

AID, POLITICAL BUSINESS CYCLES AND GROWTH IN AFRICA

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Abstract: This study develops a model of opportunistic behaviour in which an incumbent government resorts to expansionary fiscal and/or monetary stimuli to foster economic growth and thus, maximize the probability of re-election. Using a panel dataset of 31 African countries covering the period 1980 to 2009, we test whether donor aid facilitates such political business cycles and investigate their effect on growth. We find evidence that donors, through guaranteeing support to incumbent governments, may unwittingly instigate political business cycles. With forbearance, and sometimes complicity by donors, aid seems to allow incumbent governments to instigate macroeconomic stimuli that ensure electoral victory with no fear of losing aid support. © 2015 UNU-WIDER. *Journal of International Development* published by John Wiley & Sons, Ltd.

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1 INTRODUCTION

The effectiveness of aid over the past two decades has come under scrutiny for at least two important reasons. One relates to donors' legitimate desire to measure, establish and improve the effectiveness of their activities and policies. This is in part because aid critics have questioned the effectiveness of aid arguing that, for several decades it has been pumped, especially into African countries, with little to show for it. As a result, a growing body of studies has been conducted to test whether aid does impact on growth, often leading to conflicting conclusions. Another equally important reason lies away from technical concerns, under the space of political economy considerations. The economic crisis and austerity policies, especially in Europe, have put pressure on the aid budgets, with citizens and constituents alike questioning the justification of continued aid flows to developing countries when the donor

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countries themselves are in crisis. Some countries, like the UK, have given their assurances to keep their aid commitments despite growing public scrutiny and discontent. Aid, under such circumstances, has often been justified on altruistic grounds. The altruistic discourse emphasizes the moral obligation that the international community has to help those in desperate need.¹ Besides the altruistic motives, donor countries have traditionally used aid on a more discretionary basis, in accordance with their geopolitical interests and priorities. Whereas European countries have historically focused on their former colonies, the USA has, since the Cold War, favoured the countries that it regards as strategic allies in foreign policy affairs, independently of the countries' democratic credentials (e.g. Egypt and Afghanistan). In fact, all aid, and bilateral aid in particular, tend to be significantly influenced by colonial history and geopolitical factors (see Baulch and Vi An Tam (2015) in this Issue). International financial institutions, at the behest of western powers, tend to practice forbearance towards countries that miss agreed targets, as long as the countries are in the right geopolitical location.

The multiplicity of donor objectives can thus influence the behaviour of incumbent governments that seek to capitalize on the opportunities that aid brings to increase the probability of re-election or the continuation of a political party dominance (e.g. Kenya under Arap Moi). Many developing country governments, especially those in Africa, tend to lack the capacity to institute expansionary policies without stoking inflationary pressures. The inflow of donor funds flexes their budget constraints, thus giving the governments the opportunity to institute political business cycles.² Given these political economy considerations, we investigate the following question: does aid contribute to political business cycles in Africa? If so, what are the consequences of such political behaviour for growth among African economies? Although there are other factors that can instigate political business cycles (see, e.g. Block, 2002), our focus is specifically on aid. If this possible cause of political business cycles is exogenous to the economies, then it can be contained. In developed countries, incumbent governments may turn to domestic financing to exercise expansionary policies before an election. Given the low levels of financial sector development in most African economies, this is unlikely to happen. Instead, aid gives them the fallback position for such expansionary policies.³ This paper contributes to the existing literature of aid effectiveness by examining the impact of aid on political business cycles and growth, using a panel dataset of 31 African countries covering the period 1980–2009. It focuses on African countries because (i) the region is a major recipient of foreign aid; (ii) nearly 75 per cent of countries classified by the United Nations as least developed are in Africa;⁴ and (iii) there have been important although not universal political transitions towards democracy in the region over the past two decades

¹A recent speech by the British Prime Minister, David Cameron, at the G8 Nutrition for Growth Summit in London, encapsulates this view: 'We are the kind of people who believe in doing what is right. We accept the moral case for keeping our promises to the world's poorest even when we face challenges at home. When people are dying, we don't believe in finding excuses. We believe in trying to do something about it [...] it says something about this country. It says something about our standing in the world and our sense of duty in helping others'. Available at <https://www.gov.uk/government/speeches/pm-speech-at-g8-nutrition-for-growth>.

²A political business cycle is the result of discretionary manipulation of fiscal and monetary policy by an incumbent government to stimulate the economy prior to an election and thereby improve the likelihood of re-election. For a formal discussion, see Nordhaus (1975).

³Expansionary policies are meant to stimulate the economy. Expansionary fiscal policy is accomplished through increases in government expenditure or tax cuts. Expansionary monetary policy involves increases in money supply or reductions in interest rates. For our analysis, we consider situations of deficit financing and excessive money supply growth, that is, when money supply growth is greater than gross domestic product (GDP) growth.

⁴See list of least developed countries at <http://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/LDC-Map.aspx>

(Lynch and Crawford, 2011). Given the noble aims of aid, we argue that there is scope for aid to help Africa grow and achieve more development gains but without instigating adverse political business cycles effects.

In exploring the link between aid, political business cycles and growth, we develop a model of opportunistic behaviour in which an incumbent government resorts to aid-induced expansionary fiscal and/or monetary stimuli to foster economic growth and, with it, maximize the probability of re-election. We investigate the effects on growth and find evidence that donors, through guaranteeing support to incumbent governments, may unwittingly instigate political business cycles. This is relevant in the context of African countries where the fiscal constraints are binding and where donor funds often loosen such constraints. We also find evidence to support the most recent studies that show that aid does have a positive impact on growth.

The remainder of the paper is structured as follows: Section 2 provides an overview of the literature on aid and growth, paying particular attention to the most recent generation of studies. Section 3 discusses the issue of aid and political business cycles and introduces a model of opportunistic incumbency that links aid to pre-election policy behaviour. Section 4 presents the empirical model that posits aid as an important determinant of political business cycles. Section 5 presents the results, while Section 6 concludes with some reflections of the main findings.

2 THE AID-GROWTH CAUSAL LINKAGES: WHAT DO WE KNOW?

The starting point for examining the issue of aid effectiveness is theory. This is important because one of the main weaknesses of some existing literature is the failure to establish a sound theoretical foundation of the causal relationship, and functional forms, of the aid-growth nexus (Easterly *et al.*, 2003). Hansen and Tarp (2000) classify the literature into first, second and third generations of studies, all of which focused on different possible theoretical links, namely, the aid-savings-growth link, the aid-growth link and the aid-policy-growth link, respectively. The first generation of studies relied on a Harrod-Domar (H-D) growth model, which assumed that aid was exogenous and contributed to growth through the stock of capital (see, e.g. Chenery and Eckstein, 1970; Papanek, 1972; Robinson, 1971; Michalopoulos and Sukhatme, 1989; and White, 1992a, 1992b for earlier reviews). This generation of studies emphasized the importance of capital accumulation, particularly among many African countries that had just gained independence and suffered from low savings (Chenery and Strout, 1966). In that process, the geopolitical landscape of the Cold War also played a role in the distribution of aid flows (Bourguignon and Leipziger, 2006; Bobba and Powell, 2007). Easterly (1999) calls this framework the financing gap theory, which assumes that countries face a financing gap, which is plugged by foreign aid.

The second generation of studies follow the Solow-type growth models to investigate the relationship between aid and growth. They treat investment as the key transmission channel through which aid impacts on growth (Mosley *et al.*, 1987; Mosley *et al.*, 1992; Stoneman, 1975; Dowling and Hiemenz, 1983; Gupta and Islam, 1983). From another angle, Barro and Sala-i-Martin (1998) reached the conclusion that economic growth is determined by intricate combinations of factors, which may include aid, implying that the link between aid and growth cannot be analysed in a simple framework. The third and most recent generation of studies relies on the endogenous growth theory where

human capital and political economy considerations are included in the reduced form equations and where aid, unlike in the first and second generations of studies, is treated as endogenous in a nonlinear relationship with growth (e.g. Juselius *et al.*, 2014; Lu *et al.*, 2010; Arndt *et al.*, 2010).

The third generation of studies has taken advantage of longer and more complete datasets from developing countries, together with recent developments in panel data econometrics, to investigate the aid–growth relationship, and their conclusions are generally mixed. While Rajan and Subramanian (2005) along with others (e.g. Doucouliagos and Paldam, 2011) argue that aid has not resulted in higher growth, Arndt *et al.* (forthcoming) and Juselius *et al.* (2014) find strong evidence of positive impacts of aid on growth.

Of particular relevance to our study is the view that political economy considerations can play a role in enhancing or undermining the effectiveness of aid (Boone, 1996; Kosack, 2003; Burnside and Dollar, 2000). The third generation of studies argues that democratic processes and good governance are important conditions that facilitate aid effectiveness, a proposition that is linked to a growing literature on the connection between democracy and growth (e.g. Barro, 1991; Wacziarg, 2001). Based on the empirical analysis presented in Section 5, we conclude that aid has a positive impact on growth, a result that is generally consistent with the most recent literature, notwithstanding the caution that aid does not always work in all contexts and at all times.⁵ Nevertheless, the most recent evidence dispels a mistaken scepticism that aid can harm recipient economies by discouraging the mobilization of domestic revenues. In the next section, we concentrate on the connection between aid and political business cycles.

3 AID AND POLITICAL BUSINESS CYCLES

The focus of aid on poor countries has found a solid foundation in the principles of social justice. Welfare economics suggests that policies that focus on the poorest are welfare enhancing (Sen, 1970; Arrow, 1984). In accordance with these principles, donor agencies tend to target their funds and policies at the poorest countries or communities. Shared perceptions about the causes of poverty can, however, play an important role in persuading political constituencies in donor countries to support aid for altruistic motives. In fact, the disbursement of aid has not always been based purely on economic principles or altruistic motives. In allocating their funds, donor agencies may be driven by the desire to achieve specific political objectives.

Alesina and Dollar (2000) find that the direction of aid is dictated as much by political and strategic considerations, as by the economic needs of the recipient countries with colonial past and political alliances playing a major role in aid distribution. Similarly, Barro and Lee (2005) find that International Monetary Fund (IMF) loans tend to be larger and more frequent when a country is more connected politically and economically to the USA and major European countries, whereas Dreher *et al.* (2009) report that elected members of the United Nations Security Council receive favourable treatment from the

⁵For a systematic review of the literature on the impact of aid on growth, see Mekasha and Tarp (2013) and also the most recent collection of studies in the United Nations University World Institute for Development Economics Research special issue of World Development on Aid Policy and the Macroeconomic Management of Aid, published on May 2015

World Bank. On a country level analytical setting, Faye and Niehaus (2012) examine whether or not donors use bilateral aid to influence elections in the Palestinian Authority. They found that incumbent governments that align with donors receive more aid during election years, while those less aligned receive less, regardless of incumbent characteristics. This indicates that geopolitical factors and international trade objectives can drive aid agencies to utilize aid resources for non-altruistic purposes. This may also explain why many donors tend to crowd around countries, which are seen as strategically important (Shepherd and Bishop, 2013).

