1 GHAMOD – Microsimulation model and policy reform

A tax-benefit microsimulation model for Ghana was used for the study. The model is part of the UNU-WIDER SOUTHMOD project, and it is built on the EUROMOD platform. The model relies solely on data on incomes and expenditures of individuals in a representative survey of households in Ghana. The current version of GHAMOD v1.5 uses the Ghana Living Standard Survey Round 6, thus 2012/13 data (GLSS 6). The policy year for the simulation is 2013. The current version of the model now simulates the following taxes and benefits: Livelihood Empowerment Against Poverty (LEAP) programme, School Capitation Grant Employee/Employer Social Security Contributions, Old age pensions, Free Senior High School Policy, Income tax, VAT, Excise tax.

The expansion of the social protection programme is simulated in two ways. First, we introduce a new social protection policy to rural farmers. Household heads are that meet particular eligibility requirements in the input data are given the assistance. It follows that:

- Household head must have an agricultural land and live in a rural area
- Household head must be poor and below the extreme poverty line GHS792 per adult equivalent per year
- Household head aged 45 years and above is given a benefit of GHS64.00 per month.
- Household head must not be a beneficiary of the LEAP programme.

We also simulate the impacts of financing this reforms by increasing the social security contribution (SSC) paid by workers and value added tax (VAT) to ensure the required revenue is realized to pay for the cost of the expansion.
Ghana is an agrarian economy and most rural households depend solely on farming for their livelihood. We find from our simulation that providing rural poor farmers with an amount of GHS64.00 per month is appropriate and cost effective in reducing poverty and inequality. In any case, this amount is also equal to amount received by LEAP beneficiaries with a single member in a household.

Targeting household heads aged 45 years and above is key in the fight against poverty. In Ghana, the average age of household head is 45.1 years and households headed by farmers are the most vulnerable and poorest. It is imperative to note that, the average age of female household head is 48 years and that of males is 43.8 years. However, the average age of households head in the rural areas is higher than household heads in the urban areas. In all, the average age of household heads in the rural areas is 47 years but 43.5 years in the urban areas.

4 Results and Discussions

The results from the static microsimulation are presented in Tables 1 and 2 below (results based on GHAMOD version 1.5). Table 1 shows poverty and inequality measured based on consumption for baseline/status quo, a non-revenue neutral scenario, and revenue-neutral scenarios or funding scenarios from Employee Social Security Contribution (ESSC) and Value Added Tax (VAT). Table 2 also shows the government revenue and expenditure values for the simulation scenarios.

The first column of table 1 presents a baseline/status quo results for the year 2013 while the next three columns shows the results of static microsimulation for the reforms. The first column shows the impact of the rural farmer's assistance reform only (non-revenue neutral) while the second and third show the impact of the reform when an increase in employee social contribution and value added tax is introduced (revenue neutral). From the presentation, government needs to increase the employee social security contribution rate by 6 percentage points or value added tax rate by 4 percentage points in order to fund the new social protection policy for rural farmer assistance reform.

We find that the rural farmer benefit reform reduces overall poverty by 0.96 percentage points. The effect is more pronounced among households with older persons with about 2.31 percentage points. However, male headed household and household with children also experienced some reduction poverty by 1.00 percentage points and 0.48 percentage points respectively. In a like manner, households headed by males benefited slightly than households headed by females by less than 1 percentage point (thus 0.18 per cent). Interestingly, apart from households with older persons who benefited largely from the reform, the next group of people in the household who also benefited were households with headed by males. This confirms studies by scholars that older persons and households headed by males benefit more from social protection programmes in developing countries based on the fact that they are vulnerable and poor. In a similar way, the reform decreases the poverty gap by 0.54 percentage points. This reduction is similar in all the other household groups. The rural farmer benefits also reduced inequality as measured by Gini coefficient by 0.41 per cent and the top 80^{th} and 20^{th} percentile also experienced a significant reduction by 7 per cent. It is clear from our simulation that the rural farmer benefit reform reduces poverty and inequality. We can conclude

however, that extending social protection to rural poor farmers in Ghana will reduce poverty and inequality.

Homogenously, in the revenue – neutral scenario for employee social security contribution, overall poverty decreased by 0.76 percentage points. The reduction was significant among households with older persons by 2.24 percentage points. Comparably, all the other household groups also witnessed a reduction of almost 1 percentage points however households with children benefit more than male and female headed households by 0.8, 0.78 and 0.72 percentage points respectively. In a like manner, the poverty gap reduced by 0.43 percentage points. In this scenario, inequality and the top 80th and 20th percentile also reduced marginally by 0.45 per cent and 7 per cent respectively. However, the introduction of the employee social security contribution affected households narrowly as compared with the non-revenue reform. This implies that increasing employee social security contribution will not affect poverty.

Table 1: Simulation results of the social assistance to rural poor farmers on poverty and inequality.

