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Public Spending Composition in Uganda and its Implications for Growth and Poverty Reduction

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Abstract

This article examines the interrelationships between public spending composition and Uganda's development goals including economic growth and poverty reduction. The authors utilize a dynamic computable general equilibrium model to study these interrelationships. These results demonstrate that public spending composition does indeed influence economic growth and poverty reduction. In particular, the authors show that improved public sector efficiency coupled with reallocation of public expenditure away from the unproductive sectors such as public administration and security to the productive sectors including agriculture, energy, water, and health leads to higher gross domestic product growth rates and accelerates poverty reduction. Moreover, the rate of poverty reduction is

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faster in rural households relative to the urban households. A major contribution of this article is that investments in agriculture, particularly with a view to promoting value addition and investing in complementary infrastructure (e.g., roads and affordable energy), contribute to higher economic growth rates and also accelerate the rate of poverty reduction.

Keywords
sub-Saharan Africa, Uganda, public expenditure efficiency, economic growth and poverty reduction, computable general equilibrium

Governments in developing countries are often faced with expenditure needs that outstrip their resource envelopes and usually have limited options to raise additional resources domestically. For instance, most developing countries have a large informal sector that implies lower than average tax-to-gross domestic product (GDP) ratios. Further, given the narrow tax base, raising additional tax revenues would often lead to significant distortions and create disincentives for the private sector to save and invest. To the extent that the debt carrying capacity of most developing countries is low, external financing—even when contracted at concessional terms—should always be a last resort. An alternative here would comprise creating fiscal space by reallocating spending from the less efficient to the more efficient uses. In addition, the effective use of public resources for instance to improve human and physical capital would lead to increased productivity and income, and consequently expand the scope for private and public consumption opportunities in the future (World Bank 2007). This in turn would engender more GDP growth and would enhance the revenue-raising capacity.

This article therefore seeks to examine whether the composition of public spending in Uganda influences the achievement of growth and poverty reduction objectives. We identify at least two reasons for pursuing this line of inquiry for Uganda.

First, in a bid to ensure a robust rebound from the global economic slowdown, Uganda is faced with difficult fiscal reform choices, particularly regarding the composition of government expenditure. For instance, while the emphasis on infrastructure in Uganda over the recent past is a welcome development, a more prudent approach to achieving efficient expenditure allocations would require systematic analyses of the implications of such allocations on long-term productivity, growth, and poverty reduction outcomes (Agénor and Blanca 2006).

Second, while there is considerable evidence that investment in human capital is as important as physical capital accumulation, most dynamic studies have paid little or no attention to the dynamic efficiency effects of public spending on human capital accumulation (Matovu 2000; Hjerppe et al. 2007). Prioritization of infrastructure spending has been shown to lead to higher growth outcomes due to the increased household productivity from the positive externality effects associated with good infrastructure[1] (Matovu 2000). Consequently, our study uses a dynamic computable general equilibrium model to investigate these dynamic efficiency effects.

The rest of this article is organized as follows: the second section reviews literature and identifies gaps, and the third section presents the methodology, data used, and simulations. In the fourth section, we discuss the findings, while the final section concludes with policy recommendations.

Some Related Literature

Several studies have been undertaken to analyze the relationship between the composition of government expenditures and growth. However, neither theory nor empirics provide clear-cut answers on how the composition of government expenditures affects economic growth. Theory develops a rationale for government provision of goods and services based for instance, on the failure of markets to provide public goods, the need to internalize externalities, and the necessity to cover costs especially when significant economies of scale exist. However, such theoretical notions usually do not easily translate into operational rules regarding which component of public expenditure should be reduced or increased (Devarajan, Swaroop, and Zou 1996).

A commonly cited argument in support of scaling up of public spending on infrastructure is that infrastructure services could have a strong growth-promoting effect through their impact on the productivity of private inputs and the rate of return on capital, particularly when a country is starting from a low base of infrastructure assets. For instance, see United Nations (2005) and the World Bank (2005a, 2005b). However, recent analytical and empirical research has highlighted the fact that public infrastructure, in addition to its direct effects on the productivity of private inputs and the rate of return on private capital, has the potential to spur growth through a variety of other channels (Agénor and Blanca 2006).

