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Financing Agricultural Development: The Political Economy of Public Spending on Agriculture in Sub-Saharan Africa

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**Financing Agricultural Development:
The Political Economy of Public Spending on Agriculture in Sub-Saharan Africa**

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Abstract

Acknowledging that the agricultural sector can play an important role as an engine of pro-poor growth in Sub-Saharan Africa, the purpose of this paper is to identify the factors that influence the “political will” of governments to support this sector. The concept of “political resources” from the political science literature is used to guide the analysis, as it combines the insights from state-centered and society-centered approaches to explain agricultural policies. Drawing on panel data covering 14 Sub-Saharan African countries over the period 1980-2001, we present empirical evidence showing that political factors play an important role in determining government’s commitment to supporting agricultural development. We use a measure of democracy that varies both across countries and within countries over time. Estimates are presented for separate samples of democracies and non-democracies, and for a pooled sample of all countries and years irrespective of the democratic status. Our results suggest that the rural poor do exercise electoral leverage in democracies; larger rural population shares are associated with higher spending on agriculture in democracies but not in authoritarian regimes. We also find evidence consistent with the theoretical prior that larger farmers tend to be better organized in interest groups. Specifically, we find that the share of traditional agricultural exports such as coffee and cocoa in the total value of exports, which may be an indicator for the ability of farmers’ to organize themselves as interest groups, induces greater spending on agriculture. This result holds true for both democracies and non-democracies.

JEL subject codes: Q 18, O 13, H 3, H 5

1 Introduction

At the beginning of the 21st century, food insecurity and poverty remain major global challenges. More than one billion people still live on less than 1 dollar a day. Although

their total number decreased during the last 20 years, mostly due to successes in Asia, the number of poor people in Sub-Saharan Africa has almost doubled during this period (Chen and Ravallion, 2004). Sub-Saharan Africa is also the only region in the world where food production has not kept path with population increase. As a consequence, the number of malnourished people in Africa increased from around 88 million in 1970 to over 200 million in 2001 (Rosegrant, et al., 2005). These rather discouraging trends have occurred despite the renewed emphasis of the international community on food security and poverty reduction during the 1990s. The first of the eight Millennium Development Goals (MDGs) reinforces this commitment: It aims at halving hunger and poverty by 2015.

Historical experience and economic theory show it is a promising strategy for stagnant food-insecure low-income economies to invest in agriculture, especially smallholder agriculture, to achieve food security, reduce poverty and to set economies on a path towards industrialization (Mellor, 1976). As Lipton (2005) notes, there is virtually no example of mass poverty reduction in modern history that did not start with sharp rises in employment and self-employment income due to increased productivity among small family farms. As Hazell and Roell (1983) have shown, it is the growth linkages of the agricultural sector that make it an “engine” of pro-poor growth.¹

At the 2003 Assembly of the African Union in Maputo, the African Heads of State eventually acknowledged the role that agriculture needs to play in the development of their economies: They made a commitment to allocate at least 10% of their national budgetary resources to agricultural development (AU, 2003). However, reaching this goal requires a considerable increase in the financial resources that African governments spend on agriculture. According to a study on public expenditure in a sample of 43 developing countries (Fan and Rao, 2003), the share of the total government budget allocated to agriculture in the African countries declined from 6 % in 1980 to 5 % in

¹ There is a debate on whether agriculture can play a similar role for promoting pro-poor growth in Africa today as it did in Asia during the time of the Green Revolution (compare Ellis, 2005). However, the critics of an agriculture-led development strategy have not yet shown which other sector in low-income African economies would have the potential to create comparable employment and linkage effects (compare Hazell and Diao, 2005).

1998. By contrast, the Asian countries in the sample spent on the average 15 % of their budget on agriculture in 1990, as compared to 10 % in 1998 (Fan and Rao, 2003).

These figures beg the question as to why public spending on agriculture in African countries has been so low in the past. The low commitment to agriculture is often attributed to a lack of “political will” to spend public financial resources on this sector. Against this background, the objective of this paper is to contribute to a better understanding of the factors that explain the “political will” – or the lack thereof – to spend government resources for agricultural development.