	Baseline/Status quo	Reform A: Non-revenue neutral	Reform B: Revenue neutral, ESCC	Reform C: Revenue-neutral, VAT
Poverty Measures				
Share of poor population, in %				
All	24.93	23.97	24.17	24.23
Male-headed households	26.67	25.67	25.89	25.95
Female-headed households	19.72	18.89	19.00	19.07
Households with children	27.50	26.52	26.70	26.80
Households with older persons	33.60	31.29	31.36	31.47
Poverty Gap (average normalized poverty gap)				
All	8.12	7.58	7.69	7.68
Poor Households out of				
Male-headed households	8.83	8.24	8.36	8.36
Female-headed households	5.99	5.58	5.67	5.66
Households with children	8.95	8.36	8.48	8.48
Households with older persons	11.05	9.97	10.00	10.11
Gini	0.4150	0.4109	0.4105	0.4103
P80/P20	3.51	3.44	3.44	3.44

Source: Author's calculations based on GHAMOD

Analogously, in the revenue – neutral scenario for value added tax, overall poverty equally reduces by 0.7 percentage points, as this is evident among households with older persons by 2.13 percentage points. In a similar way, male-headed households, female-headed households and households with children all benefited from the reduction by almost 1 percentage points. Intriguingly, in this scenario, the effect of the reform on households headed by males is slightly greater than households with children by 0.02 percentage points but more than female-headed households by 0.07 percentage points. Likewise, poverty gap reduces from 0.4150 to 0.4103, representing about 0.47 per cent and the top 80th and 20th percentile also decreases by 7 per cent. It suffices to note that in this revenue-neutral for value added tax, the reduction in the inequality is better than in the case of both non-revenue and revenue-neutral for employee social security contribution.

It is obvious that the two revenue-neutral financing options resulted in a marginal increase in overall poverty and poverty gap but reduced inequality. However, the two reduced overall poverty, the revenue-neutral for value added tax had more effect on inequality. We conclude that the rural farmer reform in general has the potential to reduce both overall poverty and inequality and the most beneficiaries are households with older persons and households headed my males.

Table 2: Simulation results of the rural farmer assistance programme on government budget using employee social security contribution and value added tax.

Social Protection/ Budget	Baseline/Status quo (GHS)	Non-revenue neutral rural farmer reform (GHS)	Revenue-neutral rural farmer assistance (SCC- Employee) – (GHS)	Revenue-neutral rural farmers assistance (VAT) – (GHS)
Rural farmer assistance	0.00	492.79	492.79	492.79
LEAP	3.34	3.34	3.34	3.34
Government Expenditure	3.34	496.13	496.13	496.13
Government Revenue	----	----	522.17	511.79
Tax increase (%)	----	----	6%	4%

Source: Author's calculations based on GHAMOD
Notes: The budgetary implications are expressed in millions of Ghanaian Cedi

In the revenue-neutral scenarios, the study considered two main options of funding government budget particularly in developing countries – employee social security contribution and value added tax. The rural farmer reform alone will cost government approximately GHS493.00 million, whilst the LEAP programme cost government about GHS3.34 million. However, extending social protection to include poor and vulnerable rural farmers, will cost government approximately GHS496.00 million.

In the revenue - neutral scenario, government revenue through employee social security contribution of GHS522.00 million can be used to pay for the expenditure on the social intervention, whilst government revenue through value added tax of GHS511.00 million can also finance the programme.

6 Conclusion

The purpose of the study was to examine the ex-ante impacts of social protection for rural poor farmers on poverty and inequality. The results from the microsimulation model showed that extending social cash grant to poor and vulnerable rural farmers will contribute significantly to reducing extreme poverty and inequality among households. The study further revealed that the reduction is more distinct among households with older persons and children. It is imperative to note however, that rural farmers play an important role in the socio-economic development of a country and such a reform will not only impact directly on poverty, hunger, wellbeing but also on livelihoods, employment, local market, health, nutrition, education etc.

However, extending the programme to reach poor and vulnerable farmers will cost government approximately GHS496.00 million. The study considered two main financing options - employee social security contribution and value added tax, to finance the expansion. Even though the two financing options are tenable, the best option in this case, is the value added tax. It has a wider scope, easy to collect and difficult to evade. More importantly, using value added tax to finance the expansion reduced inequality more than employee social security contribution, contrary to many studies that indicate that it a regressive tax and affects poor and low-income earners. The government will have to increase value added tax by 4 per cent.

Concerning the research implication, this study goes beyond social protection for poor and vulnerable rural farmers and open up discussions and debate for an economic case for social protection for economically active poor and vulnerable. Social protection by design target economically inactive poor and vulnerable people at the expense of other equally poor and vulnerable active individuals and groups.

In terms of policy implication, the study provides a strong case for government to expand the LEAP programme to target rural poor farmers and the best means of financing the expansion is through value added tax. The government should broaden the tax net to cover the informal sector so that enough revenue will be raised to finance government spending and also relieve the few formal sector employee from the tax burden. More importantly, the study confirmed that increasing value added tax did not affect inequality- because of its coverage and application.

Notwithstanding these findings of the reform on poverty and inequality, this study has some limitations. First, the study used a static microsimulation approach to simulate the ex-ante impacts of the reform. This analysis just showed the impact of such a policy before it is implemented. Second, the study did not take into account behavioural changes of the population particularly with regards to their responses to increases in tax rate. As a result some people may decide not to buy more or consume certain goods and service in the case of value added tax, others especially in the informal sector may see this increment as a disincentive and move to the informal sector or may even decide not to work more since employee taxes are progressive. Third, this increment may lead to invasion of taxes. Lastly, the data set used may not be very accurate because the survey covered a specific period, this may include or exclude people at the time of the survey.

However, the study recommends that future study on the subject should be able to simulate the behavioural changes of people particularly in response to tax rate increment. Second, it recommends an economic case for social protection and suggests that further studies should focus on the economic and productive capacity of the poor and vulnerable.

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