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Cyclicality of Fiscal Policy in Sub-Saharan Africa

Magnitude and Evolution

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Abstract

This paper studies the cyclical aspects of fiscal policy in Sub-Saharan Africa countries during 1970–2014. It compares the cyclical properties of real government consumption in the region with those in other developing regions and high-income countries, and examines whether there has been a change in the cyclical nature of fiscal policy in recent years. The analysis finds that government consumption is procyclical in Sub-Saharan African countries, more so than in other regions, and that accounting for endogeneity increases the degree of cyclicality. The cyclical properties of government spending vary along the business cycle, with the level of cyclicality being larger when the level of real economic activity is above the trend relative to when it is below the trend. Mirroring the pattern in other developing regions, the degree of cyclicality has changed since 2002 in Sub-Saharan Africa, with incipient signs of a shift toward acyclical or more countercyclical policies. The evidence does not suggest that resource wealth or fragility increases the procyclicality of government consumption in Sub-Saharan Africa. Official development assistance is found to exacerbate the procyclical stance of fiscal policy in the region, but the result depends on the relative size of foreign aid received.

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Cyclicality of Fiscal Policy in Sub-Saharan Africa: Magnitude and Evolution [1]

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1. Introduction

Fiscal policies in the short run are typically geared toward the stabilization of economic activity. In general, a countercyclical fiscal policy is a desirable feature to counterbalance economic cycles. For example, countercyclical government spending is needed to stimulate real economic activity, given shortfalls in aggregate demand, or to transfer resources to less favored individuals.[2] In other words, during "bad times" (contractions) an above-the-trend increase in the government consumption expenditure might be a useful tool to boost the economy. However, the other side of the countercyclical behavior is often forgotten, that is, during the "good times" (expansion) government consumption expenditure should increase below the trend, not only as a mechanism to avoid overheating the economy, but also to gain room by saving the extra income for future smoothing of adverse demand-side shocks.

There is vast evidence that advanced countries have the ability to conduct countercyclical fiscal policies (Mélitz 2000, Galí and Perotti 2003). Countercyclical fiscal policies in advanced countries are triggered by automatic increases in social security and welfare spending as the economy moves into a recession. Darby and Mélitz (2008) find that, on average, a reduction of one percentage point in the rate of growth is compensated by a 0.36 percentage point increase in social expenditures among OECD economies. Furthermore, well-targeted transfers in the US (which do not distort incentives to work) help stabilize output fluctuations (McKay and Reis 2013).

The cyclical behavior of fiscal policy among developing countries is a much more disputed issue. Earlier research suggests that fiscal policy in developing countries—and especially in Latin America—is procyclical (Gavin and Perotti 1997, Talvi and Végh 2005, Kaminsky, Reinhart and Végh 2004, Ilzetzki and Végh 2008). Historically, developing country governments have cut taxes and increased spending during booms and they have retrenched outlays and raised taxes during busts. This destabilizing behavior of fiscal policy is attributed, according to the literature, to either: (a) limited access to (external) funding (of policy actions) or (b) political economy distortions.

The procyclical bias of fiscal policy among developing countries is attributed to the failure of governments to support aggregate demand in the event of adverse shocks, as these countries are unable to tap either global or domestic financial markets (Gavin, Hausman, Perotti, and Talvi 1996). During booms, on the other hand, governments find it easier to finance rising public expenditure (Gavin and Perotti, 1997; Catao and Sutton, 2002). Overall, the procyclical access to external borrowing among developing countries drives the procyclical fiscal responses, leading to greater macroeconomic volatility (Kaminsky, Reinhart and Végh 2004).

Others have pointed out that a country's institutional framework plays a crucial role in the design of countercyclical policy responses. Destabilizing fiscal policies are executed in countries with weak institutions; say, widespread corruption, repudiation of contracts, lack of property rights enforcement and, more generally, the predominance of political institutions that fail to constrain their officials (Acemoglu, Johnson, Robinson and Thaicharoen, 2003). In this strand of the literature, institutional theories that focus on political economy distortions such as common pool problems, fragmentation, and agency problems explain the inability of governments to run surpluses or rein in spending in good times. For instance, windfall revenues may not be saved by governments and are spent instead in favor of

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[2] Countercyclical social spending and timely stimulus packages are important to protect individuals during periods of hardship and stimulate employment.

powerful groups (Velasco 1998, Tornell and Lane 1999, Perotti and Kontopoulos 2002). Procyclical policy responses may also result from rent-extractive governments that appropriate revenues to serve special interests rather than the public welfare (Alesina, Campante and Tabellini, 2008; Ilzetzki, 2011).[3]

Historically, the evidence shows that fiscal policy has been pro-cyclical for most developing countries; including countries in Sub-Saharan Africa. Frankel, Végh and Vuletin (2013) found that more than 90 percent of developing countries show procyclical government spending during the period 1960-2009 while 80 percent of industrial countries exhibit countercyclical government spending. Zooming in on Sub-Saharan Africa shows, on average, that: (a) government consumption is pro-cyclical, (b) the degree of procyclicality in the region is higher than that of other developing countries, and (c) the procyclical bias is greater among countries in the region that are highly dependent on foreign aid inflows (Thornton 2008, Lledó, Yackovlev and Gadenne, 2011).

The evidence on Sub-Saharan Africa also shows that structural and policy factors may have an influence on the cyclical behavior of government expenditure across countries and over time. Lledó and coauthors (2011) find that foreign aid inflows and fiscal space (as measured by the public debt burden and the achievement of decision point among HIPC countries) played a significant role in reducing the extent of procyclicality among African nations. However, they fail to find a robust effect of political institutions on the cyclical stance of fiscal policy. Calderón and Nguyen (2016), however, find that the cyclical behavior of government expenditure depends strongly on structural features of African economies (e.g. institutional quality) and policy factors (e.g. the margins of monetary and fiscal space). They find that the impact of institutions is not only attributed to deep roots about the formation of institutions but also to the improvement of institutions supporting macroeconomic policy frameworks.[4] Having an ample margin of maneuver for the government is crucial. In line with Lledó et al. (2011) and World Bank (2015), fiscal space (as proxied by the public debt burden) helps reduce the procyclicality of government expenditure. Financial openness, on the other hand, exacerbates the degree of procyclicality of government expenditure. The latter result is correlated to that of Thornton (2008) where fiscal policy is more procyclical in countries that rely heavily on foreign aid inflows. Overall, Calderón and Nguyen (2016) shows that fiscal policies can play a stabilizing role during times of crisis. However, much of the work has to be undertaken in good times. Withdrawing policy stimulus and replenishing fiscal buffers in good times has proven to be a challenge for most governments.