Baulch and Vi An Tam (2015) in this Issue show that bilateral donors tend to be more neutral in their support to developing countries relative to multilateral donors that are more pro-poor oriented. In fact, some European countries tend to focus on their former colonies, while the USA favours countries that are important for its political agenda. In 2012, despite the reported high level of corruption in Afghanistan, the USA designated Afghanistan a major (non-Nato) ally, which entitles that country to receive substantial amounts of aid, including military aid.

The multiplicity of donor objectives may also lead to conflicting outcomes. Recipient countries could realize the dilemma that donors face and take advantage of that by under-delivering on their economic and social agenda, with the expectation of receiving more aid, especially in circumstances when such agenda would entail reforms that would engender growing political opposition in the recipient country. Mosley *et al.* (2012) discussed this in the context of governments choosing to reward some groups over others or to increase pro-poor spending in order to forestall political opposition. This was the case for Ghana in the 2000s where expenditure was increased in geographical regions where the incumbent party had experienced challenges securing political victory.

Celasun and Walliser (2008) argue that the unpredictability of aid flows contributes to reduced aid ineffectiveness and that aid volatility is disruptive to economic management in recipient countries. Yet there may also be reasonably good reasons for disbursements to be delayed, for example, recipient countries failing to meet the minimum conditions that should trigger further disbursements.⁶ There may also be fundamental changes in the political conditions in a country that would make it difficult to assess whether or not the allocated resources would be used for the intended purposes.⁷ There are also cases where disbursements are made even if the recipient shows non-committal signals, for example, Kenya under Arap Moi in the 1990s (Easterly, 2003).

In Zambia, the increased inflow of aid did not result in income growth. Instead, incomes remained below their 1960s level despite huge aid inflows (World Bank, 2002). The steady inflow of aid into Mobutu's Zaire (now Democratic Republic of Congo) is alleged to have encouraged incompetency and corruption. In Ethiopia, the support to Meles Zenawi's government is praised for reducing poverty, but the system of governance became increasingly autocratic, as is the situation in Rwanda and Uganda, some of the countries praised as case studies showing the effectiveness of aid. Given these political economy considerations, we set to investigate the following questions: first, does aid contribute to political business cycles that facilitate opportunistic behaviour of the incumbent? Second, if so, what are the consequences of such political behaviour for growth among African

⁶Namibia missed out on much money from the US Millennium Challenge Corporation because it failed to request for the disbursement of the money.

⁷There were several delays and eventual termination of loans to Zimbabwe in the period 1998 to 2000 because of the way the economy was being managed in contrast to agreed terms with the IMF.

economies? Our interest in these questions arises from the possibility of incumbent governments having the incentives to resort to expansionary fiscal and/or monetary policies to foster economic growth and with it, employment and the levels of prosperity before elections, so that they maximize the probability of re-election. Very little is known about these questions; and the limited existing evidence is mixed. In the next section, we briefly review the latest evidence and develop a political economy model of opportunistic incumbency to address the aforementioned questions.

3.1 Donor Forbearance and the Opportunistic Incumbent

Briggs (2012) investigated the relationship between aid volatility and presidential incumbency. He found that changes in aid moving into the year before the election gives the incumbent advantage over the election. Similarly, Jablonski (2014) examined the spatial distribution of multilateral donor projects in Kenya from 1992 to 2010 and found that Kenyan regimes have consistently manipulated aid allocation in favour of co-partisan and co-ethnic voters, confirming that aid distribution in the specific context of Kenya increases incumbent vote share. In contrast, Dietrich and Wright (2014) found that economic aid increases the likelihood of transition to multiparty politics, while aid furthers democratic consolidation by reducing the incidence of multiparty failure and electoral misconduct.

Given their internal fiscal weaknesses, developing countries are usually not in a position to sustain pre-election stimulus; therefore, they may turn to aid to sustain their expenditures. Donors in such scenarios would offer a fallback position for governments with political business cycle strategies. Dreher and Vaubel (2004) examined IMF and World Bank lending, as well as monetary and fiscal policies in aid recipient countries. They found that new net credits from the IMF are significantly larger prior to elections and that borrowing from the World Bank is significantly smaller after elections.

To investigate the questions outlined earlier, we formulate a model of opportunistic incumbency that follows the seminal work of Nordhaus (1975) in which voters base their voting decisions on how effective the incumbent government is in delivering social services and keeping unemployment low. We assume that voters have immediate expectations on macroeconomic performance but short memory of past policy experiences (Rogoff and Sibert, 1988; Rogoff, 1990).⁸ Under these conditions, the opportunistic incumbent will, for its electoral benefit, exploit the slow adjustment of inflationary effects on the economy to stimulate the economy and reduce employment through fiscal and monetary stimuli. The objective of the incumbent therefore is to maximize the probability of re-election based on economic performance.

More formally, unemployment, U_t , and inflation, π_t , are functions of economic performance that voters assess when favouring or penalizing the incumbent.⁹ Voter dissatisfaction in time of elections can be captured by a loss function that is increasing with poor economic performance such as

⁸Brender and Drazen (2008) have shown that while the effect of higher growth in real GDP on re-election probabilities is insignificant in developed countries, it is statistically significant in less developed countries.

⁹For simplicity, we focus here on unemployment as a proxy for aggregate deprivation, but the model could also be extended beyond the Phillips curve relationship to incorporate other well-being dimensions such as poverty.

$$L(U_t, \pi_t) = U_t + \lambda \frac{(\pi_t)^2}{2} \quad (1)$$

where λ is a preference weight that voters put on the general level of prices relative to unemployment. Now, even if voters have a short memory of past policy experiences, there might be retrospective effects on voting behaviour, so the voting function for an election in time t would be given in past experiences as

$$V_t = Y[\delta(n)L(U_{t-n}, \pi_{t-n})] \quad (2)$$

where the votes for the incumbent government (V_t) are now seen as a decreasing function of loss from economic performance in $t - 1$ periods, that is, $Y' < 0$, while $\delta(n)$ captures the weight voters put on a loss n periods in the past. Voters' short memory of past policy experiences would mean that $\delta(n)$ is decreasing in n periods, with the most recent economic events weighting more heavily on voters' decisions. Under such a framework, a political business cycle would emerge if the incumbent wishes to introduce fiscal and monetary stimuli to reduce the unemployment rates, regardless of the negative longer term inflationary consequences of doing so, in order to increase the incumbent's probability of re-election.¹⁰

An important issue to consider in this model is the possibility of tacit collusion between donors and the aid recipient government that creates a mutually beneficial outcome. The donor may have the objective of, say, disbursing aid funds. To achieve this, the donor requires the co-operation of the recipient government. The recipient government may also have its own objective, like prolonging the stay in office, and therefore co-operates with the donor. The two players may tacitly agree to enhance each other's position.

From the incumbent's perspective, such co-operation may result in the generation and sustenance of political business cycles through a number of ways. First, by guaranteeing financial support to the government, the donor may indirectly induce fiscal and/or monetary stimulus. Second, some donor countries, through geopolitical considerations, may tolerate government actions that compromise the effectiveness of aid. It should be noted that donors can influence institutional quality through aid conditionality and thus can determine whether or not a country has an electoral cycle (Rogoff 1990). However, the incumbent may seek to maximize aid receipts and political return (or political life in office), subject to the terms set by donors, the government's income sources, and the ability to institute a political business cycle.

Since the structural adjustment policies of the 1970s to 1990s, aid donors have been emphasizing greater economic openness. Treisman and Gimpelson (2001) have pointed out that the pressure for improvements in governance, democracy and institutional reform in return for aid and international financial institutions' support has translated into political business cycles. Donors have been keen to consistently support countries that hold competitive legislative elections, signalling to others the possible rewards for democratisation (Bratton and van de Walle, 1997). They punish bad performers by withholding aid as in the case of Malawi after the gay rights fiasco, Zimbabwe after expropriating land from white farmers and Kenya under Arap Moi. It therefore could be

¹⁰The ability of opportunistic incumbents to manipulate monetary policy for electoral purposes largely depends on the level and transitions of central banks' autonomy. Despite the fact that political and economic autonomy of central banks in Africa have improved over the past two decades, progress remains limited. In fact, Africa continues to be the least advanced region in the world in terms of central banks autonomy, which in turn facilitates political business cycles. For a discussion, see Arnone *et al.* (2007).

anticipated that incumbent governments take advantage of aid conditions to induce political business cycles as long as the countries behave in ways acceptable (or tolerable) to donors (Block, 2002; Mosley and Chiripanhura, 2012). Many poor African countries have significant budgetary support from donor countries and are therefore likely to toe the line.

Political business cycles may also be induced through a recipient government's increase in social expenditure and the promotion of policies that have direct impact on the poor (e.g. free health and education, and the provision of water and electricity services to slums), which coincide with donor conditionality for poverty alleviation, and also buy loyalty from voters. In fact, the utility of aid increases if donor conditionality coincides with government opportunistic objectives. Therefore, we posit that donors are an important determinant of political cycles and hence of the effectiveness of aid. We factor these influences in the empirical analysis described in the succeeding text. The impact of donors is captured through aid allocations and through forbearance to pre-election fiscal and/or monetary stimulus. Given these issues, in the next section, we include pre-election stimuli variables in the empirical model to test for the possible existence of political business cycles and their impact on growth.

4 EMPIRICAL ANALYSIS

The empirical analysis is based on panel data from 31 African countries. The data cover the period 1980 to 2009 for all countries for which data are available (Table 1). The data sources are mixed: they include the World Bank's World Development Indicators, the IMF Global Finance Statistics (2011 edition), particularly for fiscal variables; the Quality of Government database held at the University of Gothenburg (April 2011 version), the International Country Risk Guide (ICRG) data on the quality of government and the African Elections database. The triangulation of data sources helped improve the quality of the data as well as to increase the degrees of freedom.

We build the model specification on the foundations of growth equations presented in various studies belonging to the third generation discussed earlier. The dependent variable, as with Easterly (2003) and Burnside and Dollar (1997), is GDP per capita growth. We include aid; aid squared, an interaction term of aid and institutional quality; depth of financial intermediation; and regional dummies for West, East, North, Central and Southern Africa to capture some of the influence of omitted spatially correlated fixed effects, such as those emanating from geography and natural endowments. Our definition of aid is total net overseas development assistance as share of GDP. This is to address the problem that some countries may be receiving aid but paying back more to the international community such that on balance they expatriate money out of the economy. We include a quadratic function of aid to capture possible nonlinearities in the aid–growth relationship as suggested by Hansen and Tarp (2000). We experiment with the ICRG measure of bureaucratic quality as proxy for the institutional strength, whereas the depth of financial intermediation is measured by the ratio of M2 to GDP.

We also include conventional covariates, such as inflation, trade openness, government consumption and the budget deficit in the regressions, to capture the prevailing macroeconomic policy framework in country *i* at time *t* following Durbary *et al.* (1998), and also the vast majority of third generation studies (Table 1).

