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Identifying Key Sectors and Key Policies of a Pro-Poor Growth Strategy

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Key Points

- Identifying key sectors and key policies requires modeling both growth-poverty and policy-growth linkages.
- Results from a simulation analysis that incorporates these two linkages for Ghana, Senegal and Uganda indicate higher PPG-potentials in non-agriculture compared to agriculture.
- Optimal budget allocations should target a high share of roughly 70% to non-agriculture.
- Given allocations in 2015, this would still imply a reallocation towards CAADP in all 3 countries.

Background

There is a broad agreement that sustainable and pro-poor growth is the only successful strategy to reduce poverty. However, putting Pro-Poor-Growth (PPG) into operation is a complex task. A prominent debate concerns the relative importance of agriculture versus non-agricultural sectors in promoting PPG. Empirical studies usually find that agricultural growth has larger economy-wide multiplier effects and stronger linkages to poverty reduction in most African countries. For example, Diao et al. (2012) conclude from their Computable General Equilibrium (CGE) simulations undertaken for Kenya and Rwanda that 1 percent GDP growth driven by agriculture leads to three or four times more poverty reduction than 1 percent GDP growth driven by non-agriculture. Such findings are intuitive, considering the stronger multiplier effects of agriculture (and especially staple food crops) on household incomes, consumption and overall economic growth. However, alternative concepts identifying key sectors exist that partly lead to different results (Henning et. al. 2016).

From a practical standpoint, therefore, a potential dilemma exists for informing policy makers, bureaucrats, and technocrats tasked with the responsibility of making decisions on appropriate policies. Taking the view of a politician facing limited resources to promote PPG, the important issue is to identify those key sectors and types of interventions that help induce the highest reduction of poverty per public resources spent. The on-going political debate on designing optimal policy strategies in the Comprehensive Africa Agricultural Development Programme (CAADP) is a good case in point. In the CAADP framework, intervention options are defined as policy programs and investment strategies designed to achieve technical progress for key sub-sectors within agriculture, and especially those that induce the largest potential reduction in poverty. A central question, therefore, is identifying the key sub-sector interventions (policies and investment programs) that will most likely result in a sustainable PPG development pathway. In this policy brief, we will first briefly describe a new methodology to identify key sectors and key policies and then compare this methodology with existing concepts using CAADP-implementation in Senegal, Ghana and Uganda as an example.

Methodology

As **Figure 1** illustrates, the underlying logic of our approach is to assess how different policy interventions can help promote sustainable economic growth and lead to desired policy outcomes such as income growth and poverty reduction. The basic logic of any PPG-strategy corresponds to growth-poverty linkages, i.e. the fact that economic growth reduces poverty. However, different sectors, i.g. agriculture and non-agriculture, have different poverty impacts. An important criterion is how much sectors can be interlinked with poorer households. The linkages can come in two ways, directly from increased incomes and indirectly from lower prices of commodities that poorer households spend a significant proportion of their income on.

Many studies identify agriculture as a key sector given that a majority of the poor are employed in agriculture and food purchases account for the largest share of their household expenditures. Therefore, agricultural policy interventions in food crop production are often considered as more pro-poor than export crops, for example. The former are often dominated by poorer small-scale farmers while the latter is often characterized by large-scale plantation farming, especially in West Africa.

In assessing growth-poverty relations, CGE-

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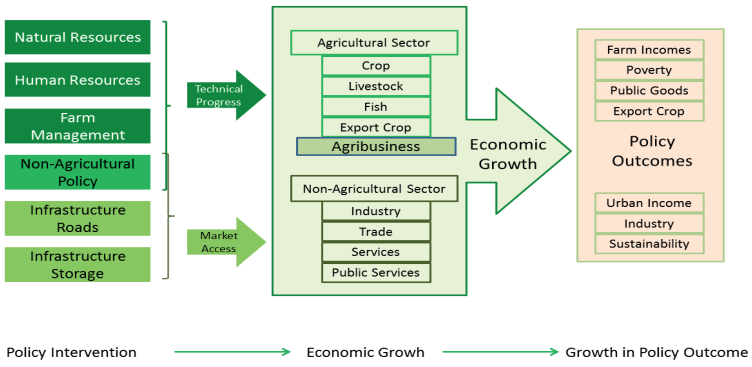