Finally, Konuki and Villafuerte (2016) investigates the extent and the drivers of fiscal policy pro-cyclicality among countries in Sub-Saharan Africa from 2000 to 2014. The paper finds not only that fiscal policy is more procyclical among oil exporters (2010-14) but also it has become more procyclical after the global financial crisis. Next, the authors find a causal relationship from deeper financial markets and greater reserve coverage to lower fiscal policy procyclicality. This finding implies that having space (by either having access to external borrowing or built-up buffers) will help reduce the procyclical bias.

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[3]These papers empirically find that less corrupt governments are able to implement counter-cyclical policies.
[4] Recent evidence shows that the strengthening of the institutional framework has enabled some developing countries to escape the pro-cyclicality trap (Frankel, Végh and Vuletin 2013). Some aspects of this institutional progress include: (a) sound fiscal rules that deliver countercyclical, credible and sustainable fiscal plans, (b) transparency in the formulation of medium-term expenditure frameworks, and (c) the ability of the government to carry out announced programs and being held accountable.

This paper revisits the issue of cyclicality of fiscal policy in large sub-set of Sub-Saharan African countries. It measures the cyclical behavior of real government consumption over a long time period (1970-2014), employing an identification strategy to correct for possible endogeneity in the cyclical components of spending and GDP. It also directly tests whether the cyclical stance of government consumption has changed over time. The paper extends the empirical literature in several important dimensions. First, unlike other papers in the literature, we estimate fully heterogeneous fiscal policy reaction functions (i.e., all coefficients and variance-covariance matrices) for SSA countries with different structural features (say, resource abundance, financial openness, extent of ODA inflows, and fragility). When applicable, the cyclical properties of government consumption expenditure in the region are compared with those in other developing regions and in high-income countries. Second, it examines asymmetries in the cyclicality of government spending during different phases of the economic cycle. Specifically, it assesses how cyclical properties vary with fluctuations in the level of real economic activity—that is, when the level of real economic activity is below the trend relative to when it is above the trend. The rest of the paper is organized as follows. Section 2 presents the model and empirical strategy for analyzing the cyclical behavior of fiscal policy. Section 3 reports the results of the quantitative analysis, and Section 4 concludes.

2. Methodology and Empirical Strategy

2.1 Model and Empirical Strategy

To examine the cyclical stance of fiscal policy, we focus on the expenditure side—and, more specifically, real government consumption. We should note that expenditure rather than revenue indicators measure more accurately policy rather than outcomes or targets. On the other hand, public investment (or development expenditure) is not included in this analysis of the stance of fiscal policy—as it is the case of Blanchard and Giavazzi (2004), Buiter and Grafe (2004), and Fatás (2005). Government investment is perceived as being quite different from consumption expenditures. First, investment decisions generally have a multi-year horizon (as there are often very few shovel ready projects), so the reaction to the business cycle might not be contemporaneous and might potentially affect the government budget in several periods. Second, the benefits resulting from public investment (for example, services) are spread over many years, with the possibility to increase private output and tax revenues. This paper also does not distinguish between discretionary and non-discretionary (automatic stabilizers) components of government expenditure, because what really matters for our analysis is the aggregate response of government consumption to the cycle as opposed to identifying the source.[5]

Unlike most papers in the literature, the government consumption expenditure is not expressed as a percentage of GDP given that the ratio might be directly affected by the cyclical behavior of the GDP.[6] Thus, in order to capture the cyclical behavior of fiscal policy, we specify the following general policy reaction function:

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[5] In addition, there is evidence that automatic stabilizers are in general weak among developing countries —and, especially, Sub-Saharan African countries (World Bank 2014).
[6] See the discussion in Kaminsky, Reinhart and Vegh (2004), and Ilzetzki and Vegh (2008).

$$g_{it}^c = \alpha_{0G} + \alpha_{1G} y_{it}^c + \alpha_{2G} g_{it-1}^c + \alpha_{3G} D_{it-1} + \varepsilon_{it} \tag{1}$$

where g_{it}^c is the cyclical component of the log of government consumption expenditure (constant national currency) in country i at time t, y_{it}^c is the cyclical component of the log of real GDP (constant national currency) in country i at time t. Additionally, we control for the lagged stock of the general government gross debt as percentage of GDP (D_{it-1}) in each country and the lagged level of the cyclical component of the government consumption. Note that the regression coefficients of the policy reaction function are initially assumed to vary either across groups, country and over time--*i.e.* α_{iG} for *i=0,1,2,3* and *G* being a group of countries to be specified. Equation (1) captures how government consumption expenditure responds to changes in contemporaneous output, where α_{1G} represents the cyclicality coefficient. This coefficient can be positive (procyclical), negative (countercyclical), or not statistically different from zero (acyclical).

Baseline Specification (Case 1). We assume that $\alpha_{iG}=\alpha_i$ for *i=0,1,2,3*. This implies that the regression coefficients of equation (1) are homogeneous across groups of countries and for the entire sample period.

Asymmetric behavior along the business cycle (Case 2). We consider that the behavior of government consumption expenditure might be different when the level of real economic activity is below the trend relative to when it is above the trend. In this context, the specification that we estimate using the instrumental variable (IV) approach assumes that $\alpha_{iG} = \alpha_i^+$ (*i=0,1,2,3*) when real economic activity is above trend ($y_{it}^c > 0$) and that $\alpha_{iG} = \alpha_i^-$ (*i=0,1,2,3*) when real economic activity is below trend ($y_{it}^c < 0$). Hence, in good times, we run the following specification:

$$g_{it}^c = \alpha_0^+ + \alpha_1^+ y_{it}^c + \alpha_2^+ g_{it-1}^c + \alpha_3^+ D_{it-1} + \varepsilon_{it} \; ; \text{if } y_{it}^c > 0 \tag{2}$$

while in bad times, we run the regression:

$$g_{it}^c = \alpha_0^- + \alpha_1^- y_{it}^c + \alpha_2^- g_{it-1}^c + \alpha_3^- D_{it-1} + \varepsilon_{it} \; ; \text{if } y_{it}^c < 0 \tag{3}$$

Note that our least squares and fixed effect estimation runs the following nested regression:

$$g_{it}^c = \alpha_0 + \alpha_1 y_{it}^c + \alpha_2 DC_{it}^+ . y_{it}^c + \alpha_4 g_{it-1}^c + \alpha_5 D_{it-1} + \varepsilon_{it}$$

where DC_{it}^+ takes the value of 1 if $y_{it}^c > 0$ (good times) and 0 otherwise (bad times). We should note that the specification above assumes heterogeneity in the coefficient associated to the business cycles whereas the specifications in (2) and (3) assumes full heterogeneity of the fiscal policy reaction function parameters when distinguishing between periods when real GDP is above or below the trend.