Table 1. Summary statistics

Variables	Definition	Data source	Obs	Mean	SD	Min	Max
Growth	GDP per capita growth	WDI	397	0.9217758	4.463996	-16.68338	22.61792
Aid	Total net overseas development assistance as per cent of GDP	WDI	397	0.9218	4.4640	-16.6834	22.6179
Investment	Total investment ratio of GDP resulting from the ratios of gross capital formation and foreign direct investment to GDP	WDI	397	10.1343	10.8281	0.1789	74.1368
Inflation	Annual growth rate of the GDP implicit deflator that shows the rate of price change in the economy as a whole	WDI	397	21.5230	7.5720	3.5597	47.5341
Budget deficit	Budget deficit as per cent of GDP	QoG, WDI	397	106.9334	1364.0260	-18.1925	26762.0200
Government consumption	General government final consumption expenditure measured as per cent of GDP	WDI, IMF	397	-3.1605	5.1420	-21.4069	32.0636
Financial depth	Money and quasi-money supply (M2) measured as per cent GDP	WDI	397	14.3480	5.2225	4.3639	35.4380
Trade openness	The sum of exports and imports of goods and services measured as per cent of GDP	WDI, QoG	397	28.2087	16.1190	4.1067	88.3535
Bureaucratic quality	ICRG index that measures the institutional strength and quality of the bureaucracy	ICRG	397	60.3858	23.7385	10.8307	148.9017
Stage of development	Agriculture added value as per cent of GDP	WDI	397	27.4224	15.0113	1.8738	68.8800
Scale of economy	Logarithm of total population	WDI	397	16.4891	0.9799	13.5513	18.1805
Pre-election fiscal stimulus	Dummy = 1 if the government runs a budget deficit prior to a presidential election	AED	397	0.1662	0.3728	0	1
Pre-election monetary stimulus	Dummy = 1 if the government allows money supply to grow in excess of GDP growth prior to a presidential election	AED	397	0.0705	0.2564	0	1
West Africa	Burkina Faso, Cameroon, Côte d'Ivoire, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Senegal, Sierra Leone, Togo	UN Stats; AfDB	397	0.2645	0.4416	0	1
North Africa	Algeria, Egypt, Morocco, Sudan, Tunisia	UN Stats; AfDB	397	0.1662	0.3728	0	1
Central Africa	Congo, Democratic Republic of Congo	UN Stats; AfDB	397	0.0479	0.2137	0	1
Southern Africa	Botswana, Madagascar, Mozambique, Namibia, South Africa, Zambia, Zimbabwe	UN Stats; AfDB	397	0.3073	0.4620	0	1
East Africa	Ethiopia, Kenya, Tanzania, Uganda	UN Stats; AfDB	397	0.2141	0.4107	0	1
Election year	Dummy = 1 if a presidential election took place in that year		397	0.1814	0.3858	0	1
Pre-election year	Dummy = 1 if a presidential election took place a year before the present year		397	0.1814	0.3858	0	1
Post election year	Dummy = 1 if a presidential election took place a year after the present year		397	0.1763	0.3816	0	1

Sources: World Development Indicators (WDI); Quality of Governance database (QoG); International Monetary Fund (IMF) Global Finance Statistics; the International Country Risk Guide (ICRG); United Nations Statistics Division (UN Stats); African Development Bank (AfDB), and the African Elections Database (AED). GDP, gross domestic product.

The summary statistics in the table indicate the extent of variability in various aggregates across African countries. Mean GDP per capita growth is very low at less than 1 per cent but has a large variance. The data show significant variance across countries' degree of financial depth, inflation level and trade openness. The level of agricultural sector contribution to GDP is relatively high at 27 per cent on average. We include investment as an explanatory variable of growth. Investment is measured by the share of gross capital formation and foreign direct investment in GDP. We explicitly take into account the importance of agriculture in the domestic economy, measured by the share of agriculture in GDP, to capture the stage of development, and as suggested by the Lewis model, we conjecture that the contribution of agriculture declines over time as other sectors of the economy, especially manufacturing and services, take over (Lewis, 1954). We predict aid to be positively associated with the dominance of agriculture but not necessarily related to economic growth. Therefore, we exploit the share of agriculture in GDP as an external instrument in the sys-GMM equations discussed in the succeeding text.

Similarly, we use the logarithm of population as an external instrument, which captures the scale of the economy. Easterly and Rebelo (1993) and Gebregziabher and Niño-Zarazúa (2014) find that the scale of the economy is an important determinant of public spending, with countries with higher population exhibiting lower public spending per capita. Therefore, we predict a negative association between aid and the scale of economy, yet there is no reason to suspect that a country can experience higher or lower economic growth simply because it has more or less people. The first-stage and second-stage regression results reported in Tables A1 and A2 of the Appendix, as well as the Sargan–Hansen test of overidentifying restrictions reported in Table 3 indicates that the joint null hypothesis of valid instrumentation cannot be rejected. Furthermore, the Kleibergen–Paap Wald test and the Cragg–Donald *F*-statistic of weak identification, which tests the strength of the partial correlation between the included endogenous variable and the excluded instruments while making finite-sample corrections, exceeds conventional critical values for most specifications. The test undertaken confirm the validity of our specification, as the instruments appear sufficiently correlated with aid but insignificantly correlated with growth, after controlling for covariates.

Following the model of opportunistic incumbency discussed earlier, we present the general form of the growth equation as follows:

$$Y_{it} = \alpha + \beta x_{it} + \phi w_{it} + e_{it} \quad (3)$$

where the subscripts *i* and *t* denote country and year, respectively; Y_{it} measures real GDP per capita growth; x_{it} is a vector of economic variables that include aid and aid squared, total investment, inflation, budget deficit, government consumption, financial depth and trade openness, including time-fixed effects; w_{it} is a vector that captures institutional quality and its interaction with aid to test for the joint effect of these two variables, in line with the Burnside and Dollar (1997) thesis; whereas α , β , ϕ and e are the intercept, the parameter estimates and the idiosyncratic error term, respectively. As we anticipate that aid is correlated with the quality of government, we include an interaction term of these two variables in the empirical specification in order to establish the joint effect of the two variables. Equation (3) tests whether aid has a significant impact on growth. We also experiment with various lags of the aid variable, given that it may take time before the impact of aid feeds into growth. We expand Equation (3) to capture the effect of political business cycles as follows:

$$Y_{it} = \alpha + \beta x_{it} + \phi w_{it} + \eta D_{it} + e_{it} \quad (4)$$

where x_{it} and w_{it} are as defined in (3), and D_{it} is a vector that captures the presence of fiscal or monetary pre-election stimuli linked to political business cycles. A fiscal stimulus would occur if the government runs a budget deficit prior to an election. We measure this by including a dummy variable that takes the value of one if a country runs a deficit in a year prior to an election and zero otherwise. A monetary stimulus occurs when the government allows money supply to grow in excess of GDP growth prior to an election. This is captured by a dummy variable that takes the value of one if money supply growth is greater than GDP growth in the year prior to an election, and zero otherwise. In both cases, the pre-election boost is used by the opportunistic incumbent to stimulate support to win an election and to ease intra-state conflict on resource distribution. As argued earlier, this could be exacerbated by aid or occur with the blessing of donors as long as the incumbent complies with the donors' interests. We note that investment and aid contained in x_{it} of Equation (4) are likely to be endogenous. Growth in investment may be driven by economic growth, just as much as more growth may generate more aid inflows. Thus, we decompose the content of vector x_{it} in Equation (3) and run investment and aid functions separately as follows:

$$A_{it} = \alpha + \beta x_{it} + \phi w_{it} + \psi z_{it} + v_{it} \quad (5)$$

where aid, A_{it} , is a function of the covariates included in x_{it} ; the measures of institutional quality in w_{it} and a vector z_{it} that measures the scale of the economy and the stage of development, which play the role of external instruments in the growth equation in (7) and which are expected to be correlated with aid but not with economic growth. Similarly, the investment equation can be specified as follows:

$$I_{it} = \alpha + \beta_1 x_{it} + \phi w_{it} + \psi z_{it} + u_{it} \quad (6)$$

where x_{it} , w_{it} and z_{it} are as defined earlier. Equations (5) and (6) are nested in Equation (4), in the form of a system of equations. Thus, we rewrite Equation (4) as a quadratic function with a second-order polynomial in aid in the regression as follows:

$$Y_{it} = \alpha + \gamma_1 A_{it} + \gamma_2 A_{it}^2 + \phi I_{it} + \beta x_{it} + \phi_1 w_{it} + \phi_2 w_{it} * A_{it} + \eta_1 D_{it} + \eta_2 D_{it} * A_{it} + \mu_i \quad (7) \\ + \zeta_t + e_{it}$$

where the γ 's measure the effect of aid on growth, η 's are the parameters of interest, measuring the growth effects of political business cycles and their interactions with aid, respectively, while μ_i denotes unobserved country-specific and time-invariant effects, and ζ_t is a vector of time dummies capturing universal time trends. The results presented in Table 2 are based on Equation (7) after controlling for the endogeneity of aid and investment using system generalized method of moments (sys-GMM) estimators, both with internally generated and external instruments.¹¹ We use ordinary least squares (OLS) as our benchmark model in Table 4 in the Appendix and the sys-GMM as our preferred model. As a first approximation, we consider Equations (3) and (4) using OLS. However, this presumes, *inter alia*, that aid is exogenously determined, which cannot reasonably be expected, given that both aid and growth may be affected by the possibility of reverse causality. In order to address this endogeneity concern, we run Equation (7) using instrumental variable (IV) estimators.

¹¹For a pedagogic discussion on sys-GMM, see Roodman (2009).