For instance, it has been argued that good public infrastructure including a reliable power grid or well-maintained roads may raise the rate of capital formation and spur growth. Microeconomic evidence also suggests that infrastructure may have a significant impact on health and education outcomes. Moreover, this impact tends to be magnified through interactions between health and education themselves (Agénor and Blanca 2006). In particular, better health has been shown to have a strong impact on the ability to learn and study, in addition to enhancing the productivity of workers.

The endogenous growth models of, among others, Aschauer and Greenwood (1985) and Barro (1990) emphasize the crucial distinction between nonproductive public goods (such as government consumption) and public goods that complement private sector production. To the extent that government consumption has no direct effect on private sector productivity, an increase in the share of nonproductive government expenditures reduces incentives to invest and results in lower growth rates.[2] On the other hand, productive expenditures, such as education, research and development, job training, and physical infrastructure, positively affect the efficiency of private sector production and consequently lead to higher per capita growth. These findings are confirmed by Grier and Tullock (1989), who find a negative relationship between the growth rate of real GDP and the government's consumption share of GDP. Government investment expenditure, for instance, the provision of infrastructure services, is identified as enabling growth.

The literature also presents evidence that not all government capital is productive or that decomposing the effects of public spending on development outcomes comprises complex chains of linkages and, as such, needs to be understood from a dynamic perspective. For instance, Devarajan, Swaroop, and Zou (1996) argue that earlier empirical analyses linking particular components of government expenditure to private sector productivity and economic growth have been constrained by the absence of a rigorous theoretical framework. In a framework that abstracts from the financing of public expenditures and in which government decisions are exogenous, Devarajan, Swaroop, and Zou find a positive relationship between per capita real GDP and the current spending share of total public expenditure. The relationship between real per-capita growth and the capital component of expenditures is found to be negative.

These findings are justified by the argument that a higher level of government spending necessitates higher distortionary taxes, and as such, the steady-state growth rate will increase only if the productivity of such government spending exceeds the deadweight loss associated with the taxes required to pay for it. Further, Devarajan, Swaroop, and Zou (1996) argue that the previous work like Grier and Tullock (1989) and Easterly and Rebelo (1993) does not account for the composition and level effects of public spending on growth since a unit increase in the budgetary share of one sector has to be matched by a unit decrease in some other spending share (composition effect), as the total spending remains fixed.[3]

Paternostro, Rajaram, and Tiongson (2007) argue that the impact of public spending on common economic goals including growth, equity, and poverty reduction is difficult to assess because of the complex chain of linkages, the time lags involved and the interdependence among the goals. They add that both initial conditions and institutional capabilities have an important influence on the effectiveness of transmission mechanisms and must be factored into country-specific policy recommendations. Paternostro, Rajaram, and Tiongson (2007) recommend that the trade-offs between social expenditure and infrastructure expenditure, or between policy interventions in general, need to be understood from a dynamic perspective.

Evidence from computable general equilibrium (CGE) model analyses also emphasizes the important relationships between the composition of public expenditures and development outcomes (growth and poverty reduction). Dabla-Norris and Matovu (2002) use a dynamic CGE model to examine the contribution of primary, secondary, and tertiary education and infrastructure to growth in developing countries with special application to Ghana. They report that increasing primary and secondary education has significant macroeconomic and poverty reduction benefits, although these benefits come at the expense of infrastructure investment. Lofgren and Robinson (2004) also use a dynamic CGE model to study the relationship between development outcomes and spending on agriculture, health, education, transport–communications, social security, and defense for a sample of sub-Saharan countries. Their findings indicate that increased expenditures on agriculture, transportation, and communications generate modest economic growth but increased investment in health leads to more rapid growth and significant reductions in poverty. Jung and Thorbecke (2003) report that well-targeted education expenditures can be effective for poverty alleviation in Tanzania and Zambia, but note that to maximize these benefits, education spending needs to be complemented by sufficient public investment.

These studies present evidence to support the argument that prioritizing public expenditures toward growth-generating sectors including infrastructure promotes growth and accelerates poverty reduction. However, an emerging theme from these studies is that economic growth theory is essential to derive the necessary guidance on how public spending could be used to stimulate growth, improve the distribution of income, and reduce poverty.