From an economic perspective, one may argue that the protection rate of the agricultural sector is a better indicator of the political commitment to support agriculture than the agricultural budget share. However, the protection rate is the outcome of various political decisions, including decisions on macro-economic parameters and on other sectors. The implications of those decisions on agriculture are often unintended, at least partly, by political decision-makers (compare Krueger, et al., 1991).² In contrast, the share of agriculture in the national budget is the most visible and direct measure on which policy-makers decide. Hence, it is a useful variable for explaining the “political will” to support agricultural development from a political economy perspective.

This paper proceeds as follows: In Section 2, the literature on the political economy of agricultural policy-making is briefly reviewed. Section 3 presents the conceptual framework and the data. In Section 4, the results are presented and discussed. Section 5 draws some conclusions.

2 Insights from the Literature

From an analytical perspective, the “political will” to spend financial resources on agricultural development can be interpreted as the outcome of political decisions on agricultural policy, which are influenced by a variety of factors. The literature on the political economy of agricultural policy-making in developing countries provides a

² One can also argue for a distinction between those public expenditures that provide public goods and those that provide private goods in form of “non-social” subsidies (compare Lopez, 2005). However, these figures are difficult to obtain for Africa.

diverse set of explanations (see reviews by Binswanger and Deininger, 1997 and by De Gorter and Swinnen, 2002). Following a typical distinction in political science, these explanations can be grouped into society-centered and state-centered approaches. Society-centered approaches have been the dominant thrust in this literature. They focused on the role of different urban and rural interest groups and their ability to organize themselves as effective lobby groups. For obvious reasons, the rural poor face the largest obstacles to organize themselves, especially if they are involved in food crop production and subsistence farming. Larger farmers, and farmers growing export crops are better able to organize themselves, often in commodity-specific organizations (Bates, 1981). Van de Walle (2001) recently criticized these society-centered approaches and advanced a state-centered explanation, which highlights the role of the “neo-patrimonial state” in Africa. Swinnen, et al. (2001) found that the type of political regime matters for agricultural policy. Their historical analysis suggests that democratic reform gives farmers’ more voice in agricultural policy-making.

Other factors have also been highlighted in the literature (see Binswanger and Deininger, 1997; De Gorter and Swinnen, 2002). They include the role of ideas and ideology, especially regarding the role of agriculture in economic development, and regarding the role of the state in promoting development. Food supply shortages and rising food prices have also prompted governments to adopt policies that will increase food supply.

While the literature on the political economy of agricultural policy choices in developing countries is rich and multi-faceted, most of this literature provides ex-post explanations of individual cases. The “classics” in this field - which took a broader perspective and tried to find a systematic explanation for a larger set of countries - are based on research conducted in the 1970s and 1980s (De Janvry, 1981; Bates, 1981; Krueger et al. 1991). Meanwhile, important frame conditions of agricultural policy-making have changed, especially in Africa. Importantly, many countries have become democracies, which may

have increased the incentives of governments to invest in agriculture and rural development.³

3 Conceptual Framework and Data

Conceptual framework

The conceptual framework used for the analysis is based on the concept of “political resources”, which emerged in the political science literature as an approach to combine the arguments of society-centered approaches, state-centered approaches and political conflict theories (Hicks and Misra, 1993). Following Hicks and Misra (1993), we distinguish between *instrumental* political resources, which are the specific resources used by actors to realize their perceived interests, and *infrastructural* political resources, which empower the actions of the interest groups and condition the effectiveness of their instrumental political resources. Electoral leverage and interest group organizations are example of instrumental political resources, while the fiscal capacity of the state and the type of political regime are examples of infrastructural political resources. This framework is used to guide the selection of variables and the analysis.

Data

Table 1 lists the countries included in the analysis. The sample includes 14 Sub-Saharan African countries, for which data on the share of agriculture on total spending is available for the period from 1980 to 2002. Table 2 describes the variables used for the analysis. The major variable capturing the instrumental political resources of rural people is the percentage of the rural population. We assume that in democratic political regimes, the rural population can exercise electoral leverage. In non-democratic regimes, the rural population lacks this type of leverage, but it may still influence decision-making as a potential source of political unrest. In one model specification, we include an ethnic fractionalization index to test the assumption that in ethnically divided societies, people primarily vote along ethnic lines rather than economic interests (Keefer and Khemani

³ Worldwide, the number of democratic countries has grown threefold from 41 to 121 between 1974 and 2002 (Diamond, 2003). This figure reflects the increase in electoral democracies, not necessarily in fully consolidated democracies.