Time-varying parameters (Case 3). This paper tests directly whether the cyclical stance of government consumption expenditure has changed over time. First, we conduct a test to detect endogenously whether there is a time break in the fiscal policy reaction function. We use a Wald-type test statistic for changes in the vector of parameters at unknown break points in the same spirit of the test developed by Andrews (1993). Specifically, we recursively test the joint equality of the vector of coefficient estimates in the periods pre- and post-break. After running all regressions, the turning point (year) corresponds to the regression with the lowest root-mean-square error (RMSE). As can be seen in Figure 1, different breaking points were found in each developing region, providing evidence in favor of a structural break in 2002 for

Sub-Saharan Africa. Hence, we test whether the cyclical behavior in the period 2002-14 was different to that of the period 1970-2001. Specifically, we assume that $\alpha_{iG} = \alpha_i^{P1}$ (*i=0,1,2,3*) for the period 1970-2001 (*P1*) and that $\alpha_{iG} = \alpha_i^{P2}$ (*i=0,1,2,3*) for the period 2002-2014 (*P2*). Analogous to equations (2) and (3), we have:

$$g_{it}^c = \alpha_0^{P1} + \alpha_1^{P1} y_{it}^c + \alpha_2^{P1} g_{it-1}^c + \alpha_3^{P1} D_{it-1} + \varepsilon_{it} \text{ ; for the period 1970-2001}$$

(4)

$$g_{it}^c = \alpha_0^{P2} + \alpha_1^{P2} y_{it}^c + \alpha_2^{P2} g_{it-1}^c + \alpha_3^{P2} D_{it-1} + \varepsilon_{it} \text{ ; for the period 2002-2014}$$

Similar regression analysis is performed for Latin America and Developing Asia, but with their corresponding breaking points (years).

Figure 1. *Root mean square errors from multiple panel regressions with different breaking points (years).*
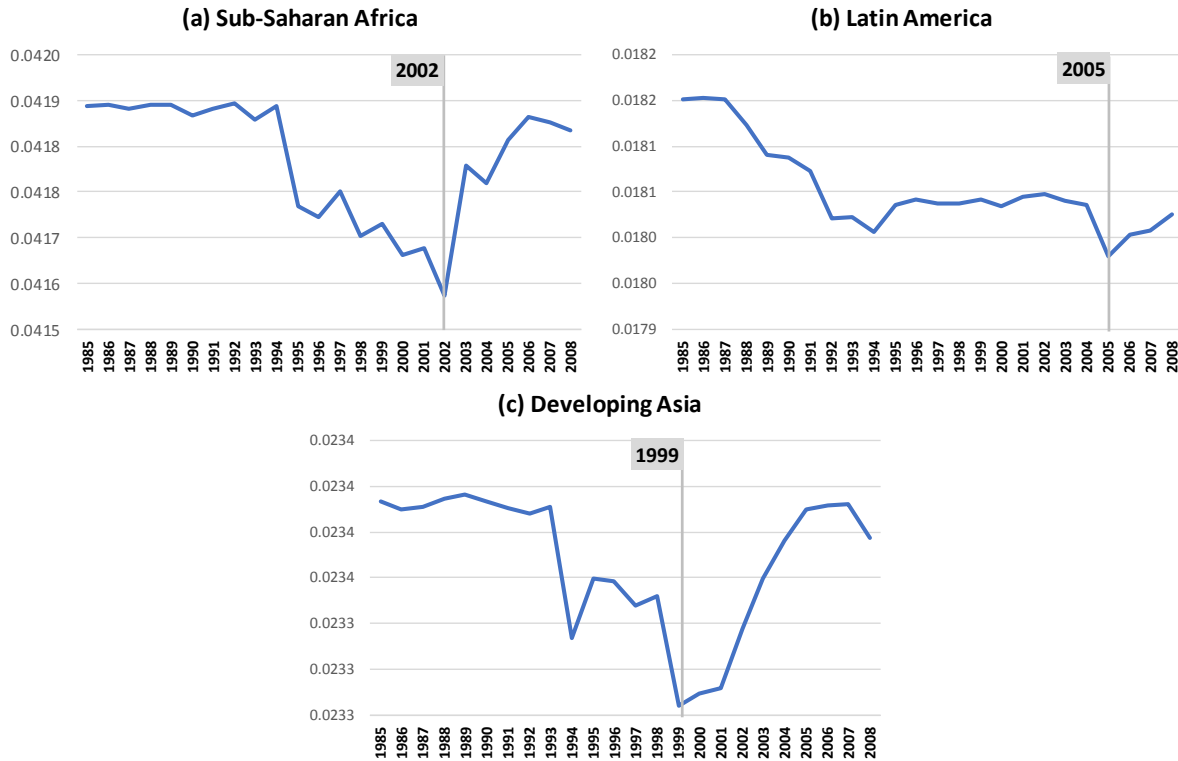
Note: The unknown turning point (year) of fiscal cyclicality in each region is found through running multiple panel regressions with country fixed effect, testing the possible breaking points (dummies) from 1985 to 2008. To assess the performance of each regression (year), the Root-Mean-Square Error (RMSE) is stored. After running all regressions, the turning point (year) corresponds to the regression with the lowest RMSE

Access to external borrowing (Case 4). It is documented in the literature that the procyclical bias of fiscal policy —and, more specifically, government spending— among developing countries (and, notably, among SSA countries) might be attributed to their procyclical access to global capital markets. This implies that African countries might not be able to fund fiscal stimulus packages during downturns through external borrowing. At the same time, access to global capital markets might be directly related to the extent of international financial integration of the country. Hence, we define countries with low (high) degree of financial openness as those countries where the average value of the Chinn-Ito index of financial

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openness is below (above) the world median by decade.[7] Hence, we assume that $\alpha_{iG} = \alpha_i^L$ (*i=0,1,2,3*) for countries with low financial openness, and $\alpha_{iG} = \alpha_i^H$ (*i=0,1,2,3*) for countries with high levels of financial openness.