Table 2. Aid, political business cycles and growth

Variables	(1)	(2)	(4)	(5)	(6)	(7)	(8)	(9)
Lag growth	0.170 (0.383)	-0.029 (0.779)	-0.030 (0.215)	-0.020 (0.579)	0.342 (0.219)	0.282 (0.239)	0.320 (0.207)	0.386 (0.346)
Aid	0.429** (0.171)	0.442** (0.165)	0.426** (0.171)	0.469* (0.261)	0.618*** (0.224)	0.664** (0.305)	0.762*** (0.187)	0.639** (0.288)
Aid squared	-0.005* (0.003)	-0.005* (0.004)	-0.005** (0.002)	-0.005* (0.003)	-0.008*** (0.002)	-0.007*** (0.002)	-0.010*** (0.003)	-0.009** (0.004)
Investment	-0.113 (0.155)	-0.153 (0.167)	-0.038 (0.134)	-0.046 (0.161)	-0.158 (0.159)	-0.141 (0.113)	-0.223 (0.173)	-0.249 (0.185)
Inflation	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001** (0.000)	-0.001* (0.001)	-0.001*** (0.000)	-0.001 (0.001)
Budget deficit	0.178 (0.152)	0.221 (0.131)	0.166 (0.189)	0.163 (0.196)	0.196** (0.088)	0.202* (0.108)	0.253* (0.126)	0.242* (0.134)
Government consumption	-0.012 (0.079)	0.016 (0.087)	-0.033 (0.078)	-0.039 (0.097)	-0.048 (0.078)	-0.036 (0.090)	0.042 (0.090)	0.070 (0.115)
Financial depth	0.039** (0.019)	0.050 (0.037)	0.052* (0.028)	0.048 (0.054)	0.039* (0.021)	0.043* (0.025)	-0.010 (0.023)	-0.029 (0.033)
Trade openness	-0.001 (0.023)	0.003 (0.032)	-0.013 (0.017)	-0.012 (0.022)	0.006 (0.035)	0.004 (0.028)	0.017 (0.033)	0.015 (0.030)
Pre-election monetary stimulus			-0.494 (3.428)	0.015 (4.084)	8.191*** (2.459)	8.065*** (2.390)	18.782* (11.826)	8.067*** (2.800)
Pre-election fiscal stimulus			-2.104 (2.826)	-2.194 (3.460)	-9.125*** (3.227)	-8.907** (3.253)	-12.681** (6.164)	-8.613*** (3.005)
Bureaucratic quality	1.459* (0.865)	1.464* (1.366)	1.300* (0.790)	1.573* (1.231)	2.107* (1.066)	2.248* (1.854)	2.455*** (0.880)	1.958* (1.674)
Bureaucratic quality × aid	-0.051* (0.076)	-0.040* (0.138)	-0.030* (0.056)	-0.060* (0.127)	-0.110* (0.078)	-0.126* (0.156)	-0.112** (0.051)	-0.071* (0.139)
Fiscal stimulus × Aid					0.464* (0.337)	0.450* (0.246)	0.856* (0.491)	0.645* (0.409)
Monetary stimulus × aid					-0.626*** (0.197)	-0.660** (0.257)	-1.199** (0.481)	-0.684** (0.273)
Northern Africa							5.614*** (1.827)	5.771*** (1.764)
Central Africa							1.280 (2.539)	2.177 (3.050)
Southern Africa							0.482 (0.862)	0.552 (1.180)
East Africa							1.334 (1.737)	0.978 (2.035)
Time fixed effects	Yes							
External instruments	Yes	No	Yes	No	Yes	No	Yes	No
Constant	-1.935 (3.035)	-2.131 (3.744)	-0.200 (1.866)	-0.551 (2.691)	-0.013 (3.454)	-1.045 (5.284)	-1.661 (2.030)	0.688 (5.841)
observations	111	112	106	107	102	102	102	102
Number of countries	30	31	30	31	30	30	30	30
	26	24	28	26	27	25	31	29

(Continues)

Table 2. (Continued)

Variables	(1)	(2)	(4)	(5)	(6)	(7)	(8)	(9)
Number of instruments								
<i>F</i> -statistic	697.1***	343.1***	520.1***	691.2***	678.0***	238.7***	4.798***	769.4***
Hansen <i>p</i> -value	0.583	0.588	0.762	0.623	0.888	0.656	0.872	0.894
AR (1) <i>p</i> -value	0.0141	0.0473	0.0226	0.0491	0.0989	0.0176	0.0256	0.0130
AE (2) <i>p</i> -value	0.772	0.951	0.890	0.839	0.890	0.995	0.907	0.671

Standard errors in parentheses.

System generalized method of moments equations (5-year averages). Dependent variable: gross domestic product per capita growth.

*** $p < 0.01$,

** $p < 0.05$,

* $p < 0.1$.

There is a fairly wide range of estimation techniques that can be adopted for the analysis, including two-stage least squares (2SLS), fixed effects (FE) and sys-GMM estimators. The presence of country fixed effects, μ_i , in Equation (7) may suggest that the preferred approach is the FE model, which allows for the mitigation of heterogeneity-induced bias and controls for FE-related endogeneity. However, the FE model removes a considerable portion of the variation in the right-hand side variables, which exacerbates measurement error. The 2SLS and FE with instrumental variables (FE-IV) methods also suffer from dynamic panel bias and their use can only be justified on asymptotic grounds (Baum *et al.*, 2007).

Limited Information Maximum Likelihood (LIML) methods and continuously updated Generalized Method of Moments estimators (CUE) have better finite-sample performance thus perform better than 2SLS and FE methods in the presence of weak instruments (Hahn *et al.*, 2004). Therefore, as a robustness check, we estimate Equation (7) using several methods, including OLS, 2SLS, 2S-GMM, LIML, Fuller's modified LIML (henceforth Fuller), CUE, FE and FE-IV.

Finding reliable instruments is a daunting challenge; thus, we resort to a purportedly robust instrumental variable that is commonplace in the literature, that is, the lag of the dependent variable. Note, however, that the economic motivation behind the use of lagged values as instruments can be somehow questionable in the current context, as it relies on the premise that concurrent aid allocations affects growth but lagged aid does not. Accordingly, we exploit the aforementioned external instruments to identify the causal effects of aid, in combination of the internally generated instruments.

The presence of lagged dependent variables and country FE poses a challenge that requires the use of sys-GMM estimators that works around the weak instrument problem (Blundell and Bond, 1998). Sys-GMM solves a system of level and difference equations. Lagged differences of the endogenous variables are used as instruments in the level equations, while lagged levels of the endogenous variables are used as instruments in the first differenced equations.

Sys-GMM significantly improves the accuracy of estimates by exploiting additional moment conditions that are informative even for persistent data. Therefore, we opt for the sys-GMM estimator with external instruments as our preferred model. We note, however, that the additional moment conditions of the sys-GMM estimator do not come without a cost. The instruments for the level equations are valid as long as they are

Table 3. Aid, political business cycles and growth

Variables	(1)	(2)	(3)
	OLS	OLS	OLS
Aid	0.246*** (0.059)	0.250*** (0.062)	0.228*** (0.063)
Aid squared	-0.002*** (0.001)	-0.002** (0.001)	-0.002** (0.001)
Investment	0.202*** (0.033)	0.154*** (0.034)	0.158*** (0.035)
Inflation	-0.000** (0.000)	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.114*** (0.042)	0.089** (0.043)	0.080* (0.043)
Government consumption	-0.065 (0.046)	0.005 (0.051)	-0.000 (0.051)
Financial depth	0.020 (0.014)	-0.011 (0.019)	-0.014 (0.020)
Trade openness	-0.008 (0.010)	-0.008 (0.012)	-0.009 (0.012)
Pre-election monetary stimulus	-0.309 (1.310)	-0.186 (1.298)	1.026 (1.486)
Pre-election fiscal stimulus	-0.717 (0.947)	-0.540 (0.937)	-1.455 (1.045)
Bureaucratic quality	0.752** (0.352)	0.916** (0.369)	0.869** (0.372)
Bureaucratic quality x Aid	-0.080*** (0.025)	-0.069*** (0.025)	-0.064** (0.026)
Fiscal stimulus x Aid	0.190*** (0.060)	0.174*** (0.059)	0.282*** (0.090)
Monetary stimulus x Aid	-0.228*** (0.085)	-0.230*** (0.084)	-0.341* (0.183)
Northern Africa		1.578* (0.931)	1.578* (0.931)
Central Africa		-1.961* (1.108)	-1.961* (1.108)
Southern Africa		-0.090 (0.566)	-0.090 (0.566)
East Africa		0.654 (0.681)	0.654 (0.681)
Pre-election fiscal stimulus x aid x Northern Africa			0.597 (0.448)
Pre-election fiscal stimulus x aid x Central Africa			-0.903 (0.801)
Pre-election fiscal stimulus x aid x Southern Africa			-0.144 (0.096)
Pre-election fiscal stimulus x aid x East Africa			0.028 (0.135)
Pre-election monetary stimulus x aid x Northern Africa			-0.842 (0.915)
Pre-election monetary stimulus x aid x Central Africa			
Pre-election monetary stimulus x aid x Southern Africa			0.142 (0.185)
Pre-election monetary fiscal stimulus x aid x East Africa			-0.049 (0.232)
Election year			
Election year x Aid			
Pre-election year			
Pre-election year x aid			
Post-election year			
Post-election year x aid			
External Instruments	No	No	No
Time fixed effects	No	Yes	Yes
Constant	-4.349*** (1.028)	-1.206 (1.856)	-1.206 (1.856)
Observations	397	397	397
R ²	0.244	0.352	0.352
F-Statistic	8.786***	4.713***	4.713***
Kleibergen–Paap/Cragg–Donald F stat			
Hansen/Sargan <i>p</i> -value			

Instrumented with Agriculture added value as per cent of GDP.

Alternative models (full sample). Dependent variable: GDP per capita growth.

OLS, ordinary least squares; 2SLS, two-stage least squares; 2S GMM, generalized method of moments; CUE, continuously updated estimator; LIML, limited information maximum likelihood; Fuller, Fuller's modified LIML; FE, fixed effects; IV, instrument variables; GDP, gross domestic product.

Standard errors in parentheses.

****p* < 0.01,

***p* < 0.05,

**p* < 0.1.

Table 3. (Continued)

Variables	(4)	(5)	(6)
	OLS	2SLS	2SLS
Aid	0.219*** (0.067)	0.509* (0.260)	0.607* (0.310)
Aid squared	-0.002** (0.001)	-0.005* (0.003)	-0.007* (0.003)
Investment	0.156*** (0.035)	0.185*** (0.038)	0.173*** (0.038)
Inflation	-0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)
Budget deficit	0.127*** (0.047)	0.151*** (0.056)	0.203*** (0.064)
Government consumption	-0.001 (0.051)	-0.069 (0.047)	-0.071* (0.042)
Financial depth	-0.006 (0.019)	0.036* (0.021)	0.043* (0.023)
Trade openness	-0.008 (0.012)	-0.005 (0.010)	-0.005 (0.010)
Pre-election monetary stimulus	-0.272 (1.291)	0.035 (1.384)	-0.042 (1.161)
Pre-election fiscal stimulus	-2.451 (2.288)	-0.620 (0.976)	-3.574* (1.981)
Bureaucratic quality	0.876** (0.366)	1.552* (0.849)	1.708** (0.813)
Bureaucratic quality x Aid	-0.066*** (0.025)	-0.134** (0.058)	-0.146** (0.065)
Fiscal stimulus x Aid	0.716* (0.365)	0.166** (0.066)	0.957*** (0.253)
Monetary stimulus x Aid	-0.222*** (0.084)	-0.243*** (0.088)	-0.236*** (0.058)
Northern Africa	1.385 (0.930)		
Central Africa	-1.689 (1.102)		
Southern Africa	-0.150 (0.564)		
East Africa	0.585 (0.676)		
Pre-election fiscal stimulus x aid x Northern Africa			
Pre-election fiscal stimulus x aid x Central Africa			
Pre-election fiscal stimulus x aid x Southern Africa			
Pre-election fiscal stimulus x aid x East Africa			
Pre-election monetary stimulus x aid x Northern Africa			
Pre-election monetary stimulus x aid x Central Africa			
Pre-election monetary stimulus x aid x Southern Africa			
Pre-election monetary fiscal stimulus x aid x East Africa			
Election year	0.530 (0.760)	0.456 (1.138)	
Election year x Aid	0.145*** (0.054)	0.055 (0.123)	
Pre-election year	1.954* (2.191)	3.364* (1.957)	
Pre-election year x aid	-0.519* (0.363)	-0.808*** (0.289)	
Post-election year	-0.328 (0.778)	0.767 (1.122)	
Post-election year x aid	0.012 (0.061)	-0.100 (0.108)	
External Instruments	No	Yes ^a	Yes ^a
Time fixed effects	Yes	No	No
Constant	-0.949 (1.855)	-6.985** (2.744)	-7.791 (2.978)
Observations	397	397	397
R ²	0.376	0.205	0.196
F-Statistic	4.466	11.98***	8.63**
Kleibergen-Paap/Cragg-Donald F stat		16.275	15.195
Hansen/Sargan p-value		0.10	0.09

orthogonal to the FE. In addition, sys-GMM may suffer from the weak instrument problem, particularly when the time series is large and when substantial unobserved heterogeneity exists (Hayakawa, 2006; Bun and Windmeijer, 2010). Another potential deficiency of the sys-GMM estimators is that the number of internal instruments grows quadratically as the number of time periods increases. Roodman (2009) cautions that instrument proliferation can overfit endogenous variables, biasing coefficient estimates