2003). As an indicator of farmers' ability to organize themselves as interest groups, we include the value of agricultural food exports. In view of lack of other data on farmers' organizations, we use this indicator based on findings of the literature which show that farmers are in general able to organize along export commodities (Bates, 1981).

As an indicator of the type of political regime, we use the index of the Polity IV data set. The index takes values from +10 to -10 depending on a variety of institutional features ranging from constraints on the executive to the openness of elections. In one model specification, we use the value of 0 to split countries in democratic versus non-democratic regimes. Since interest groups usually need time to get established and learn how to use their instrumental political resources effectively, we control for the age of democracy, measured by the number of years of uninterrupted democratic rule in any given country. Three indicators are used to capture the capacity of the state to spend funds on agriculture, which is another category of infrastructural political resources. The indicators include the Gross Domestic Product (GDP) per capita, the development assistance received from all donors (ODA), and total government revenues excluding all grants. For the 1990s, it is possible to differentiate the ODA by sector and to distinguish between government resources and ODA by sector. We use these data for a descriptive analysis of major trends.

To account for external factors and time effects, we consider three additional variables: A drought in the previous year is expected to increase agricultural spending. According to Sen (1981), this effect should be more likely to occur in democracies than in non-democracies. We also include dummies to indicate the decades of the 1980s and 1990s respectively. These dummies may capture changes in perceptions regarding the role of the state and the role of agriculture as well as other factors.

4 Results and Discussion

Trends in public spending

Figures displays the trend of total agricultural spending in the countries included in the sample. The figure shows that the resources spent by African countries remained stagnant during the 1980s and 1990s in spite of the population increase that occurred during this

period. ODA for agriculture considerably declined in the mid-1990s. In spite of an increasing trend thereafter, it never reached previous levels. While the own efforts of African governments to support agriculture did increase since the end of the 1990s, the commitment of the donors to support this sector sharply declined during this period. As Figure 2 shows, education is characterized by a continuous increase of both government resources and donor funding. In the case of health, ODA has always been comparatively high, while the resources governments spend in this sector continuously increased considerably since the mid 1990s.

Regression results

The dependent variable used in the regression is the share of public expenditure spent on agriculture, because, as explained above, this variable appears most suitable from a political economy point of view. Table 3 presents the results of three OLS regression models which the data for democracies and non-democracies are pooled. The first model includes all explanatory variables. This reduces the number of observations to 73. The second and third models do not include the ethnic fractionalization index, for which limited data are available. In addition, Model 3 also excludes the role of agriculture in the country's exports. The share of the rural population and the dummy variable for the 1980s turn out to have a significant positive influence on the agricultural budget share in all three models. Expectedly, ethnic fractionalization reduces the agricultural budget share. Unexpectedly, the GDP per capita has a significant negative influence in all three models. In Model 3, the age of democracy and donor funding become significant. Table 4 distinguishes the results for democracies and non-democracies. In non-democracies, only the importance of agricultural exports has a significant influence on the agricultural budget share.

Discussion

The results indicate that in democracies, the rural population has more possibilities to exercise voice leading to a higher budget share for agriculture. Due to data limitations, it remains unclear whether this effect is achieved through electoral leverage or other means, such as lobbying. We find that the share of traditional agricultural exports such as coffee cocoa, in the total value of exports induces greater spending on agriculture. This can be

interpreted as evidence consistent with the theoretical prior that farmers are better able to organize themselves as interest groups along export commodities. However, one has to consider that in view of the need to earn foreign exchange, governments may have an incentive to spend more on agriculture even in the absence of farmers' organizations, if agricultural exports represent this opportunity. There is also evidence that ethnic fractionalization leads to concentration on other sectors than agriculture. Even though more countries are now democracies than in the 1980s, the budget share for agriculture was significantly higher in the 1980s, so that other factors not captured in our models need to be considered. The increased budget shares on health and education and the reduction of agricultural budgets in the context of macro-economic structural adjustment programs may play a role (compare Fan and Rao, 2003, see Figures 1-3). Unexpectedly, droughts do not appear to increase agricultural spending in the following year, but this finding may be influenced by problems to capture the influence of droughts on agricultural production. ODA turned only out to have a significant influence in the model that did not include the ethnic fractionalization index and the agricultural export index. This suggests that ODA does not "crowd out" government investment in agriculture, if domestic political factors are accounted for.