Resource-rich vs. nonresource-rich countries (Case 5). Further analysis leads us to analyze whether the cyclical behavior of the government consumption expenditure differs between nonresource-rich and resource-rich countries among Sub-Saharan African countries. Our prior is that, in the event of commodity windfalls, resource rich countries will be more prone to conduct expansionary fiscal policies (say, increase government spending). To distinguish between resource and nonresource-rich countries, we need to define criteria to classify countries in the region. First, we define resource rich countries (*RNR*) as those with rents from natural resources (excluding forests) that exceed 10 percent of their GDP (World Bank 2011).[8] Our econometric specification then assumes that $\alpha_{iG} = \alpha_i^R$ (*i=0,1,2,3*) for countries where RNR_{it} exceeds 10 percent of GDP in the decade, and $\alpha_{iG} = \alpha_i^N$ (*i=0,1,2,3*) for countries that are not abundant in natural resources. Finally, to avoid exceptional observations, we average the rents coming from the natural resources (excluding forest) as a percentage of GDP by decade (see footnote 7). A second criterion to classify SSA countries by resource abundance requires their average net commodity exports exceeding 25 percent of total exports throughout the sample period. Again, $\alpha_{iG} = \alpha_i^R$ (*i=0,1,2,3*) for countries surpassing the 25% value of exports threshold and $\alpha_{iG} = \alpha_i^N$ (*i=0,1,2,3*) for those countries unable to surpass that threshold. A final method to characterize (although imperfectly) resource abundance is to test whether SSA countries have established a sovereign wealth fund (which is typically commodity-based in the region). The list of countries with SWF (and their corresponding year of inception) is obtained from the Sovereign Wealth Fund Institute. In this case, $\alpha_{iG} = \alpha_i^R$ (*i=0,1,2,3*) for countries with a sovereign wealth fund and $\alpha_{iG} = \alpha_i^N$ (*i=0,1,2,3*) for those countries without one.[9]

Foreign aid (Case 6). Net official development assistance (net-ODA) is an important source of funds for many cash-strapped countries in Sub-Saharan Africa.[10] The size of ODA flows to the region have increased from a median value of 6.8 percent of the gross national income (GNI) in the 1970s to 13.3 percent in the 1990s (Figure 4.a). After 2000, the median value of net ODA has declined to 9.3 percent of GNI, reflecting the faster pace of economic growth of the region's countries with respect to the nineties (see Figure 4.b).

To examine how the relative size of ODA inflows affect the cyclicality of fiscal behavior, we need a threshold to determine the impact of net ODA on a country's fiscal policy. Given that the median net-ODA to GNI ratio among Sub-Saharan African countries is 9.5 percent over the period 1970-2014, it seems reasonable to classify countries into low (high) recipients of net ODA if it received the corresponding country receives foreign aid (net of repayments of principal) of at least 10 percent of its GNI. All Sub-Saharan African countries in our sample have received some type of ODA during the last forty-five years,

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[7] After 2000, we take the average and median for the 2000-2014 period.

[8] Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.

[9] Note that we use to different ways to code countries with sovereign wealth fund: (a) we assume constancy over time, and (b) we code a fund only for the years since it was established.

[10] ODA is concessional finance from bilateral and multilateral donors. It does not include non-concessional development financing from these donors.

including South Africa. The question then is whether the relative magnitude of the assistance provided changes the cyclical stance of government consumption expenditure. We assume that $\alpha_{iG} = \alpha_i^F$ (*i=0,1,2,3*) for countries where ODA_{it} exceeds 10 percent of GNI in the decade, and $\alpha_{iG} = \alpha_i^{NF}$ (*i=0,1,2,3*) for countries that have received less than 10 percent of GNI or that have not received foreign aid over several years. For robustness purposes, we repeat analysis for low and high-ODA recipients but assuming a higher threshold: 13 percent of GNI, which is the 67th percentile of the SSA distribution of net-ODA to GNI ratio.

Fragility and Conflict (Case 7). Fragile and conflict states are those nations with a harmonized Country Policy and Institutional Assessment (CPIA) rating lower than or equal to 3.2, or with presence of peace-keeping or peace-building missions (World Bank 2011). The definition of fragile country has evolved over time from the classification of low income countries under stress (2006-9) to the harmonized list of fragile situations (from 2011). In this context, we will use the *polity score* data from Polity IV data set, which characterizes the qualities of democratic and autocratic authority in governing institutions. This polity score ranges from -10 (hereditary monarchy) to +10 (consolidated democracy).   It also includes exceptional cases of foreign interruption, interregnum or anarchy and transition (that takes special values of -66, -77 and -88). Using this database, we define fragile countries as those countries with failed/occupied scores (special values of -66, -77 and -88) and autocracies (values from -10 to -6 in the polity score). For robustness purposes, we expand the previous definition to include closed anocracies (values greater than or equal to -5 and smaller than 0 in the polity score).[11]

Estimation procedure. We estimate Equation 1 through the Pooled OLS and Fixed-Effect regressions. Since we are using deviations from a potential trend, the means of the cyclical components, g_{it}^c and y_{it}^c, tend to zero. Therefore, the Pooled OLS and Fixed Effect techniques will give similar coefficients, because the "within" estimation uses deviations from the country means. Second, we extend the analysis to account for possible endogeneity between the fiscal policy and GDP by using an IV/2SLS method to estimate the cyclicality coefficient (α_1).[12] Following the approach used in Galí and Perotti (2003), Lane (2003), Jaimovich and Panizza (2007), and Calderón and Nguyen (2016), the cyclical component of real GDP (y_{it}^c) is instrumented using its own lags and the weighted average of the GDP growth of each country's export partners. The idea is that external trade shocks do not affect government spending except through the business cycle channel. Similarly, there is no reason to think that government spending in small economies directly affects the growth rates of their trading partners. In the case of large economies, however, fiscal policy might affect the growth rates of trading partners.