Table 3. (Continued)

Variables	(7)	(8)
	2S GMM	2S GMM
Aid	0.398* (0.248)	0.441* (0.278)
Aid squared	-0.004* (0.003)	-0.005* (0.003)
Investment	0.186*** (0.037)	0.176* (0.037)
Inflation	-0.000** (0.000)	-0.000** (0.000)
Budget deficit	0.133** (0.056)	0.179*** (0.059)
Government consumption	-0.080** (0.040)	-0.085** (0.039)
Financial depth	0.028 (0.020)	0.033 (0.021)
Trade openness	-0.005 (0.010)	-0.004 (0.010)
Pre-election monetary stimulus	0.001 (1.228)	-0.110 (1.128)
Pre-election fiscal stimulus	-0.721 (0.750)	-3.382* (1.948)
Bureaucratic quality	1.273* (0.796)	1.384* (0.756)
Bureaucratic quality x Aid	-0.114* (0.065)	-0.124** (0.062)
Fiscal stimulus x Aid	0.176*** (0.053)	0.870*** (0.238)
Monetary stimulus x Aid	-0.242*** (0.060)	-0.236*** (0.056)
Northern Africa		
Central Africa		
Southern Africa		
East Africa		
Pre-election fiscal stimulus x aid x Northern Africa		
Pre-election fiscal stimulus x aid x Central Africa		
Pre-election fiscal stimulus x aid x Southern Africa		
Pre-election fiscal stimulus x aid x East Africa		
Pre-election monetary stimulus x aid x Northern Africa		
Pre-election monetary stimulus x aid x Central Africa		
Pre-election monetary stimulus x aid x Southern Africa		
Pre-election monetary fiscal stimulus x aid x East Africa		
Election year		-0.125 (1.026)
Election year x Aid		0.122 (0.109)
Pre-election year		2.915* (1.901)
Pre-election year x aid		-0.692*** (0.269)
Post-election year		0.322 (1.054)
Post-election year x aid		-0.048 (0.099)
External Instruments	Yes	Yes
Time fixed effects	No	No
Constant	-5.620** (2.401)	-5.944** (2.580)
Observations	397	397
R^2	0.230	0.244
F -Statistic	11,69***	9.397
Kleibergen-Paap/Cragg-Donald F stat	8,64	8.703
Hansen/Sargan p -value	0.13	0.12

and weakening the Hansen test of the instruments' joint validity. Therefore, we employ 5-year averages and reduce the instrument count by 'collapsing' instruments which is superior to simply restricting the lag ranges. In order to check for the sensitivity of our results, we compute the sys-GMM equations both with the internally generated set of instruments and the external instruments. Furthermore, we run a number of alternative specifications and models as additional robustness checks. The results presented in Table 2

Table 3. (Continued)

Variables	(9)	(10)
	CUE	CUE
Aid	0.449* (0.250)	0.514* (0.283)
Aid squared	-0.005* (0.003)	-0.005* (0.003)
Investment	0.181*** (0.037)	0.169*** (0.037)
Inflation	-0.000** (0.000)	-0.000** (0.000)
Budget deficit	0.140** (0.057)	0.190*** (0.060)
Government consumption	-0.080** (0.040)	-0.084** (0.040)
Financial depth	0.031 (0.020)	0.037* (0.021)
Trade openness	-0.005 (0.010)	-0.004 (0.010)
Pre-election monetary stimulus	0.085 (1.231)	-0.028 (1.128)
Pre-election fiscal stimulus	-0.712 (0.747)	-3.590* (1.953)
Bureaucratic quality	1.422* (0.800)	1.557** (0.760)
Bureaucratic quality x Aid	-0.127* (0.065)	-0.138** (0.062)
Fiscal stimulus x Aid	0.171*** (0.051)	0.921*** (0.241)
Monetary stimulus x Aid	-0.246*** (0.058)	-0.240*** (0.054)
Northern Africa		
Central Africa		
Southern Africa		
East Africa		
Pre-election fiscal stimulus x aid x Northern Africa		
Pre-election fiscal stimulus x aid x Central Africa		
Pre-election fiscal stimulus x aid x Southern Africa		
Pre-election fiscal stimulus x aid x East Africa		
Pre-election monetary stimulus x aid x Northern Africa		
Pre-election monetary stimulus x aid x Central Africa		
Pre-election monetary stimulus x aid x Southern Africa		
Pre-election monetary fiscal stimulus x aid x East Africa		
Election year		-0.003 (1.027)
Election year x Aid		0.113 (0.108)
Pre-election year		3.184* (1.916)
Pre-election year x aid		-0.753*** (0.273)
Post-election year		0.525 (1.067)
Post-election year x aid		-0.070 (0.101)
External Instruments	Yes	Yes
Time fixed effects	No	No
Constant	-6.056** (2.433)	-6.559** (2.641)
Observations	397	397
R ²	0.220	0.225
F-Statistic	11.82***	9.075***
Kleibergen–Paap/Cragg–Donald F stat	8.46	7.70
Hansen/Sargan p-value	0.13	0.13

show that the Arellano–Bond (1991) test of no second-order autocorrelation cannot be rejected, which precluded the use of second lags of the endogenous variables as instruments. Therefore, we restrict the instrument set to lags 3 and longer of the variables. After doing so, all the specifications of the sys-GMM equations passed the Hansen test of overidentifying restrictions suggesting that the instrument set is valid. The results are discussed in the following section.

Table 3. (Continued)

Variables	(11)	(12)	(13)
	LIML	LIML	Fuller
Aid	0.428* (0.251)	0.471* (0.287)	0.419* (0.245)
Aid squared	-0.004* (0.003)	-0.005* (0.003)	-0.004* (0.003)
Investment	0.190*** (0.036)	0.182*** (0.038)	0.191*** (0.036)
Inflation	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.140*** (0.054)	0.185*** (0.059)	0.138*** (0.054)
Government consumption	-0.068 (0.045)	-0.070 (0.045)	-0.068 (0.045)
Financial depth	0.031 (0.020)	0.036* (0.021)	0.031 (0.020)
Trade openness	-0.006 (0.010)	-0.006 (0.010)	-0.006 (0.010)
Pre-election monetary stimulus	-0.071 (1.340)	-0.162 (1.323)	-0.082 (1.337)
Pre-election fiscal stimulus	-0.650 (0.945)	-3.221 (2.368)	-0.653 (0.944)
Bureaucratic quality	1.305* (0.821)	1.371* (0.775)	1.280* (0.805)
Bureaucratic quality × aid	-0.117** (0.056)	-0.122** (0.054)	-0.115** (0.055)
Fiscal stimulus × aid	0.174*** (0.064)	0.873** (0.401)	0.174*** (0.063)
Monetary stimulus × aid	-0.238*** (0.085)	-0.232*** (0.084)	-0.238*** (0.085)
Pre-election fiscal stimulus × aid × Northern Africa			
Pre-election fiscal stimulus × aid × Central Africa			
Pre-election fiscal stimulus × aid × Southern Africa			
Pre-election fiscal stimulus × aid × East Africa			
Pre-election monetary stimulus × aid × Northern Africa			
Pre-election monetary stimulus × aid × Central Africa			
Pre-election monetary stimulus × aid × Southern Africa			
Pre-election monetary fiscal stimulus × aid × East Africa			
Election year		0.115 (1.036)	
Election year × aid		0.090 (0.091)	
Pre-election year		2.838 (2.425)	
Pre-election year × aid		-0.702 (0.422)	
Post-election year		0.367 (1.138)	
Post-election year × Aid		-0.058 (0.108)	
External instruments	Yes	Yes	Yes
Time fixed effects	No	No	No
Constant	-6.172** (2.653)	-6.490** (2.878)	-6.090** (2.599)
Observations	397	397	397
R ²	0.225	0.238	0.227
F-statistic/Wald chi	7.58***	6.354***	7.60***
Kleibergen–Paap/Cragg–Donald F stat	12.1	11.01	12.1
Hansen/Sargan <i>p</i> -value	0.17	0.14	0.17

5 RESULTS

An initial examination of the relationship between election years, budget deficit growth and money supply growth for a selection of African countries is presented in Figure A1 of the Appendix. It shows varying levels of monetary and/or fiscal expansion before election years. Election years are marked by solid black bars over the year concerned. We consider money supply growth that is greater than GDP growth, in a year preceding an election, to be excessive. Figure A1 shows that countries tend to expand money supply growth, with Tanzania exercising this policy in the 1980s and 1990s, while Zambia used a

Table 3. (Continued)

Variables	(14)	(15)	(16)
	Fuller	FE	FE
Aid	0.457* (0.280)	0.226** (0.142)	0.204** (0.144)
Aid squared	-0.005* (0.003)	-0.002* (0.001)	-0.002* (0.001)
Investment	0.183*** (0.038)	0.158** (0.070)	0.167** (0.073)
Inflation	-0.000 (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Budget deficit	0.183*** (0.059)	0.095 (0.063)	0.088 (0.062)
Government consumption	-0.070 (0.045)	-0.058 (0.079)	-0.055 (0.080)
Financial depth	0.035* (0.021)	-0.099** (0.048)	-0.100** (0.048)
Trade openness	-0.006 (0.010)	-0.000 (0.022)	-0.001 (0.022)
Pre-election monetary stimulus	-0.173 (1.319)	0.920 (0.573)	0.895 (0.583)
Pre-election fiscal stimulus	-3.186 (2.358)	-0.077 (0.053)	-0.076 (0.053)
Bureaucratic quality	1.338* (0.758)	-0.577 (1.227)	0.407 (1.449)
Bureaucratic quality × aid	-0.120** (0.053)	-0.295 (0.652)	-1.070 (0.735)
Fiscal stimulus × aid	0.865** (0.398)	0.151*** (0.032)	0.225*** (0.058)
Monetary stimulus × aid	-0.231*** (0.084)	-0.171** (0.075)	-0.226* (0.140)
Pre-election fiscal stimulus × aid × Northern Africa			0.483** (0.186)
Pre-election fiscal stimulus × aid × Central Africa			-0.770*** (0.256)
Pre-election fiscal stimulus × aid × Southern Africa			-0.097* (0.053)
Pre-election fiscal stimulus × aid × East Africa			0.055 (0.089)
Pre-election monetary stimulus × aid × Northern Africa			-0.556 (0.498)
Pre-election monetary stimulus × aid × Central Africa			0.074 (0.106)
Pre-election monetary stimulus × aid × Southern Africa			
Pre-election monetary fiscal stimulus × aid × East Africa			-0.118 (0.142)
Election year	0.082 (1.022)		
Election year × aid	0.094 (0.090)		
Pre-election year	2.786 (2.408)		
Pre-election year × aid	-0.691 (0.418)		
Post-election year	0.328 (1.121)		
Post-election year × Aid	-0.053 (0.106)		
External instruments	Yes	No	No
Time fixed effects	No	Yes	Yes
Constant	-6.362** (2.809)	0.211 (2.635)	0.146 (2.700)
Observations	397	397	397
R ²	0.241	0.279	0.288
F-statistic/Wald chi	6.380***	3.45****	2.97***
Kleibergen–Paap/Cragg–Donald F stat	11.01	7.24	
Hansen/Sargan <i>p</i> -value	0.15	0.83	

combination of both monetary and fiscal expansion before elections throughout the 1980s and 2000s. Egypt recorded excessive money supply growth in 1986 and 1998, Tunisia in 1985, 2000 and 2005 and Kenya did the same in 1982, 1987 and 1991. Ghana, Tanzania, Uganda and Zambia were consistent in pursuing excessive money supply growth in the year prior to an election.