Our study uses a recursive dynamic CGE model to examine the dynamic interrelationships and trade-offs between the composition of government spending, growth, and poverty reduction in Uganda. Our framework also models the effects of improved public sector efficiency on these development objectives.

Methodology and Data

We use a recursive dynamic CGE model for Uganda based on the 2007 Social Accounting Matrix (SAM). We draw on a number of strengths from the CGE modeling framework in our analysis. First, the model simulates the functioning of the economy as a whole and tracks changes in economic conditions and the ways in which these changes are transmitted through price and quantity adjustments on a range of markets. Second, we are able to discern the effects of the changes in economic conditions on individual sectors of the economy. Third, the link of the model to household survey data enables an assessment of the impacts on the welfare of households. Finally, the recursive dynamic nature of our model implies that the behavior of its agents is based on adaptive expectations rather than on the forward-looking expectations that underlie intertemporal optimization models. Since a recursive model is solved one period at a time, it is possible to separate the *within-period* component from the *between-period* component, where the latter governs the dynamics of the model. The CGE model used in this study is based on a standard CGE model developed by Lofgren, Harris, and Robinson (2002) and adopted to Uganda by Economic Policy Research Center.[4] This is a real model without the financial or banking system. GAMS software is used to calibrate the model and perform the simulations.

SAM

Consistent with other conventional SAMs, the 2007 Uganda SAM is based on a block of production activities involving factors of production, households, government, stocks, and the rest of the world.[5] The various commodities (domestic production) supplied are purchased and used by households for final consumption (42 percent of the total) but also a considerable proportion (34 percent) is demanded and used by producers as intermediate inputs. Only 7 percent of domestic production is exported, while 11 percent is used for investment and stocks and the remaining 7 percent is used by government for final consumption.

Households derive 64 percent of their income from factor income payments, while the rest accrues from government, interhousehold transfers, corporations, and the rest of the world. The government earns 32 percent of its income from import tariffs, a relatively high proportion but a characteristic typical of developing countries. It derives 42 percent of its income from the ROW (Rest of the World), which includes international aid and interest. The remainder of government's income is derived from taxes on products (14 percent), income taxes paid by households (6 percent), and corporate taxes (5 percent).

Productions and Commodities

For all activities, producers maximize profits, given their technology and the prices of inputs and outputs. The production technology is a two-step nested structure. At the bottom level, primary inputs are combined to produce value-added output using a constant elasticity of substitution (CES) function. At the top level, aggregated value added is then combined with intermediate input within a fixed coefficient (Leontief) function to give the output. The profit maximization gives the demand for intermediate goods, labor, and capital demand. The detailed disaggregation of production activities captures the changing structure of growth due to the pandemic.

The allocation of domestic output between exports and domestic sales is determined using the assumption that domestic producers maximize profits subject to imperfect transformability between these two alternatives. The production possibility frontier of the economy is defined by a constant elasticity of transformation (CET) function between domestic supply and export.

On the demand side, a composite commodity is made up of domestic demand and final imports and it is consumed by households, enterprises, and government. The Armington assumption is used here to distinguish between domestically produced goods and imports. For each good, the model assumes imperfect substitutability (CES function) between imports and the corresponding composite domestic goods. The parameters for the CET and CES elasticities used to calibrate the functions used in the CGE model are exogenously determined.

Factors of Production

There are six primary inputs: three labor types, capital, cattle, and land. Wages and returns to capital are assumed to adjust so as to clear all the factor markets. Unskilled and self-employed labor is mobile across sectors, while capital is assumed to be sector specific. Within the model, producers instantly adjust to changes in rates of returns for factors of production for each sector. The model does not take into account adjustment costs of switching resources between sectors.

Institutions

There are three institutions in the model: households, enterprises, and government. Households receive their income from primary factor payments. They also receive transfers from government and the rest of the world. Households pay income taxes proportional to their incomes. Savings and total consumption are assumed to be a fixed proportion of household's disposable income (income after income taxes). Consumption demand is determined by a linear expenditure system (LES) function. Firms receive their income from remuneration of capital, transfers from government and the rest of the world, and net capital transfers from households. Firms pay corporate taxes to government that are proportional to their incomes.