Figure 1: A logical framework for policy

models have turned out to be the workhorse model in the development economics literature (Fan, 2008). In order to analyze the impact of economic growth on poverty reduction, the CGE-model is linked to a household level poverty-module that incorporates a large number of individual households based on household survey data (Lofgren, 2002). In the linked Micro-Macro CGE approach growth-poverty linkages are determined via CGE-multipliers or alternatively CGE-elasticities. The CGE-elasticity describes the change in the rate of poverty induced by a 1 percentage point change in technical progress within a specific sector, while the CGE-Multiplier denotes sectoral technical progress effects on poverty normalized by the economic size of a sector (e.g. GDP-share, see Dorosh et al. 2014).

However, sectoral growth does not fall from heaven but rather has to be generated by adequate government policies. For either sector (agriculture versus non-agriculture), there are at least two broad intervention approaches to promote economic growth. The first is through increased technical progress and the second through improved market access. Various policy instruments and investment programs exist for each of these. Analytically, identifying key sectors and key policies involves two steps: First, identifying growth-poverty linkages, that is identifying the impact of economic growth occurring in a specific sector on poverty reduction; and second, identifying policy-growth linkages, i.e. quantifying the impact of specific policies and programs on sectoral technical progress.

To analyze policy-growth linkages, we extend existing CGE-models to a Computable General Political Economy Equilibrium (CGPE) model incorporating policy-growth linkages via a policy impact function (PIF) approach (Henning et al. 2018). The PIF basically provides empirical estimates of total and marginal costs associated with achieving specific levels of technical progress across different sectors. Empirical estimation of PIFs is generally tedious due to limited availability of adequate statistical data. In this regard we suggest a Bayesian estimation procedure combining statistical data with expert data collected from relevant stakeholders (Henning et al. 2018). We estimated PIF functions for all four CAADP policy intervention areas: management of natural resources (NR), management of farm production (FM), human resources (HR) and market access (MA). Beyond public investments in agriculture, investments in the non-agricultural sector are important to consider, since there exists sufficient empirical evidence showing that non-agricultural sector policies can have large spill-over effects on agriculture and vice-versa. Thus, any comprehensive public investment strategy must therefore consider the budget allocations across both agricultural and non-agricultural policy programs.

Empirical Results

Key Sectors

As can be clearly seen form **Figure 2** identified key sectors crucially depend on the applied concept. In particular, standard CGE-concepts, i.e. CGE-elasticities and -multipliers, respectively, imply that especially growth in non-agricultural sectors has the potential to reduce poverty. In contrast, applying the concept of CGPE-elasticities, taking both growth-poverty and policy-growth linkages into account, implies that, at least in Senegal, by far the highest potential to reduce poverty can be found for economic growth in agriculture, especially the food sector.

Please note that PPG-potentials of non-agricultural sectors like telecommunication, chemistry or trading as well as the high potential of the agricultural export sector, which are indicated by the standard CGE-concept, are finally not confirmed by the CGPE-concept, because the marginal costs to promote technical progress in these sectors are extremely high. This fact, however, does not necessarily imply that technical progress is low in these sectors. For example, in telecommunication a very high rate of technical progress of over 7% on average could be observed over the last decade in Senegal. However, given the already high level of achieved technical progress, it appears extremely costly to further promote technical progress in telecommunication. In contrast, for the trading sector a very low level of technical progress could be observed over