5 Concluding Remarks

Interpreted in terms of the conceptual framework, one can conclude that a democratic type of political regime and the availability of government revenues tend to enable the rural population to use their instrumental political resources, especially their electoral leverage, for achieving a higher budget share dedicated to agriculture. However, this effect does not outweigh the general decline of the budget share allocated to agriculture that occurred since the 1980s, which may be associated with a declining recognition of the need to support agricultural development for poverty reduction and food security. Future research of the political economy of agricultural spending in developing countries will be useful to analyze further explanatory factors which could not be addressed in this study. These include the political interaction between public spending on agriculture vis-a-vis the spending other sectors such as defense, health and education, and the role of ideas and ideologies regarding the role of agriculture in economic development. In view

of the persistent problems of food insecurity and poverty in Sub-Saharan Africa, more emphasis needs to be placed on identifying strategies to finance agricultural development. These strategies should also take the efficiency and effectiveness of investing in agriculture into account, which is influenced by the governance of this sector. In view of the considerable decline of donor funding for agriculture in Sub-Saharan Africa, it would also be useful to identify the reasons for this decline.

References

- African Union, 2003. Declaration on Agriculture and Food Security in Africa. Assembly/AU/Decl.7 (II). <http://www.africa-union.org/root/au/Documents/Decisions/hog/12HoGAssembly2003.pdf>
- Bates, R.H, 1981. Markets and States in Tropical Africa – The Political Basis of Agricultural Policies. University of California Press. Berkeley etc.
- Binswanger, H., Deininger, K. 1997. Explaining Agricultural and Agrarian Policies in Developing Countries, in: Journal of Economic Literature, 35, 1958-2005.
- Chen, S. and M. Ravallion. 2004. “How have the World’s Poorest Fared since the Early 1980s? in World Bank Research Observer, Vol. 19 (1): 141-169.
- De Gorter, H. and J. Swinnen. 2002. Political Economy of Agricultural Policy. Chapter 36 in Handbook of Agricultural Economics, Vol. 2, Part 2, Elsevier, pp. 1893-1943.
- DeJanvry, A. 1981. The Agrarian Question and Reformism in Latin America. Johns Hopkins University Press, Baltimore.
- Diamond, L. 2003. “Advancing Democratic Governance: A Global Perspective on the Status of Democracy and Directions for International Assistance,” working draft, Stanford University, Hoover Institution.
- Ellis, F. 2005. Small Farms, Livelihood Diversification, and Rural-Urban Transitions: Strategic Issues in Sub-Saharan Africa. In: IFPRI (International Food Policy Research Institute), 2005. The future of small farms: Proceedings of a research workshop, Wye, UK, June 26-29, 2005. Washington, DC, pp. 135-149.
- Fan, S., Rao. N., 2003. Public Spending in Developing Countries – Trends, Determination and Impact. Environment and Production Technology Division.

- Discussion Paper No. 99. International Food Policy Research Institute (IFPRI) Washington, DC.
- Hazell, P. and X. Diao (2005): The Role of Agriculture and Small Farms in Economic Development. In: IFPRI (International Food Policy Research Institute), 2005. The future of small farms: Proceedings of a research workshop, Wye, UK, June 26-29, 2005. Washington, DC, pp. 135-149.
- Hazell, P., and A. Roell. 1983. Rural Growth Linkages: Household Expenditure Patterns in Malaysia and Nigeria. Research Report No. 41, International Food Policy Research Institute, Washington, D.C.
- Hicks, A., Misra, J., 1993. Two Perspectives on the Welfare State: Political Resources and the Growth of Welfare in Affluent Capitalist Democracies, 1960-1982, in: American Journal of Sociology, 99 (3), 668-710.
- Keefer, P. and S. Khemani. 2003. "Democracy, Public Expenditures, and the Poor." World Bank Policy Research Working Paper 3164, World Bank: Washington, DC.
- Krueger, A., Schiff, M., Valdez A., 1991. (Eds.): The Political Economy of Agricultural Pricing Policy. Johns Hopkins University Press, Baltimore.
- Lipton, M. 2005. "The Family Farm in a Globalizing World." 2020 Discussion Paper. International Food Policy Research Institute. IFPRI, Washington, DC.
- Lopez, R. 2005. Why Governments Should Stop Non-Social Subsidies: Measuring Their Consequences for Rural Latin America, World Bank Policy Research Working Paper No. 3609
- Mellor, J. (1976): "The New Economics of Growth." Cornell Press, Ithaca, NY.
- Rosegrant, M.W., Cline, S. A., Li, W., Sulser, T.B., Valmonte-Santos, R. 2005. Looking Ahead - Long-Term Prospects for Africa's Agricultural Development and Food Security. 2020 Discussion Paper 41, International Food Policy Research Institute (IFPRI), Washington, DC.
- Sen, A., 1981. Poverty and Famines. An Essay on Entitlement and Deprivation. Clarendon Press, Oxford.