Government revenue is composed of direct taxes collected from households and firms, indirect taxes on domestic activities, domestic value-added tax, tariff revenue on imports, factor income to the government, and transfers from the rest of the world. The government also saves and consumes.

Macro Closure

Equilibrium in a CGE model is captured by a set of macro closures in a model. Aside from the supply–demand balances in product and factor markets, three macroeconomic balances are specified in the model: fiscal balance, external trade balance, and savings–investment balance. For fiscal balance, government savings is assumed to adjust to equate the different between government revenue and spending. For external balance, foreign savings are fixed with exchange rate adjustment to clear foreign exchange markets. For savings–investment balance, the model assumes that savings are investment driven and adjust through flexible saving rate for firms.

Recursive Dynamics

To appropriately capture the dynamic aspects of aid on the economy, this model is extended by building some recursive dynamics by adopting the methodology used in previous studies on Botswana and South Africa (Thurlow 2007). The dynamics are captured by assuming that investments in the current period are used to build on the new capital stock for the next period. The new capital is allocated across sectors according to the profitability of the various sectors. The labor supply path under different policy scenarios is exogenously provided from a demographic model. The model is initially solved to replicate the SAM of 2007.

Limitations of the Model

CGE models have some weaknesses (Thurlow 2007). The main criticism of the static model is that its core formulation is closely tied to the Walrasian ideal of equilibrium (Dervis, de Melo, and Robinson 1982). In a pure neoclassical setting, producers and consumers react passively to prices in order to determine their demand and supply schedules. Markets are therefore assumed to clear through the interaction of relative prices, such that equilibrium is achieved in both goods and factor markets. The model accommodates prices in relative terms, and therefore cannot adequately address issues related to inflation.

Simulations

Our analysis is based on a series of scenarios each representing an exogenous change in economic conditions and are compared to a "Base" case scenario of business as usual. Running scenarios allows us to conduct a sort of controlled experiment of various types of impacts. These impacts are then ascertained in terms of average sectoral growth patterns and changes in poverty rates and compared to the baseline.

This baseline scenario assumes no specific changes to policy, in particular, with no changes to budget allocations. We calibrate the model to generate about 6.6 percent for real GDP growth under the baseline for the simulation period. The government finances its activities from domestic and foreign sources in a manner that is designed to be compatible with macroeconomic stability.

We compare the "Base" case to a simulation where we allocate resources between sectors from the nonproductive sectors to the productive sectors. We also run another simulation where we assume that there is improved efficiency in the use of resources coupled with the reallocation of resources (Efficient scenario). Improved efficiency in public sector spending has externalities on the rest of the economy in particular where public investments in infrastructure contribute to improvements in total factor productivity. Production sectors within the SAM have several backward

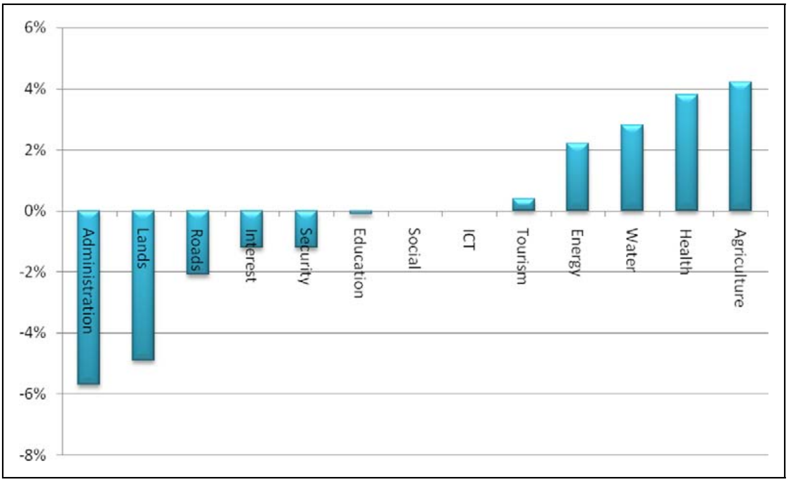


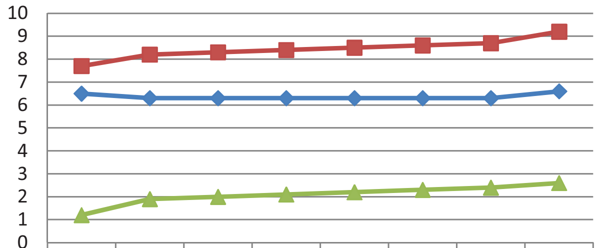
Figure 1. Percentage changes in sector budget shares after the proposed reallocations