2.2 Data

The sample includes 37 Sub-Saharan African countries (SSA), 20 countries from Latin America (LAC), 20 from developing Asia, and 22 industrial economies. In the Appendix, Tables A.1 and A.2 contain the complete list of countries and the classification of resource-rich and nonresource-rich countries for SSA

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[11] Anocracies are government regimes with inherent qualities of political instability and ineffectiveness, as well as an incoherent mix of democratic and autocratic traits and practices (Marshall, Gurr and Jaggers 2016).
[12] See the discussion about the endogeneity problems in Rigobón (2004).

respectively. Annual data from 1970 to 2014 are used in the analysis. The government consumption expenditure and real GDP in constant national currency are from the United Nations' National Accounts Database. In general, most papers on fiscal cyclicality use the IMF's databases, however, the UN statistics provide a more complete and consistent national accounts data for the time period covered. We apply the Hodrick-Prescott filter (HP) and use a value of λ equal to 6.25 in order to derive the cyclical components of the government consumption expenditure and real GDP (both in logs).   General government gross debt as a percentage of GDP is from Abbas et al. (2010) and updated with the IMF's World Economic Outlook. Natural resources rents (% of GDP) and net ODA received (% of GNI) are from the World Bank's World Development Indicators (WDI). The instrumental variable is calculated with bilateral export values from the IMF's Direction of Trade Statistics and UN COMTRADE, while the growth rates of trading partners are from the United Nations' National Accounts Database updated with the WDI.

3. Results

3.1 Cyclical behavior of government consumption in 1970-2014

Before we conduct our regression analysis, we compute the degree of association between the cyclical components of real government consumption and real GDP from 1970 to 2014. The behavior of government consumption along the business cycle is defined as follows: government consumption expenditure is countercyclical (procyclical) if the correlation coefficient between the cyclical components of real government consumption expenditure and real GDP is negative (positive) and statistically significant at 5 percent. It is acyclical if that correlation is not statistically different from zero. Figure 2 shows that government consumption expenditure is procyclical for nearly 40 percent of SSA countries in our sample. Over the period 1970-2014, no country in the region exhibits countercyclical fiscal policies. The proportion of countries with a procyclical bias in fiscal policy is even larger in Latin America (60 percent). By contrast, 77 percent of industrial countries have exhibited an acyclical stance and 9 percent conducted countercyclical policies. The Appendix (Figure A.1) presents the correlation coefficients by region and country for the whole sample period.

Figure 2. *Cyclical properties of Government Consumption Expenditure: proportion of countries by groups.*
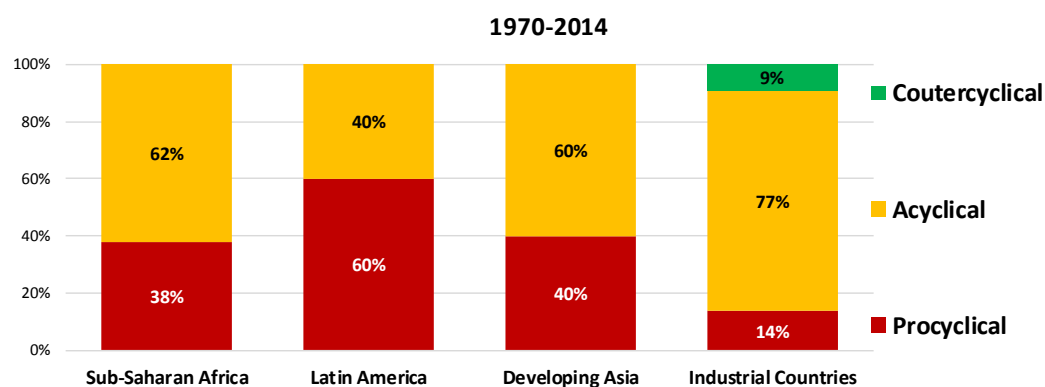
Note: The government final consumption expenditure and GDP are expressed in local currency at constant prices (source: UN-Statistics database). Their cyclical components are obtained using the Hodrick-Prescott filter. Countercyclical government consumption means that the correlation coefficient is negative and statistically significant at 5% level. It is procyclical when it is positive and significant, and acyclical when the coefficient is not statistically different from zero.

Next, we estimate the fiscal policy reaction function defined in equation (1) using least squares. The relationship between the cyclical components of the government consumption expenditure and real GDP is positive and statistically significant in all developing regions. The coefficient of real GDP cycle, however, is larger in Sub-Saharan Africa (Table 1). On the other hand, least squares estimates point to a non-significant relationship between government consumption and the business cycle.

The results are qualitatively similar when we account for the likely endogeneity of (the cyclical component of) real output. Our instrumental variables (IV) estimation shows that government consumption is still procyclical in Sub-Saharan Africa and Latin America —with the former group having the larger coefficient estimate. For developing Asia, the coefficient estimate of real GDP is still positive but fails to be statistically significant. When we account for endogeneity, the extent of procyclicality of government consumption in Sub-Saharan Africa is greater and twice as large as that in Latin America. Note that the estimates for the SSA region are the only ones where least squares exhibits a downward bias. This suggests that government consumption expenditure among SSA countries is ineffective in boosting short-run aggregate demand.

The lagged debt-to-GDP indicator has a negative coefficient across all regions, implying that higher debt levels tend to constrain fiscal policy. However, the coefficient is only significant for Latin American and industrial countries. The coefficient on the lagged cyclical component of government consumption has a positive sign for all country groups, except Sub-Saharan Africa. But after correcting for the potential endogeneity problem, this coefficient is only significant in the group of industrial countries. In Sub-Saharan Africa, this coefficient on the lagged dependent variable is negative and not significant. Note that we are working with deviation of government consumption expenditure with respect to its trend, thus a negative coefficient for its lagged variable would suggest an oscillating behavior of fiscal policy. That is, when the cyclical component of government consumption is below its trend in the previous period, it is more likely to be above the trend in the current period, suggesting variability in government spending.

3.2 Cyclical properties during good times and bad times

Does the cyclicality of fiscal policy vary during good times and bad times? In order to capture possible asymmetries during the economic cycle, we split the sample based on the values of the cyclical component of real GDP —that is, positive (above the trend) and negative (below the trend). Table 2 tests whether the behavior of the cyclical component of government consumption differs when real economic activity is above or below the trend (i.e. expansions and recessions).