Given this initial evidence of political business cycles, we turn our attention to the aid and political business cycles variables and their interactions in the growth equation (7). Following propositions in theory (Bond, 2002; Roodman, 2009), we expect the parameters of the variables of interest in the sys-GMM equations presented in Table 2

Table 3. (Continued)

Variables	(17)	(18)
	FE	FE-IV
Aid	0.200** (0.131)	0.453* (0.824)
Aid squared	-0.002* (0.001)	-0.004* (0.008)
Investment	0.158** (0.063)	0.136 (0.095)
Inflation	-0.000** (0.000)	-0.000 (0.000)
Budget deficit	0.162* (0.083)	0.104 (0.064)
Government consumption	-0.042 (0.078)	-0.068 (0.089)
Financial depth	-0.107** (0.046)	-0.094* (0.055)
Trade openness	0.000 (0.022)	-0.012 (0.048)
Pre-election monetary stimulus	0.791 (0.543)	1.061 (0.715)
Pre-election fiscal stimulus	-0.064 (0.046)	-0.100 (0.088)
Bureaucratic quality	-0.814 (1.179)	-0.312 (1.624)
Bureaucratic quality × aid	-3.013*** (0.825)	-0.218 (0.979)
Fiscal stimulus × aid	0.731*** (0.225)	0.137* (0.076)
Monetary stimulus × aid	-0.155** (0.070)	-0.190* (0.111)
Pre-election fiscal stimulus × aid × Northern Africa		
Pre-election fiscal stimulus × aid × Central Africa		
Pre-election fiscal stimulus × aid × Southern Africa		
Pre-election fiscal stimulus × aid × East Africa		
Pre-election monetary stimulus × aid × Northern Africa		
Pre-election monetary stimulus × aid × Central Africa		
Pre-election monetary stimulus × aid × Southern Africa		
Pre-election monetary fiscal stimulus × aid × East Africa		
Election year	0.255 (0.924)	
Election year × aid	0.121** (0.099)	
Pre-election year	3.109 (1.240)	
Pre-election year × aid	-0.563 (0.239)	
Post-election year	0.465 (0.675)	
Post-election year × Aid	-0.028 (0.061)	
External instruments	No	Yes
Time fixed effects	Yes	Yes
Constant	0.541 (2.669)	-0.150 (2.302)
Observations	397	397
R^2	0.311	0.266
F -statistic/Wald chi	3.40***	144.42***
Kleibergen–Paap/Cragg–Donald F stat		
Hansen/Sargan p -value		

to be larger than the OLS regressions, and the results confirm our priors. The benchmark OLS equations are presented in Table A1 in the Appendix, and the alternative 2SLS, 2S-GMM, CUE, LIML, Fuller, FE and FE-IV models are presented in Table 3. The tables present various specifications, including equations with pre-election fiscal and monetary stimuli only, with interactions between pre-election stimuli and aid, and full models with regional dummies interacted with pre-election fiscal and monetary stimuli and aid. We also include an extended model that includes election year, pre-election year and post-election year interacted with aid to isolate the direct effect of donors on

Table 3. (Continued)

Variables	(19)	(20)
	FE-IV	FE-IV
Aid	0.424* (0.837)	0.407* (0.858)
Aid squared	-0.004* (0.008)	-0.004* (0.008)
Investment	0.144 (0.100)	0.138 (0.097)
Inflation	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.096 (0.065)	0.170** (0.071)
Government consumption	-0.064 (0.089)	-0.050 (0.089)
Financial depth	-0.094* (0.056)	-0.103* (0.053)
Trade openness	-0.013 (0.048)	-0.009 (0.043)
Pre-election monetary stimulus	1.040 (0.748)	0.903 (0.677)
Pre-election fiscal stimulus	-0.098 (0.089)	-0.083 (0.085)
Bureaucratic quality	0.619 (1.704)	-0.617 (1.536)
Bureaucratic quality × aid	-0.883 (1.272)	-2.962 (2.331)
Fiscal stimulus × aid	0.192* (0.156)	0.727* (0.395)
Monetary stimulus × aid	-0.248* (0.206)	-0.171* (0.107)
Pre-election fiscal stimulus × aid × Northern Africa	0.452 (0.465)	
Pre-election fiscal stimulus × aid × Central Africa	-0.728 (0.815)	
Pre-election fiscal stimulus × aid × Southern Africa	-0.069 (0.145)	
Pre-election fiscal stimulus × aid × East Africa	0.058 (0.136)	
Pre-election monetary stimulus × aid × Northern Africa	-0.598 (0.949)	
Pre-election monetary stimulus × aid × Central Africa	0.071 (0.188)	
Pre-election monetary stimulus × aid × Southern Africa		
Pre-election monetary fiscal stimulus × aid × East Africa	-0.099 (0.247)	
Election year		0.552 (1.452)
Election year × aid		0.094 (0.121)
Pre-election year		3.265 (2.318)
Pre-election year × aid		-0.581 (0.399)
Post-election year		0.826 (1.685)
Post-election year × Aid		-0.057 (0.135)
External instruments	Yes	Yes
Time fixed effects	Yes	Yes
Constant	-0.187 (2.317)	0.096 (2.631)
Observations	397	397
R ²	0.276	0.301
F-statistic/Wald chi	148.37***	165.54***
Kleibergen–Paap/Cragg–Donald F stat		
Hansen/Sargan p-value		

the economy.¹² All models, static or dynamic, with or without the inclusion of external instruments, confirm the most recent evidence from the third generation of studies that aid has a positive and significant impact on growth, with the second-order polynomial aid term indicating diminishing marginal returns to increasing aid allocations. As theory would predict, pre-electoral fiscal stimulus and aid jointly have a positive and significant effect on growth, whereas pre-electoral monetary stimulus and aid jointly have a negative effect on growth, which indicates that aid might be reinforcing the size effect

¹²We are grateful with an anonymous referee for this suggestion

of political business cycles in both positive and negative directions, depending on whether the opportunistic incumbent resorts to fiscal or monetary policy strategies to boost the economy. In the discussion that follows, we focus on the preferred sys-GMM results in Tables 2.

Table 2 contains a number of equations, all variants of Equation (7). Columns 1 and 2 show the model with and without external instruments, and excluding the pre-election stimuli, which we argue instigates political business cycles. As with the baseline and alternative models, and also the most recent empirical evidence, the model confirms the nonlinear relationship between aid and economic growth, with aid having a positive impact on growth but with diminishing returns. This is not surprising given the fact that many African countries have limited absorptive capacity of aid. The interactions of aid and the quality of bureaucracy, just like the bureaucracy indicator itself, report the expected signs, showing that the quality of bureaucracy is a strong predictor of growth, whereas the negative coefficient of its interaction with aid reflects the fact that donors tend to have a poverty focus in countries with weak bureaucratic institutions. Our results are consistent across alternative specifications and models (Table 3) and seem to support the proposition outlined earlier by Burnside and Dollar (1997) and then supported by Collier and Dollar (2002) that aid has a positive and significant impact on growth, conditional upon a good policy environment.

Columns 3 and 4 of Table 2 include the pre-election monetary and fiscal stimuli but exclude the interaction terms of the joint effects of policy stimuli and aid. Columns 5 and 6 introduce the interaction terms between pre-election stimuli and aid. The inclusion of both pre-election fiscal and monetary stimuli with their corresponding interactions with aid confirms our priors regarding the existence of political business cycle effects in the African region. The results show that the interaction of pre-election monetary stimulus and aid has a negative and statistically significant impact on the economy. They also show that the interaction of the pre-election fiscal stimulus and aid has a positive and statistically significant impact on growth. The negative impact of the monetary stimulus interaction can be explained by the inflationary impact of an excess money supply on the economy. In contrast, the positive effect of the fiscal stimulus interaction with aid can be connected to the increased government expenditure ahead of a presidential election that has effects on the aggregate demand and which may also conform to donor objectives. In fact, we note that 'pro-poor' government consumption expenditure on health, education and agriculture, three priority areas of donor agencies, absorbs a large proportion of total government consumption.¹³ The direction and statistical significance of the fiscal and monetary stimuli-aid interactions remain consistent regardless of the model specification, including (or excluding) the external instruments. Columns 8 and 9 also show that there are no significant differences in the magnitude of the effect of political business cycles across African regions, relative to West Africa (the benchmark), with one exception: North Africa. The results seem to indicate that the autocratic regimes that ruled many of the Northern African countries until very recently had a greater absorptive capacity to utilize aid to support political business circles, most likely due to the more advanced bureaucratic institutions that these countries enjoyed *vis-à-vis* West Africa (and the rest sub-Saharan Africa more generally). Our argument seems to be supported by the positive and significant coefficient of the ICRG index that measures the institutional strength and quality of the bureaucracy. However, this specific finding should be interpreted with

¹³Pro-poor expenditure represents on average, a 14.2 per cent of GDP, *vis-à-vis* a 16 per cent share of total government consumption.

caution as further analysis is required to reveal the underlying mechanisms that explain this apparent irregularity.

In addition, we extended Equation (7) using IV and FE models to include election year, pre-election year and post-election year dummies interacted with aid. These sets of interactions capture the effect of donors' aid allocation decisions on the economy in times of election, after controlling for the opportunistic behaviour of incumbent governments, via pre-election fiscal and monetary stimuli. The IV results reported in columns 5, 8, 10, 12 and 14 of Table 3 confirm our priors—although with the FE estimators, the results lose statistical power—which donors unintentionally or complicitly facilitate a fallback position for governments to execute opportunistic political strategies during pre-election years.

Overall, the results indicate that aid seems to contribute to political business cycles where the opportunistic incumbent resort to macroeconomic policy stimuli to generate favourable conditions for re-election or continuation of political party dominance. Whether the incumbent government decides to align with donor objectives so it can be rewarded with donor aid, or execute discretionary fiscal policy independently of donor priorities, aid is found to contribute to political business cycles and ultimately growth. Our findings corroborate the political business cycle theory that aid can indeed stimulate such cycles, a result that is supported by the work of Alesina and Dollar (2000), Barro and Lee (2005), Dreher and Jensen (2007), Dreher *et al.* (2009) and, more recently, Faye and Niehaus (2012). The findings contribute to the scant literature on the political economy of aid by providing evidence that political considerations and not only altruistic motives drive donors' aid agendas.