and forward linkages including such areas as job creation, export promotion and foreign earnings, public and private sector resources. It is therefore plausible that increased productivity in the productive sectors will have significant positive spillover effects on the rest of the economy. Moreover, given that the model used here is in real terms (price changes are not modeled), the monetary costs associated with improvements in efficiency relative to the baseline can be quantified by differences in real GDP or real GDP growth rates in these two scenarios.

Findings

Actual Versus Proposed Allocation and Efficiency of the Public Sector

The primary objective of this article is to investigate the interrelationships between public spending composition in Uganda its and development outcomes. The approach taken here is to reallocate public expenditures away from the unproductive sectors including public administration (without compromising the quality of service delivery) and security to the more productive ones such as agriculture, water, energy, and tourism.[6,7] Figure 1 shows the percentage changes in sector budget shares following this reallocation. In addition, we model improved efficiency in the public sector.



	2009	2010	2011	2012	2013	2014	2015	2016
FY 09/10 Budget Allocation	6.5	6.3	6.3	6.3	6.3	6.3	6.3	6.6
Proposed Budget Allocation	7.7	8.2	8.3	8.4	8.5	8.6	8.7	9.2
Difference	1.2	1.9	2	2.1	2.2	2.3	2.4	2.6

Figure 2. Gross domestic product (GDP) growth: FY 2009/10 budget allocation versus proposed budget allocation

Improved efficiency is interpreted broadly here to include several aspects such as improved absorptive capacity of public resources within the public sector, use of resources for the planned uses, improved transparency in public spending, timeliness in implementation of government projects, and improved governance within the public sector. The approach taken in this article is to assume that addressing the aforementioned bottlenecks in Uganda's public sector will increase the total factor productivity within the public sector by 1 percent.[8] We therefore deduce the contribution of increased public sector efficiency by comparing real GDP (or real GDP growth rates) in the "Base" case (or business as usual scenario) with the "Efficient" scenario.

Effects on GDP Growth

As shown in figure 2, our proposed budget allocations coupled with improved efficiency in public sector spending lead to higher GDP growth rates compared to what would have been achieved if the FY 2009/10 budget allocations had been maintained. Note also that the difference between the two GDP growth rates increases overtime suggesting that effect of improved efficiency in the public sector and the associated increase in total factor productivity is cumulative, with initial gains in total factor productivity contributing to further increases.

To better understand the basis of the observed differences in GDP growth rates, we examine the growth rates of the various sectors. Table 1 shows the average growth rates by sector for the period 2008–10 for three scenarios: the FY 2008/09 budget allocation or the "Base" scenario, the FY 2009/10 budget allocation or the "Budget" scenario, and the "Efficient" scenario that results from the spending reallocation depicted in figure 1 above and improved efficiency in the public sector. As shown in table 1, the average growth rates for the agriculture, industry, utilities, and service sectors are higher in the "Efficient" scenario than in the "Budget" scenario. Moreover, the growth rate in the agriculture and manufacturing sectors is 1.9 and 0.4 percentage points higher, respectively, in the "Efficient" scenario compared these sectors' growth rate in the "Budget" scenario.

The growth rate in the manufacturing sector is 0.4 percentage points higher in the "Efficient" versus the "Budget" scenario. Further, increased budget allocations to some of the sectors appears to contribute to higher growth rates in other sectors, underscoring the dynamic interrelationships associated with public spending composition. For instance, increasing the budget allocation to the agriculture sector stimulates growth in the food processing subsector which then results in higher growth rates in the manufacturing sector. As indicated in table 1, the construction and services sectors also post higher growth rates in the "Efficient" scenario due the increased budget allocations to infrastructure and improved public sector efficiency.