The least squares estimates show that government consumption tends to be procyclical in both good times and bad times in developing countries. For industrial countries, on the other hand, government consumption is slightly procyclical only during expansions. However, Sub-Saharan Africa is the only region where the degree of pro-cyclicality during recessions is larger than the one during expansions.

Accounting for the likely endogeneity of the business cycles, fiscal policy tends to be procyclical during expansions across all developing country groups. Among these groups, Sub-Saharan Africa exhibits the largest degree of procyclicality. The coefficient is positive, significant and greater than one —which implies that government consumption expands more than proportionally in good times. During downturns, Sub-Saharan Africa is the only region with a positive —although not statistically significant— coefficient estimate for the business cycle. In other regions, government consumption behaves countercyclically during bad times —although the coefficient estimate is statistically significant only for industrial countries.[13]

Asymmetries along the business cycles emerge from implementing fiscal policies in an environment that is also affected by short-sighted considerations. In the case of Sub-Saharan Africa, we find procyclicality during expansions and acyclicality during recessions. Additionally, the magnitude of the sensitivity of fiscal policy to business cycles is greater during expansions than during recessions (1.593 vs. 0.918). Fluctuations in the business cycle are accompanied by a rising government consumption to output ratio over time. The quantitative importance of this mechanisms, as pointed out by Hercowitz and Michel Strawczynski (2004), is proxied by the ratcheting coefficient 0.675 (=1.593 -0.918).

It is likely that different factors shape a procyclical fiscal policy response during good times and bad times. In an expansion, political pressures and social needs boost government expenditures, particularly in countries with low levels of development. In downturns, the government needs funding to conduct countercyclical policies —either from its own savings or from financial markets— in a context of declining revenues. Industrial countries, emerging market economies, and some developing countries have access to international financial markets, which means that these countries can borrow to partially offset the economic consequences during the contraction periods. The pattern of fiscal policy cyclicality observed in Sub-Saharan Africa might respond to the higher demands during the expansion periods and non-negligible borrowing constraints in downturns.

3.3 How has the cyclical stance of fiscal policy changed in recent years?

This section tests whether the cyclical behavior of fiscal policy in Sub-Saharan Africa has changed over time —notably, in recent years. We conduct a recursive test of structural break along the fiscal policy

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[13] These are preliminary results that may suffer from the weak instrument problem since *the Kleibergen-Paap-F statistic* is relatively low in some developing regions for certain periods.

reaction function and identify 2002 as a turning point in Sub-Saharan Africa. Similar test was conducted for Latin America and Developing Asia. For these regions, the time break is 2005 and 1999, respectively.

All developing regions, including Sub-Saharan Africa, have made some progress towards more acyclical (and countercyclical in some cases) fiscal policies after the breaking point (year). In fact, there were no countries with negative and statistically significant correlation coefficients (countercyclical fiscal policies) in the pre-break period in all regions (Figure 3). However, after the breaking year, the proportion of countries with countercyclical fiscal policies have increased to 8% in Sub-Saharan Africa and 10% in both Latin America and developing Asia. At the same time, the proportion of countries with positive and statistically significant correlation coefficient (procyclical fiscal policies) have decreased considerably.

Figure 3. Cyclical properties of Government Consumption Expenditure by region
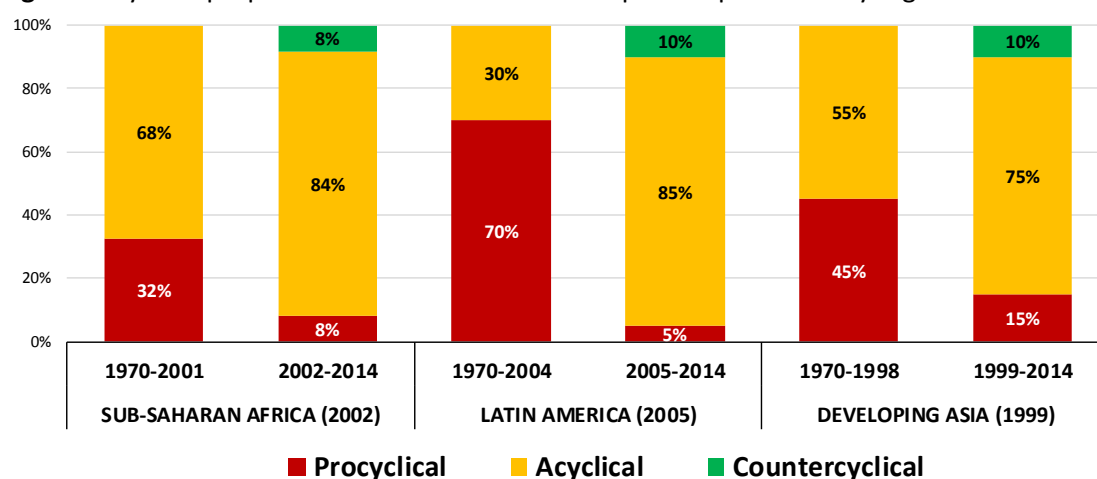
Note: The government final consumption expenditure and GDP are expressed in local currency at constant prices (source: UN-Statistics database). Their cyclical components are obtained using the Hodrick-Prescott filter. Countercyclical government consumption means that the correlation coefficient is negative and statistically significant at 5% level. It is procyclical when it is positive and significant, and acyclical when the coefficient is not statistically different from zero.

The analysis of the correlation coefficient between the cyclical components of government consumption and GDP in Sub-Saharan African countries in the sub-periods of 1970-2001 and 2002-2014 suggests that the region still has considerable margin to improve in terms of the cyclical stance of fiscal policy. Figure 4 shows that only 9 out of 37 countries in the region have moved from a procyclical stance (positive correlation) to a more countercyclical one (negative correlation).[14] Only 4 countries (Guinea, Malawi, Zambia, and Zimbabwe) have registered a negative correlation between the cyclical components of government consumption and GDP in both periods. Government consumption in the majority of countries (24) continue to exhibit a procyclical behavior. As was noted before, regardless of the dynamic between periods, most of region's countries are still classified as having acyclical fiscal policies in the recent period 2002-2014, since their correlation coefficients are not statistically different from zero.