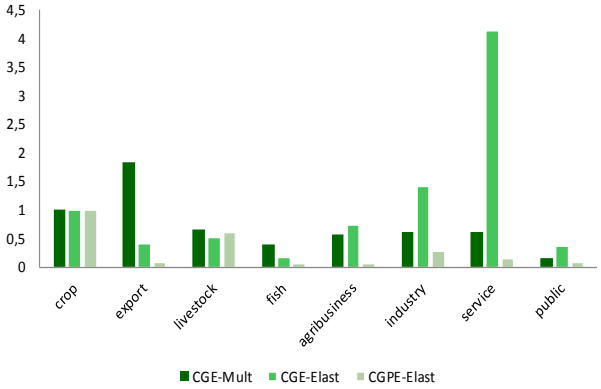

Figure 2: Key Sectors in Senegal

the last decade in Senegal, but empirical PIF estimation shows that it is generally extremely costly to promote technical progress in this sector (see Henning et al. 2016). Given that the trade sector in Senegal as in many other African countries consists to a large extent of informal activities, this conclusion appears intuitive. Finally, interpreting CGPE or CGE-elasticities one has to be aware of the fact that these elasticities depend on the amount of public resources spent to promote technical progress and the level of technical progress that has been realized in a sector.

Key Policies

The on-going political debate on designing optimal CAADP-policy strategies clearly highlights the problem to identify key policies. In the framework here, key policies correspond to policy programs and investment strategies that achieve a maximal technical progress for PPG key sectors. In **Figure 3** we present the relative marginal impact of different agricultural policy programs on poverty reduction calculated in relation to the marginal impact of non-agricultural investments for 3 African countries. Calculations are based on CAADP implementation in 2015.In all 3 countries investment in agriculture, especially investments in market access through improved

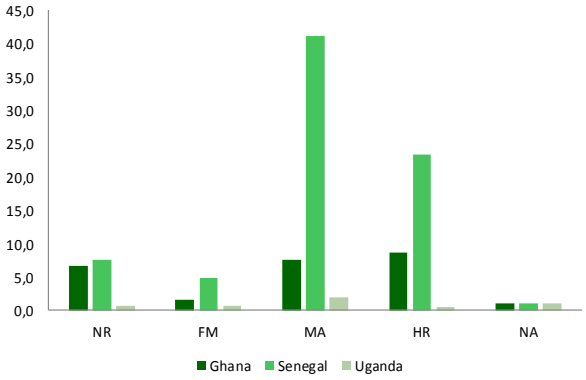

Figure 3: Key CAADP-Policies in Ghana, Senegal and Uganda

rural infrastructure and human resources are significantly more productive in reducing poverty as compared to non-agricultural programs.

However, a comparatively low relative marginal impact on poverty results for investments in the farm management pillar (FM). This is remarkable since major resources are allocated to the FM-pillar in all 3 countries. However, marginal productivity of public expenditures under different policy programs is a local indicator that crucially depends on the distribution of public expenditure across policy programs. Thus, these can be interpreted as indicators in which direction public money needs to be reallocated to maximize poverty reduction. To assess the absolute importance of different policy programs, we calculated optimal budget shares corresponding to the allocation of total public resources across policy programs that maximizes the effect on poverty reduction.

As can be seen from **Figure 4** optimal share of public resources spend on non-agricultural policy programs amounts between 60%-70% in all 3 countries, while optimal allocations across CAADP pillars vary across countries. Hence, we conclude from these empirical results that promoting economic growth in non-agriculture is essential to efficiently reduce poverty at least in the 3 countries analyzed. Given the fact that roughly 80% of total GDP is generated in non-agriculture this is not surprising. However, the low marginal impact of non-agricultural in comparison to agricultural policy programs also indicates that given realized budget allocations in 2015 resources need to be reallocated towards agricultural programs as claimed by CAADP guidelines.