Swinnen, J.F.M, A. Banerjee, Gorter, H. de, 2001. Economic Development, Institutional change, and the Political Economy of Agricultural Protection: An Econometric Study of Belgium since the 19th Century,” *Agricultural Economics*, 26, 25-43.

Table 1: Countries Included in the Analysis

| Country | Share of Agriculture (Percent) in 2002 | Average Polity Index 1980 – 2002 (Range - 10 to + 10) |
|----------------|---|--|
| Botswana | .041 | 8.0 |
| BurkinaFaso | .074 | -5.3 |
| Cameroon | .018 | - 6.0 |
| Coted'Ivoire | .015 | n.a. |
| Ethiopia | .105 | - 3.1 |
| Ghana | .020 | - 2.2 |
| Kenya | .036 | - 4.7 |
| Malawi | .055 | - 2.9 |
| Mali | .138 | - 0.3 |
| Nigeria | .028 | - 1.9 |
| Togo | .019 | - 4.6 |
| Uganda | .022 | - 3.2 |
| Zambia | .055 | - 2.7 |
| Zimbabwe | .005 | - 3.3 |

Sources: IMF Government Finance Statistics Yearbook (2003), Polity IV Dataset

Table 2: Description of variables

| Variable name | Description | Data Source |
|--|---|---|
| <i>Variable to be explained</i> | | |
| Agshare | Share of agriculture in total government spending * | Calculated from various issues of the IMF's Government Finance Statistics |
| <i>Indicators of instrumental political resources</i> | | |
| Rural_pop | Rural population as percentage of total population | World development Indicators 2005 |
| Ethnic_frac | Ethnic fractionalization index | Robert Bates |
| Ag_Export | Measures the value of agriculture and food exports as a percentage of total merchandise exports, if the share food or agricultural exports is the largest among all merchandise exports. Comprises: <ul style="list-style-type: none"> • Indicator variable for whether the share food or agricultural exports is the largest • The value of these exports as percentage of total merchandise exports*. | Calculated using several variables from African Development Indicators |
| <i>Indicators of infrastructural political resources</i> | | |
| Polity | A measure of democratic status: takes values -10 to +10 depending on a variety on institutional features ranging from constraints on the executive to the openness of elections. | POLITY IV dataset |
| Reg_Time | Measures how long the country has been democratic or autocratic respectively | Database of Political Institutions |
| ODA | Net ODA from all donors* | African Development Indicators |
| GDP_cap | GDP per capita* (in current LCU) | World development Indicators 2005 |
| TotRevNoGrant | Total government revenues excluding all grants* | African Development Indicators |
| <i>Other factors</i> | | |
| DUM_80 DUM_90 | Dummy variable to indicate decade of 1980s and 1990s respectively | Dummies |
| Lag_drought | Indicator for drought in the previous year | African Development Indicators |

* All in current Local Currency Units (LCU)

Table 3: Determinants of Spending on Agriculture (Pooled sample of democracies and non-democracies)