The results from the joint effect of the aid, pre-electoral stimuli and regional interactions vary across regions. Besides the results on North Africa discussed earlier, of particular interest is the negative and statistically significant coefficient of the Central Africa interaction in columns 16 and 18 of Table 3. Compared with West African countries (the benchmark), Central African countries perform poorly after controlling for the effects of macroeconomic covariates, aid, the quality of bureaucracy and monetary and fiscal pre-election stimuli. The results are not surprising. Despite vast natural resources and recent growth spells, the Central African region contributes the smallest share of Africa's entire economy, including Africa's agricultural sector. Countries in the region, including Chad and Democratic Republic of Congo, have been engaged in long-term conflicts that have devastated their economies. The region is also dominated by some of Africa's least accessible countries, with little or no infrastructure. It is therefore likely that the countries in this particular region significantly lack capacity to absorb aid funds. This results in lower than average multiplier effects of aid; hence, the region performs worse than the benchmark.

6 CONCLUSIONS

This paper has examined the role of aid in facilitating political business cycles and growth. Starting with a review of different strands of literature on aid, and in line with the most recent third generation of studies, we find strong evidence that aid has a positive and significant impact on economic growth in the African region with diminishing marginal returns, after controlling for key macroeconomic determinants of growth and the quality of bureaucracy. We find evidence to support early studies that argue that institutional quality is a strong determinant of growth.

Our results also confirm the proposition outlined in our model that aid contributes to political business cycles that opportunistic incumbents exploit to increase the probability of re-election or to enhance political party dominance. Although generally, there has been progress towards democratisation in Africa since the 1990s, political processes have been characterized by imperfect democratic competitive environments in which the institutionalisation of political parties and electoral institutions have often been accompanied by the rise of strong presidentialism, ethnic-driven politics and in some cases dictatorial regimes under the façade of electoral democratic systems.¹⁴

If donors allocate aid on the basis of geopolitical interests, or even poverty-related measures without taking into consideration the democratic credentials of the incumbent regimes, their actions may, indirectly, contribute to the entrenchment of political business cycles in detriment of democracy-enhancing processes. Forbearance, and sometimes complicit by aid donors, may cause opportunistic incumbent governments to gain degrees of freedom to instigate macroeconomic stimuli that ensures electoral victory with no fear of losing aid. Political considerations and not only altruistic motives seem critical when devising donors' agendas.

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¹⁴Uganda, Kenya, Ethiopia and Zimbabwe are illustrative examples. For a comprehensive discussion of the democratic transition in Africa, see the collection of studies in the 2011 Special Issue 'Democratization in Africa: Challenges and Prospects' of *Globalization*, Vol. 18, issue 2.

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APPENDIX

Table A1. Aid, political business cycles and growth

Variables	(1)	(2)	(3)
Aid	0.255*** (0.056)	0.229*** (0.058)	0.263*** (0.059)
Aid squared	-0.002*** (0.001)	-0.002** (0.001)	-0.002*** (0.001)
Investment	0.156*** (0.030)	0.157*** (0.031)	0.175*** (0.032)
Inflation	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.094** (0.041)	0.090** (0.042)	0.107** (0.043)
Government consumption	0.003 (0.043)	0.004 (0.047)	0.006 (0.046)
Financial depth	0.020* (0.012)	0.037** (0.015)	0.019 (0.014)
Trade openness	-0.016* (0.009)	-0.018 (0.012)	-0.019* (0.010)
Bureaucratic quality	0.925*** (0.341)	1.017*** (0.354)	0.863** (0.353)
Bureaucratic quality × aid	-0.060** (0.024)	-0.053** (0.025)	-0.062** (0.025)
Stage of development		0.040 (0.022)	
Size of economy		-0.474 (0.336)	
Pre-election monetary stimulus			-2.750*** (0.965)
Pre-election fiscal stimulus			1.535** (0.671)
Pre-election fiscal stimulus × aid			
Pre-election monetary stimulus × aid			
Pre-election fiscal stimulus × aid × Northern Africa			
Pre-election fiscal stimulus × aid × Central Africa			
Pre-election fiscal stimulus × aid × Southern Africa			
Pre-election fiscal stimulus × aid × East Africa			
Pre-election monetary stimulus × aid × Northern Africa			
Pre-election monetary stimulus × aid × Central Africa			
Pre-election monetary stimulus × aid × Southern Africa			
Pre-election monetary fiscal stimulus × aid × East Africa			
North Africa			
Central Africa			
Southern Africa			
East Africa			
Time fixed effects	Yes	Yes	Yes
Constant	-3.826*** (1.381)	2.300 (6.012)	-1.854 (1.787)
Observations	433	432	397
R ²	0.302	0.309	0.321
F-statistic	5.230***	5.070***	4.880***

Ordinary least square benchmark equations. Dependent: gross domestic product per capita growth. Standard errors in parentheses.

*** $p < 0.01$,

** $p < 0.05$,

* $p < 0.1$.

Table A1. Aid, political business cycles and growth

Variables	(4)	(5)	(6)
Aid	0.236*** (0.060)	0.255*** (0.059)	0.227*** (0.061)
Aid squared	-0.002** (0.001)	-0.002*** (0.001)	-0.002** (0.001)
Investment	0.173*** (0.033)	0.178*** (0.032)	0.178*** (0.033)
Inflation	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.106** (0.044)	0.102** (0.042)	0.104** (0.044)
Government consumption	0.017 (0.050)	-0.003 (0.046)	0.011 (0.049)
Financial depth	0.036* (0.019)	0.019 (0.014)	0.033* (0.019)
Trade openness	-0.020 (0.013)	-0.019* (0.010)	-0.018 (0.013)
Bureaucratic quality	0.971*** (0.365)	0.924*** (0.350)	1.034*** (0.363)
Bureaucratic quality × aid	-0.057** (0.026)	-0.069*** (0.025)	-0.065** (0.026)
Stage of development	0.040 (0.022)		
Size of economy	-0.379 (0.381)		-0.306 (0.381)
Pre-election monetary stimulus	-2.727*** (0.963)	-0.420 (1.301)	-0.558 (1.304)
Pre-election fiscal stimulus	1.553** (0.670)	-0.372 (0.939)	-0.369 (0.938)
Pre-election fiscal stimulus × aid		0.171*** (0.059)	0.172*** (0.059)
Pre-election monetary stimulus × aid		-0.216** (0.084)	-0.200** (0.085)
Pre-election fiscal stimulus × aid × Northern Africa			
Pre-election fiscal stimulus × aid × Central Africa			
Pre-election fiscal stimulus × aid × Southern Africa			
Pre-election fiscal stimulus × aid × East Africa			
Pre-election monetary stimulus × aid × Northern Africa			
Pre-election monetary stimulus × aid × Central Africa			
Pre-election monetary stimulus × aid × Southern Africa			
Pre-election monetary fiscal stimulus × aid × East Africa			
North Africa			
Central Africa			
Southern Africa			
East Africa			
Time fixed effects	Yes	Yes	Yes
Constant	3.025 (7.081)	-1.826 (1.770)	1.766 (7.064)
Observations	397	397	397
R2	0.328	0.338	0.344
F-statistic	4.731***	4.959***	4.803***

Table A1. Aid, political business cycles and growth

Variables	(7)	(8)
Aid	0.250*** (0.062)	0.235*** (0.063)
Aid squared	-0.002** (0.001)	-0.002** (0.001)
Investment	0.154*** (0.034)	0.156*** (0.036)
Inflation	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.089** (0.043)	0.095** (0.045)
Government consumption	0.005 (0.051)	0.018 (0.056)
Financial depth	-0.011 (0.019)	-0.001 (0.024)
Trade openness	-0.008 (0.012)	-0.008 (0.014)
Bureaucratic quality	0.916** (0.369)	1.053*** (0.386)
Bureaucratic quality × aid	-0.069*** (0.025)	-0.067** (0.026)
Stage of development		0.038 (0.030)
Size of economy		-0.220 (0.430)
Pre-election monetary stimulus	-0.186 (1.298)	-0.389 (1.309)
Pre-election fiscal stimulus	-0.540 (0.937)	-0.475 (0.939)
Pre-election fiscal stimulus × aid	0.174*** (0.059)	0.173*** (0.059)
Pre-election monetary stimulus × aid	-0.230*** (0.084)	-0.213** (0.085)
Pre-election fiscal stimulus × aid × Northern Africa		
Pre-election fiscal stimulus × aid × Central Africa		
Pre-election fiscal stimulus × aid × Southern Africa		
Pre-election fiscal stimulus × aid × East Africa		
Pre-election monetary stimulus × aid × Northern Africa		
Pre-election monetary stimulus × aid × Central Africa		
Pre-election monetary stimulus × aid × Southern Africa		
Pre-election monetary fiscal stimulus × aid × East Africa		
North Africa	1.578* (0.931)	1.879* (0.961)
Central Africa	-1.961* (1.108)	-1.424 (1.226)
Southern Africa	-0.090 (0.566)	0.299 (0.644)
East Africa	0.654 (0.681)	0.489 (0.766)
Time fixed effects	Yes	Yes
Constant	-1.206 (1.856)	0.918 (7.930)
Observations	397	397
R ²	0.352	0.356
F-statistic	4.713***	4.529***

Table A1. Aid, political business cycles and growth

Variables	(9)	(10)
Aid	0.259*** (0.062)	0.242*** (0.063)
Aid squared	-0.002** (0.001)	-0.002** (0.001)
Investment	0.148*** (0.035)	0.150*** (0.036)
Inflation	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.084* (0.044)	0.091** (0.045)
Government consumption	0.015 (0.051)	0.032 (0.057)
Financial depth	-0.013 (0.020)	-0.003 (0.024)
Trade openness	-0.009 (0.012)	-0.009 (0.015)
Bureaucratic quality	0.932** (0.375)	1.093*** (0.393)
Bureaucratic quality × aid	-0.068*** (0.026)	-0.067** (0.027)
Stage of development		0.043 (0.031)
Size of economy		-0.216 (0.437)
Pre-election monetary stimulus	-0.806 (1.319)	-0.920 (1.324)
Pre-election fiscal stimulus	0.337 (0.881)	0.377 (0.882)
Pre-election fiscal stimulus × aid		
Pre-election monetary stimulus × aid		
Pre-election fiscal stimulus × aid × Northern Africa	0.546 (0.453)	0.553 (0.454)
Pre-election fiscal stimulus × aid × Central Africa	-0.978 (0.808)	-1.007 (0.809)
Pre-election fiscal stimulus × aid × Southern Africa	0.079 (0.065)	0.085 (0.065)
Pre-election fiscal stimulus × aid × East Africa	0.182 (0.127)	0.179 (0.127)
Pre-election monetary stimulus × aid × Northern Africa	-0.804 (0.926)	-0.864 (0.927)
Pre-election monetary stimulus × aid × Central Africa		
Pre-election monetary stimulus × aid × Southern Africa	-0.146 (0.091)	-0.135 (0.091)
Pre-election monetary fiscal stimulus × aid × East Africa	-0.261 (0.189)	-0.246 (0.190)
North Africa	1.502 (0.951)	1.835* (0.980)
Central Africa	-1.769 (1.146)	-1.182 (1.264)
Southern Africa		
East Africa	0.413 (0.716)	0.194 (0.801)
Time fixed effects	Yes	Yes
Constant	-1.027 (1.887)	0.753 (8.052)
Observations	397	397
R ²	0.346	0.349
F-statistic	4.018	3.894