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[14] These countries are: Angola, Cabo Verde, Chad, Kenya, Liberia, Mauritius, Nigeria, Rwanda, and South Africa. However, only Angola, Kenya, and Mauritius have exhibited negative and statistically significant correlation coefficients in 2002-2014.

We conduct a regression analysis to estimate the cyclical behavior of government consumption expenditure before and after 2002 (our estimated time break). Our coefficient estimates suggest a shift in the stance of fiscal policy along the business cycle across developing regions. The instrumental variable (IV) regression estimates in Table 3 show that, on average, fiscal policy has become counter-cyclical in Latin American (after 2005) and Asia (1999) —although the negative coefficient is statistically not different from zero in the latter group. In Sub-Saharan Africa, the magnitude of the fiscal policy procyclicality bias has decreased over time. After 2002, the coefficient estimates of (the cyclical component of real output) is still positive but it is smaller (in magnitude) and no longer statistically significant. The reduction in the degree of procyclicality across developing regions in recent years has been the result of better fiscal management, particularly during the strong global growth experienced in 2000-08, which better prepared many developing countries (including those in in Sub-Saharan Africa) to face the 2008-09 global financial crisis. In sum, there has been an overall change to more acyclical behavior of the government consumption expenditure in developing regions in recent years, a phenomenon that does not exclude African countries.

Figure 4. Sub-Saharan Africa: change in the correlation coefficients between the cyclical components of Government Consumption Expenditure and GDP by country, 1970-2001 vs. 2002-2014
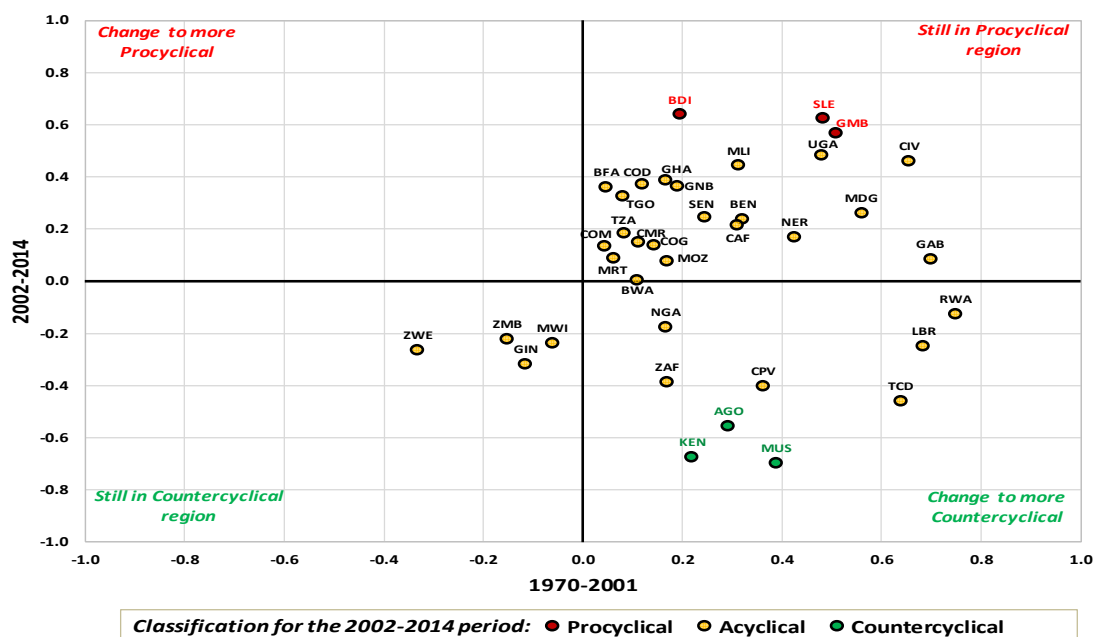

Note: The government final consumption expenditure and GDP are expressed in local currency at constant prices (source: UN-Statistics database). Their cyclical components are obtained using the Hodrick-Prescott filter. Countercyclical government consumption means that the correlation coefficient is negative and statistically significant at 5% level. It is procyclical when it is positive and significant, and acyclical when the coefficient is not statistically different from zero.

3.4 The effect of financial openness on the fiscal cyclical stance

Table 4 examines whether the degree of cyclicality of fiscal policy is different between countries with low and high levels of financial openness. Our IV estimates show that government consumption expenditure is procyclical among countries with low financial openness and acyclical among countries with high

financial openness. This finding suggests that the likely access to foreign borrowing during downturns may lower the degree of procyclicality of fiscal policy. The same finding holds for Latin America. For developing Asia and industrial countries, on the other hand, government consumption expenditure is acyclical in countries with both low and high financial openness.

3.5 The effect of natural resources rents on the fiscal cyclical stance

Table 5 tests whether the fiscal policy reaction function is different between natural resource abundant countries from those that are not. We use two different criteria to classify natural resource abundance: (i) having an average ratio of natural resource rents (excluding forests) to GDP that exceeds 10 percent, and (ii) having an average ratio of net commodity exports to total exports that is greater than 25 percent.[15] Our discussion will focus on the estimations from column [5] through [12] in Table 5.

Regardless of the criterion used to define resource abundant countries, our IV estimates show that the coefficient of fiscal cyclicality is statistically not significant for resource rich countries in Sub-Saharan Africa. On the other hand, the coefficient is positive and significant for non-resource rich countries in the region. In other terms, our regression results suggest that government consumption expenditure tends to be procyclical in non-resource rich countries and acyclical among resource rich ones.

Overall, the results need to be interpreted with caution because of the small sample of resource-rich countries in the analysis. At the same time, the results for Sub-Saharan Africa could indicate that resource-rich countries are using stabilization funds to smooth consumption. In recent years, several of the region's resource-rich countries have established stabilization funds with windfalls from the commodity price boom that began in the early 2000s. If well implemented, these stabilization funds can provide access to extra-budgetary funds in bad times, making them a useful tool to reduce the procyclical bias of government consumption spending. Further analysis will be useful here.

Table 6 adds to our analysis the quality of institutions. Some have argued that the quality of institutions from resource to non-resource rich countries may affect differently the cyclical component of government consumption expenditure. When using the natural resource rents criteria, the coefficient of cyclical output is positive for both resource and non-resource rich countries. It is larger for the latter group but they fail to be statistically significant. On the other hand, when using the net commodity export criterion, government consumption expenditure is procyclical for non-resource rich countries while it is acyclical for resource rich ones. Note that institutional quality has a negligible impact on the cycle of government consumption.