| | Model 1 | Model 2 | Model 3 |
|---|-------------------|--------------------|--------------------|
| <i>Indicators of instrumental political resources</i> | | | |
| Rural_pop | 0.003 (4.04)** | 0.001 (2.87)** | 0.001 (3.94)** |
| Ethnic_frac | -0.146 | | |
| Ag_Export | -0.001 (2.63)* | -0.000 (0.09) | |
| <i>Indicators of infra-structural political resources</i> | | | |
| Polity | -0.002 (1.70) | 0.001 (1.81) | 0.001 (2.42)* |
| Reg_Time | -0.001 (1.63) | 0.000 (0.78) | 0.001 (3.35)** |
| ODA | 0.000 (1.46) | 0.000 (1.20) | 0.000 (3.03)** |
| GDP_cap | -0.000 (2.60)* | -0.000 (3.18)** | -0.000 (3.42)** |
| TotRevNoGrant | 0.000 (2.11)* | -0.000 (0.92) | -0.000 (2.06)* |
| <i>Other factors</i> | | | |
| DUM_80 | 0.028 (3.13)** | 0.053 (5.58)** | 0.048 (6.76)** |
| DUM_90 | 0.000 (.) | 0.012 (1.69) | 0.012 (1.96) |
| Lag_Drought | 0.009 (0.81) | 0.005 (0.58) | 0.005 (0.88) |
| Constant | -0.054 (0.91) | -0.051 (1.85) | -0.030 (1.93) |
| Observations | 73 | 150 | 269 |
| R-squared | 0.59 | 0.49 | 0.41 |

Variable to be explained: Agshare

Absolute value of t statistics in parentheses

* Significant at 5%; ** significant at 1%

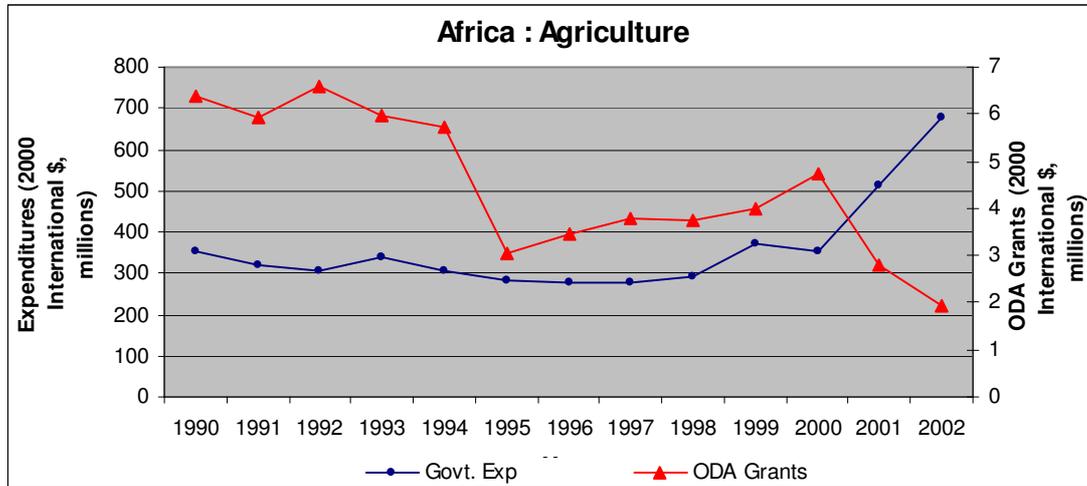
Table 4: Determinants of Spending on Agriculture, Sample of democracies and non-democracies

| | Agshare:Democracies | Agshare: Non-Democracies |
|---|---------------------|--------------------------|
| <i>Instrumental political resources</i> | | |
| Rural_pop | 0.003 (4.77)** | -0.000 (0.20) |
| Ag_Export | -0.000 (2.02)* | 0.001 (2.19)* |
| <i>Instrumental political resources</i> | | |
| Polity | -0.003 (1.45) | -0.003 (1.35) |
| Reg_Time | -0.000 (0.01) | 0.000 (0.32) |
| ODA | 0.000 (1.33) | -0.000 (0.57) |
| GDP_cap | -0.000 (4.25)** | 0.000 (1.12) |
| TotRevNoGrant | 0.000 (1.75) | -0.000 (1.80) |
| <i>Other factors</i> | | |
| DUM_80 | 0.036 (2.87)** | 0.046 (1.71) |
| DUM_90 | 0.009 (0.90) | -0.000 (0.02) |
| Lag_Drought | 0.009 (1.00) | 0.006 (0.39) |
| Constant | -0.149 (4.14)** | 0.053 (0.74) |
| Observations | 103 | 47 |
| R-squared | 0.64 | 0.48 |