Effects on Household Welfare

There are two major approaches that have emerged within the literature in the use of CGE models and how they are linked to poverty outcomes. The first approach is the traditional representative agent model used to conduct distributional analyses. The second is the microsimulation approach which comprises using a large number of households in the CGE model to examine poverty and income inequality outcomes (Cockburn and Decawule 2006).

We adopt the representative model approach and consider five types of households (rural farmers, rural nonfarmers, Kampala metro, other urban farmers, and other urban nonfarmers). Using the 2007 integrated household survey, we categorize households using similar classifications used in the CGE model. Poverty in Uganda is computed using expenditure data due to unavailability of reliable income or earnings data. The expenditure of the representative households is computed in the CGE model using a LES. Changes in relative wages are computed in each simulation and used to

Table 1. Average Growth Rate of Sector by Budget Allocation Scenario (2008–10)

	FY 2008/09 Budget Allocation "Base"	FY 2009/10 Budget Allocation "Budget"	Proposed Budget Allocation and Efficiency in Public Sector "Efficient"
Overall gross domestic product (GDP)	6.6	6.4	8.0
Agriculture	3.9	3.4	5.3
Of which			
Cereals	2.0	3.4	5.3
Root crops	4.2	2.4	4.2
Pulses	2.1	8.1	10.4
Matooke	4.4	2.7	4.5
Horticulture	4.9	3.6	5.4
Export crops	2.5	s3.0	-1.2
Livestock	3.6	3.8	5.7
Forestry	4.6	5.1	6.7
Fishing	6.2	2.3	4.7
Industry	6.5	5.0	5.8
Of which			
Mining	6.9	5.8	5.5
Manufacturing	6.5	5.7	6.1
Food processing	6.2	6.0	7.6
Meat processing	3.5	3.8	5.8
Fish processing	6.2	2.3	4.7
Grain processing	6.3	6.3	7.0
Feed processing	3.9	4.1	6.0
Other food processing	5.7	5.3	7.1
Beverages and tobacco	7.0	6.9	8.2
Nonfood processing	6.8	5.5	4.5
Textiles and clothing	6.6	6.3	5.8
Wood and paper	4.5	3.4	3.2
Fertilizer	5.1	2.2	2.5
Machinery and equipment	6.9	4.2	0.8
Furniture	6.3	5.2	6.7

(continued)

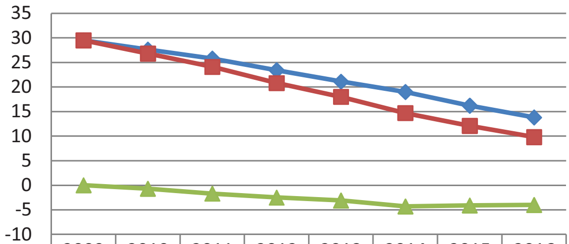
Table 1. (continued)

	FY 2008/09 Budget Allocation "Base"	FY 2009/10 Budget Allocation "Budget"	Proposed Budget Allocation and Efficiency in Public Sector "Efficient"
Other manufacturing	7.2	5.2	3.7
Utilities	7.7	7.9	7.8
Construction	6.0	3.5	5.0
Services	7.8	8.3	10.2
Private	9.6	10.3	12.5
Trade	5.9	5.7	7.1
Hotels and catering	4.9	8.3	12.7
Transport	7.2	5.9	3.1
Communications	6.5	6.5	8.0
Banking	5.7	5.7	7.2
Real estate	8.0	8.0	9.7
Public	2.3	2.2	2.9

derive new household–level expenditures. A measure of welfare used here is the income poverty head count, which measures the number of people in poverty as a percentage of the entire population using Uganda's official poverty line. Since Uganda's official poverty line is computed using household expenditures, changes in expenditures via the simulations result in changes in the income poverty head count.

The increased sectoral growth rates and the associated increase in economic activity are expected to translate into reductions in poverty head count, which is used as a proxy for well-being in this article. Figure 3 compares the poverty incidence trends in the "Budget" versus the "Efficient" scenarios during the period FY 2009/10 to FY 2016/17. In particular, figure 3 shows that the incidence of poverty will be lower under the "Efficient" scenario than in the "Budget" scenario, and this difference becomes more pronounced in the later years. Poverty in Uganda has been described as a rural phenomenon with the majority of poor Ugandans residing in the rural areas. To examine whether the increased public spending on the agriculture sector in particular and infrastructure in general trickles down to the poor, we disaggregate the households into rural and urban and further into farm and nonfarm.