Trade-offs between Poverty and Growth

Finally, even if key sectors and policies as well as efficient implementation mechanisms have been identified, the problem of political feasibility arise, i.e. in political practice reducing poverty is certainly not the only political goal governments needed to achieve to guarantee reelection. Hence, competing policy goals exists, such as poverty reduction versus income growth. Obviously, CGPE-elasticities can be calculated for competing policy goals. Hence, the question arises how the CGPE-elasticities calculated for poverty reduction are correlated with the one derived for competing policy goals, e.g. the one listed in **Figure 1**. As can be seen from **Figure 5** for all 3 African countries poverty reduction is strongly and positively correlated with

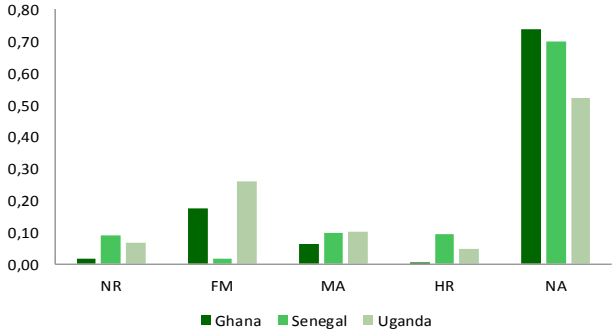

Figure 4: Optimal budget shares

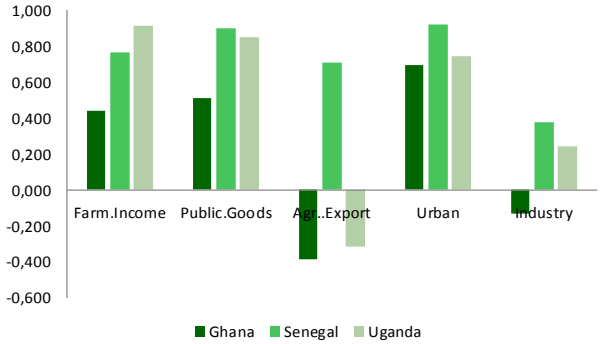

Figure 5: Trade-offs between poverty and competing policy goals

growth in farm and urban incomes as well as public expenditure for public goods (e.g. health and education). In contrast, increasing economic growth in the industrial as well as agricultural export sector has only little or even negative impact on poverty reduction. From a political economy perspective positive correlation between poverty and competing policy goals is remarkable, since the standard explanation of ineffective PPG-policies corresponds to governmental biases towards urban and industrial interest at the expense of the rural poor. Interestingly, in this context CGPE-application indicate that policy failure in African countries result mainly from knowledge gaps and far less from incentive gaps (Henning et al. (2018)).

Conclusion

Identifying key sectors and key policies of an efficient PPG-strategy is an important though not trivial task. Standard CGE-modeling approaches are based on growth-poverty linkages only and neglect policy-growth linkages. Thus, compared to advanced CGPE-approaches standard CGE-approaches lead to biased results. Regarding the Agriculture-Non-Agricultural nexus, empirical applications of the CGPE-approach to 3 African countries indicate that although growth in non-agriculture has a higher potential to reduce poverty when compared to agricultural growth, at the given budget allocations in 2015, generating growth involves significantly higher marginal costs in non-agricultural than agricultural sectors. This indicates that reallocating funds towards agriculture is efficient. However, promoting sectoral growth via public policies is characterized by increasing marginal costs, thus maximizing poverty reduction implies that optimal budget allocation still correspond to high non-agricultural budget shares of roughly 70%, while only 30% is allocated to CAADP-policies. Regarding political trade-offs between poverty reduction and income growth, CGPE simulations reveal the remarkable result that at least in the 3 analyzed countries growth is positively correlated with poverty reduction. Hence, policy failure seems to be much less the result of biased governmental incentives towards urban industry, but much more the result of a lack of adequate political knowledge.

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provide information and key policy recommendations on the poverty-equity-growth nexus. The views presented are those of the authors and do not necessarily reflect the views of PEGNet. In case of questions or comments, please directly contact the authors.