Absolute value of t statistics in parentheses

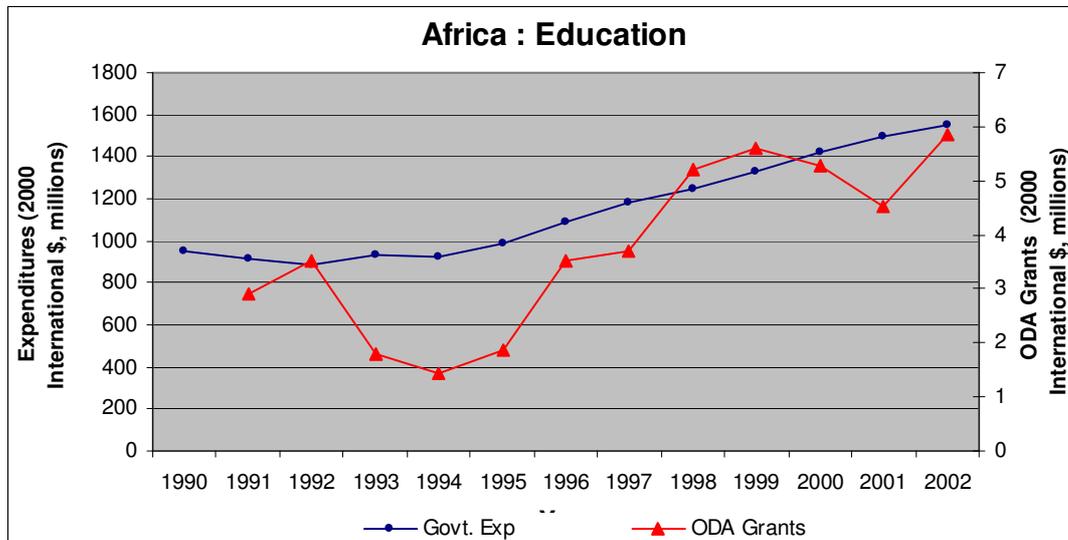
* Significant at 5%; ** significant at 1%

Figure 1: Development of Government Expenditure and ODA Grants for Agriculture in Subsaharan Africa 1990 - 2002



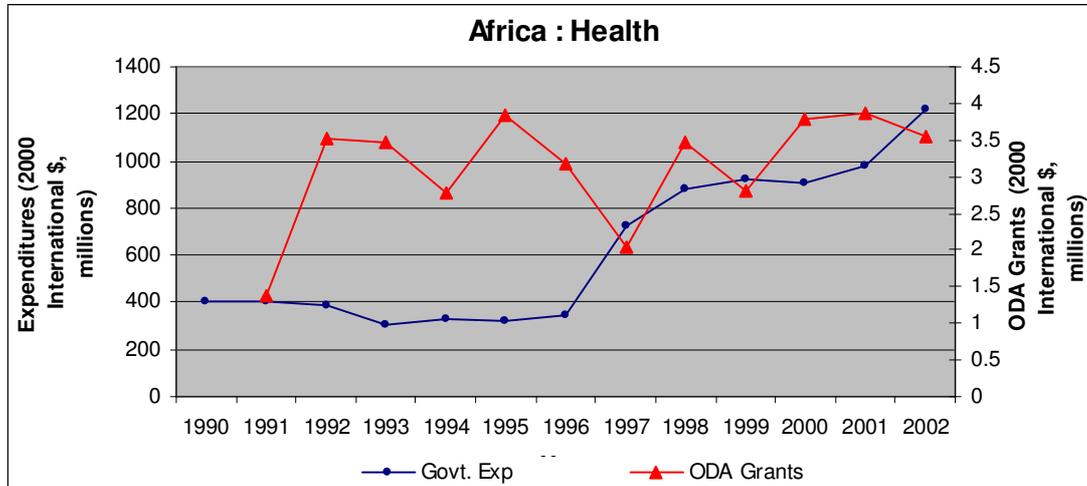
Sources: OECD Creditor Reporting Systems, IMF Government Finance Statistics Yearbooks

Figure 2: Development of Government Expenditure and ODA Grants for Education in Subsaharan Africa 1990 - 2002



Sources: OECD Creditor Reporting Systems, IMF Government Finance Statistics Yearbooks

Figure 3: Development of Government Expenditure and ODA Grants for Health in Sub-Saharan Africa 1990 – 2002



Sources: OECD Creditor Reporting Systems, IMF Government Finance Statistics Yearbooks