Figure 4 shows the poverty trends under the "Budget" and "Efficient" scenarios for both rural and urban households. Two key themes are



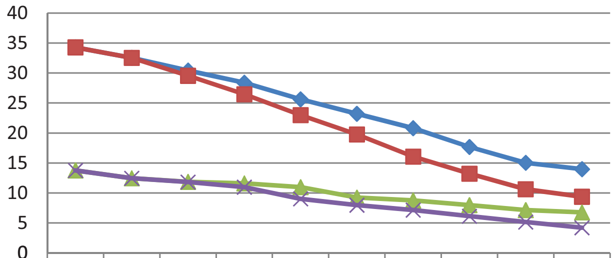
	2009	2010	2011	2012	2013	2014	2015	2016
FY 09/10 Budget Allocation	29.5	27.6	25.8	23.4	21.1	19	16.2	13.8
Proposed Budget Allocation	29.5	26.8	24.1	20.8	18	14.7	12.1	9.8
Reduction in Poverty	0.0	-0.7	-1.7	-2.5	-3.1	-4.3	-4.1	-4.0

Figure 3. Impact on income poverty Head Count Index in the Budget versus Efficient scenarios (percentage): FY 2009/10–FY 2016/17

illustrated in figure 4: the "Efficient" scenario leads to a faster decline in poverty incidence in both the rural and the urban areas compared to the "Budget" scenario, and rural poverty falls at a much faster rate compared to urban poverty under the "Efficient" scenario. These findings underscore the impact of interventions that target the majority of Uganda's population in combating poverty and contributing to socioeconomic transformation.

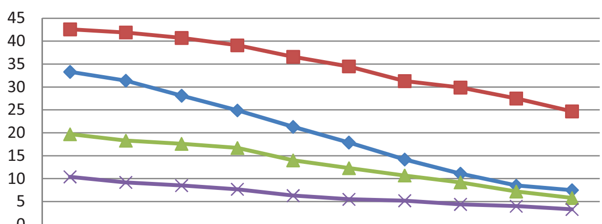
As shown in figure 4, our findings reveal that the incidence of poverty declines at a faster rate in the rural versus urban areas under the "Efficient" scenario. This is due to at least two reasons. First, as shown in table 1, the agriculture sector posted the biggest gain in sectoral growth following the spending reallocations and increased efficiency in the public sector. To the extent that over 90 percent of all rural households are engaged in agriculture, increased growth in this sector should imply higher incomes for the rural households. Second, the increased spending on infrastructure and health, among others, increases access to markets and other services and contributes to increased agricultural productivity due to reduced disease incidence, respectively.

To further tease out the contribution of the increased public spending on the agriculture sector under the "Efficient" scenario, we examine the poverty trends across the farming and nonfarming households for both the rural and the urban households. These findings are illustrated in figure 5 and confirm the findings in figure 4. Poverty among rural and urban farming



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rural-Budget	34.29	32.54	30.42	28.39	25.62	23.21	20.81	17.68	15.04	13.97
Rural-Efficient	34.29	32.54	29.55	26.46	22.98	19.77	16.08	13.21	10.64	9.38
Urban-Budget	13.8	12.5	11.9	11.6	11.0	9.2	8.8	8.0	7.2	6.76
Urban-Efficient	13.77	12.45	11.82	10.97	9.03	7.98	7.15	6.13	5.15	4.2

Figure 4. Rural versus urban poverty head count under the "Budget" and "Efficient" cenarios: FY 2009/10–FY 2016/17



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rural Farming	33.3	31.4	28.1	24.9	21.3	17.9	14.2	11.1	8.5	7.5
Rural Nonfarming	42.6	41.9	40.7	39.1	36.6	34.5	31.3	29.9	27.5	24.7
Urban Farming	19.7	18.3	17.6	16.7	14.0	12.3	10.7	9.2	7.2	5.8
Urban Nonfarming	10.4	9.2	8.5	7.7	6.3	5.5	5.2	4.4	4	3.3

Figure 5. Farming versus nonfarming poverty in rural and urban areas under the "Efficient" scenario (percentage)

households falls at a faster rate compared to the nonfarming households in both the rural and the urban areas.