Table A1. Aid, political business cycles and growth

Variables	(11)	(12)	(13)
Aid	0.203*** (0.065)	0.167** (0.067)	0.203*** (0.065)
Aid squared	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)
Investment	0.185*** (0.033)	0.184*** (0.033)	0.185*** (0.033)
Inflation	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.119*** (0.043)	0.119*** (0.044)	0.119*** (0.043)
Government consumption	-0.016 (0.046)	-0.002 (0.049)	-0.016 (0.046)
Financial depth	0.020 (0.014)	0.040** (0.019)	0.020 (0.014)
Trade openness	-0.018* (0.010)	-0.019 (0.013)	-0.018* (0.010)
Bureaucratic quality	0.861** (0.352)	0.992*** (0.363)	0.861** (0.352)
Bureaucratic quality × aid	-0.056** (0.025)	-0.050* (0.026)	-0.056** (0.025)
Stage of development		0.048 (0.022)	
Size of economy		-0.447 (0.381)	
Election year	-0.698 (0.773)	-0.750 (0.772)	-0.698 (0.773)
Election year × aid	0.160*** (0.055)	0.168*** (0.055)	0.160*** (0.055)
Pre-election year	-0.536 (0.741)	-0.633 (0.739)	-0.536 (0.741)
Pre-election year × aid	0.105** (0.048)	0.117** (0.048)	0.105** (0.048)
Post-election year	-0.536 (0.791)	-0.488 (0.788)	-0.536 (0.791)
Post-election year × aid	0.025 (0.063)	0.025 (0.062)	0.025 (0.063)
North Africa			
Central Africa			
Southern Africa			
East Africa			
Constant	-1.700 (1.798)	4.007 (7.084)	-1.700 (1.798)
Time fixed effects	YES	YES	YES
Observations	397	397	397
R^2	0.332	0.342	0.332
F -statistic	4.559	4.497	4.559

Table A1. Aid, political business cycles and growth

Variables	(14)	(15)	(16)
Aid	0.167** (0.067)	0.204*** (0.068)	0.181*** (0.069)
Aid squared	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)
Investment	0.184*** (0.033)	0.164*** (0.035)	0.164*** (0.036)
Inflation	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	0.119*** (0.044)	0.108** (0.043)	0.114** (0.045)
Government consumption	-0.002 (0.049)	-0.003 (0.051)	0.010 (0.057)
Financial depth	0.040** (0.019)	-0.006 (0.020)	0.010 (0.024)
Trade openness	-0.019 (0.013)	-0.010 (0.012)	-0.012 (0.014)
Bureaucratic quality	0.992*** (0.363)	0.838** (0.371)	1.039*** (0.388)
Bureaucratic quality × aid	-0.050* (0.026)	-0.055** (0.025)	-0.052** (0.026)
Stage of development	0.048 (0.022)		0.053 (0.031)
Size of economy	-0.447 (0.381)		-0.389 (0.432)
Election year	-0.750 (0.772)	-0.588 (0.774)	-0.613 (0.774)
Election year × aid	0.168*** (0.055)	0.149*** (0.055)	0.158*** (0.055)
Pre-election year	-0.633 (0.739)	-0.532 (0.740)	-0.587 (0.740)
Pre-election year × aid	0.117** (0.048)	0.099** (0.048)	0.110** (0.049)
Post-election year	-0.488 (0.788)	-0.418 (0.792)	-0.348 (0.791)
Post-election year × aid	0.025 (0.062)	0.016 (0.063)	0.018 (0.062)
North Africa		1.330 (0.945)	1.785* (0.974)
Central Africa		-1.797 (1.121)	-0.959 (1.237)
Southern Africa		-0.220 (0.571)	0.335 (0.650)
East Africa		0.489 (0.686)	0.332 (0.770)
Constant	4.007 (7.084)	-1.118 (1.886)	3.309 (7.985)
Time fixed effects	YES	YES	YES
Observations	397	397	397
R^2	0.342	0.344	0.350
F -statistic	4.497	4.304	4.207

Table A2. Determinants of aid and investment

Variables	(1) Aid	(2) Aid	(3) Aid	(4) Investment	(5) Investment	(6) Investment
Investment	0.331*** (0.073)	0.335*** (0.075)	0.451*** (0.074)			
Aid				0.152*** (0.034)	0.157*** (0.035)	0.211*** (0.034)
Inflation	-0.000 (0.000)	-0.001* (0.000)	-0.001* (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Budget deficit	-0.276*** (0.098)	-0.301*** (0.102)	-0.194** (0.095)	0.315*** (0.065)	0.258*** (0.069)	0.182*** (0.065)
Government consumption	-0.165 (0.113)	-0.228** (0.115)	-0.171 (0.121)	0.081 (0.077)	0.117 (0.079)	0.009 (0.083)
Financial depth	-0.054 (0.040)	-0.049 (0.041)	0.011 (0.050)	0.140*** (0.026)	0.156*** (0.027)	0.057* (0.034)
Trade openness	-0.004 (0.027)	-0.013 (0.030)	0.033 (0.030)	0.087*** (0.018)	0.060*** (0.020)	0.052** (0.020)
Bureaucratic quality	-0.960* (0.581)	-1.256** (0.620)	-1.308** (0.617)	0.039 (0.395)	0.577 (0.425)	1.026** (0.420)
Pre-election monetary stimulus	-0.917 (2.225)	-0.907 (2.258)	-1.383 (2.074)	0.855 (1.507)	0.739 (1.545)	0.687 (1.417)
Pre-election fiscal stimulus	1.285 (1.537)	1.493 (1.570)	1.573 (1.446)	-0.645 (1.042)	-0.776 (1.075)	-0.811 (0.988)
Stage of development	0.322*** (0.048)	0.307*** (0.050)	0.476*** (0.060)	-0.041* (0.034)	-0.014* (0.036)	-0.081* (0.044)
Size of economy	-2.618*** (0.732)	-2.967*** (0.831)	-1.001* (0.886)	-0.868* (0.502)	-1.612*** (0.572)	-2.832*** (0.588)
North Africa			-3.279 (2.066)			8.266*** (1.347)
Central Africa			-3.748 (2.618)			3.112* (1.786)
Southern Africa			6.992*** (1.338)			0.304 (0.948)
East Africa			-4.026** (1.644)			6.262*** (1.083)
Time fixed effects	NO	YES	YES	NO	YES	YES
Constant	42.039*** (13.042)	48.915*** (15.496)	0.417 (16.386)	26.093*** (8.856)	40.278*** (10.539)	64.745*** (10.655)
Observations	397	397	397	397	397	397
R ²	0.316	0.364	0.472	0.358	0.391	0.496
F-statistic	16.17	6.104	8.418	19.49	6.845	9.281

First-stage least square equations.

Standard errors in parentheses.

*** $p < 0.01$,** $p < 0.05$,* $p < 0.1$.

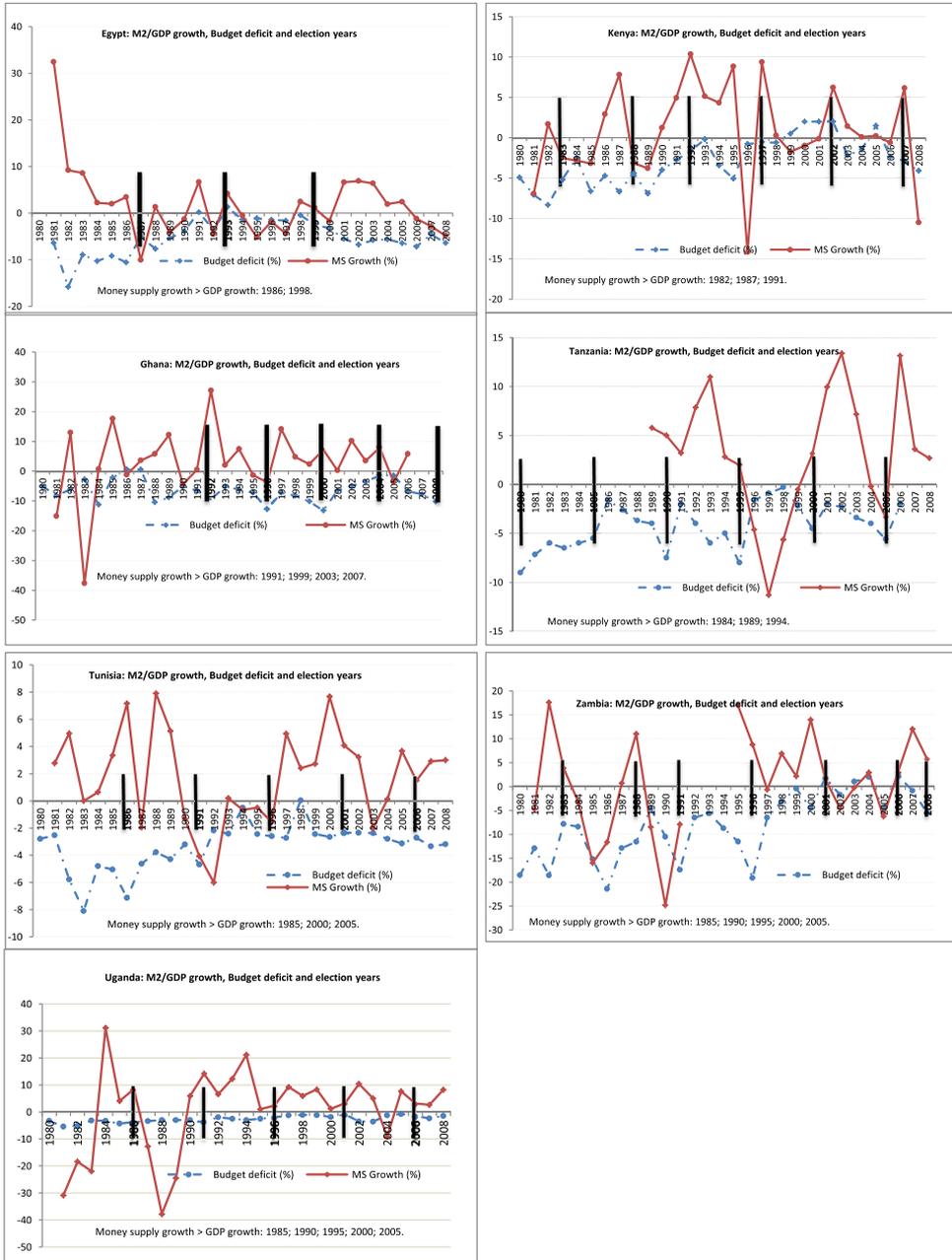


Figure A1. Relationship between money supply growth, budget deficit and election years in selected African countries