In summary, we demonstrate here that investments in agriculture particularly with a view to promoting value addition and also investing in complementary infrastructure including roads and affordable energy have the potential to increase economic growth and accelerate the rate of poverty reduction. Another implication of our findings is that the nonfarming households will necessitate quite a different set of policy interventions so as to achieve comparable reductions in poverty as the farming households.

Conclusion

Over the past decade, development partners have requested governments to identify and increase the share of pro-poor spending with particular emphasis on improving health and education social indicators and raising people's incomes. However, due to resource constraints, increased spending on social sectors comes at a cost of reductions in spending on infrastructure which is critical for accelerating and sustaining growth. As such, many developing countries are now switching back to increasing public spending on infrastructure which is considered to be a major binding constraint to growth. This article sheds light on the trade-offs between spending on infrastructure, productive capacities in agriculture, and social sectors. The results in this article therefore have broader application beyond Uganda including countries that are implementing reforms aimed at using public spending to deliver inclusive growth.

Our objective was to investigate the dynamic interrelationships between public spending composition and Uganda's development goals including sustaining the current growth rate, creating employment, and reducing poverty. Our results show that the reallocation of public expenditure away from the unproductive sectors such as public administration and security to the productive sectors including agriculture, energy, water, and health leads to higher GDP growth rates and accelerates poverty reduction. Moreover, the agriculture sector posts higher growth rates with this spending reallocation, which positively affects growth rates in other sectors including manufacturing.

To the extent that the majority of Ugandans reside in the rural areas, these developments also contribute to lower incidence of poverty in rural compared to the urban households, with farming households reporting faster reductions in poverty in both rural and urban areas. A key outcome of this article is that investments in agriculture particularly with a view to promoting value addition and also investing in complementary infrastructure including roads and affordable energy have the potential to increase economic growth and accelerate the rate of poverty reduction in Uganda.

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Notes

1. Williamson and Canagarajah (2003) and World Bank (2002) argue that roads, agriculture and water, and sanitation may yield higher returns for employment and income creation in Uganda than may primary health care and education and that the Poverty Action Fund, through the promotion of a narrow interpretation of pro-poor programs has led to the skewing of budget allocations away from programs that may have resulted in greater poverty reduction.
2. Aschauer and Greenwood (1985) and Barro (1990) argue that while it provides additional utility to households, government consumption reduces economic growth because the higher taxes needed to finance the consumption expenditure lowers the returns on investments and the incentive to invest.
3. Devarajan, Swaroop, and Zou (1996) use the total expenditure share of GDP to control for level effects.
4. A detailed description of the model equations is available upon request from the authors. In addition, a similar model can be obtained from Lofgren, Harris, and Robinson (2002).
5. The first SAM for Uganda was developed in 2002 by the Uganda Bureau of Statistics and later updated by the International Food Policy Research Institute in 2007. The 2007 SAM reflects the current production structure of Uganda that has not changed significantly over the past four years.
6. Substituting increased spending on agriculture and health for reduced spending on public administration and security could indeed have negative externalities in the form of corruption, crimes, and vulnerability to external military attacks. However, the substitution of spending across productive and nonproductive sectors in this article is guided by the public spending compositions articulated in Uganda's National Development Plan and as indicated in figure 1.
7. The National Development Plan identifies agriculture, water, energy, and tourism as some of the key growth-generating sectors. However, estimating the productivity of each sector will allow for the identification of sectors with the highest potential in terms of contributing to GDP, sectors that should be given emphasis when determining budget allocations. This empirical exercise is left for future research.

8. A more rigorous approach to linking improved public sector efficiency to changes in total factor productivity would comprise estimating the effects of enhanced public sector efficiency via the various channels on public sector productivity. Due to data limitations, this is left for future research. The approach taken in this article is to quantify the monetary costs of improved public sector efficiency by comparing the final real GDP (or real GDP growth rates) in the budget scenario (no improvements in efficiency) with the "Efficient" scenario (improvements in public sector efficiency).

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