A final look at the influence of natural resource abundance involves testing whether having a sovereign wealth (SWF) or stabilization fund has an impact on the cyclicality of fiscal policy. The IV results are reported in Table 7. We find that countries with a SWF have an acyclical stance (i.e. the coefficient of business cycle is positive but not significant). On the other hand, countries without SWF exhibit the typical procyclical fiscal bias —that is, the coefficient of business cycle is positive and statistically significant. This finding is similar to that in Table 5.
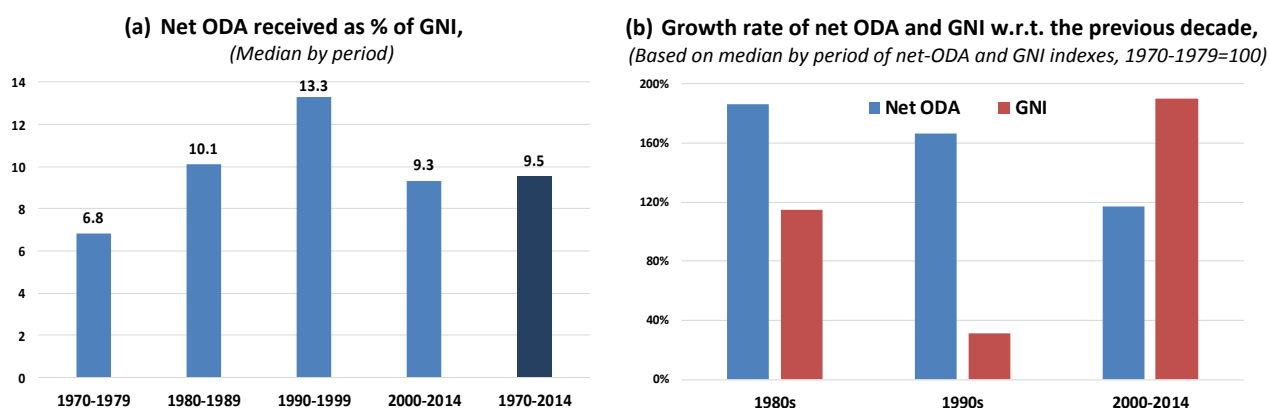
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[15] The first criterion has also two different groups that are differentiated by the inclusion of other natural resource abundant nations; namely, Botswana (diamonds) and Niger (uranium).

3.6 How has ODA affected the cyclical nature of fiscal policy in Sub-Saharan Africa?

Figures 4a shows that the median size of official development assistance (ODA) flows to GNI remains large in Sub-Saharan Africa, although it is below the peaks levels in 1990-99. Importantly, in many poor developing countries, ODA supports over half of public spending. Net official development assistance (net-ODA) is an important source of funds for many cash-strapped countries in Sub-Saharan Africa.

Figure 4. Sub-Saharan Africa: Net Official Development Assistance

(a) **Net ODA received as % of GNI,**
(Median by period)

(b) **Growth rate of net ODA and GNI w.r.t. the previous decade,**
(Based on median by period of net-ODA and GNI indexes, 1970-1979=100)

Source: Authors' calculations based on the WDI database

Table 8 tests whether the cyclical stance of fiscal policy changes between countries that receive a greater amount of foreign aid from those that do not. In this context, we use two different criteria to classify SSA countries: first, countries receiving net ODA equivalent to 10 percent or more of their gross national income (GNI), which is the median of the SSA country-year distribution for this variable. Second, we also consider countries receiving net ODA equivalent to 13 percent or more of their GNI —about the top tercile of the SSA foreign aid distribution. The results are reported in Table 8.

Our results show that government consumption of high-ODA countries (when using the threshold of 10 percent of GNI) is procyclical while low-ODA countries is acyclical. When we increase the threshold to 13 percent, the result is the opposite: government consumption of high-ODA countries is acyclical while that of low-ODA countries is procyclical.[16] Note that the coefficient of business cycle is not significant when we control for the quality of institutions. Other studies (Thornton 2008, Lledó, Yackovlev and Gadenne, 2011) also find that the procyclical bias is greater among countries in the region that are highly dependent on foreign aid inflows. In our analysis, this finding is obtained when we use the lower threshold of ODA and we do not account for the quality of institutions of SSA countries. It is important to caveat here that although most of ODA is given to promote a country's development and welfare, we are not capturing the effect on government investments (developing expenditure). Our finding might suggest that when a

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[16] Note that lifting the threshold from 10 to 13 percent reduces the sample of SSA countries from 27 to 22 (see Appendix-Table A.3). The countries excluded are: Benin, Rep. of Congo, Guinea, Senegal, and Togo. Note that the average ratio of foreign aid to GDP for high-ODA countries is 16.5%.

country is receiving above-average assistance, the government consumption expenditure overreacts to the cycle. That is, in good times ODA flows might reinforce the current expenditure cycle, resulting in stronger adjustments during bad times. In any case, a further analysis is needed to properly assess the real impact of ODA flows on the cyclicality of fiscal policy.

3.7 Fragility and the cyclical stance of government consumption expenditure

Table 9 examines whether the behavior of government consumption expenditure along the business cycle is different for fragile and non-fragile countries. We have two different criteria: (a) country-years where there is a failed/occupied government or an autocracy, and (b) includes closed anocracies to (a). The first criterion shows that government consumption expenditure is procyclical for both fragile and non-fragile countries —although the extent of procyclicality is larger among non-fragile countries. For non-fragile countries, the response of government consumption to output fluctuations in more than proportional.

When our definition of fragility includes anocracies, the results are qualitatively similar: the coefficient estimate of real output fluctuations is positive and significant in most cases. The magnitude of the coefficient is larger among non-fragile countries. If we do not account for the lagged ratio of public debt to GDP, government consumption expenditure reacts more than proportionally to oscillations in real economic activity.

4. Conclusions

This paper shows that, historically, government consumption has been more procyclical in Sub-Saharan Arica vis-à-vis other developing regions over the period 1970-2014. When we account for the likely endogeneity of fluctuations in real economic activity, the degree of procyclicality in the region is higher. Our findings also show that the procyclical bias of fiscal policy in Sub-Saharan Africa has decreased in recent years. Government consumption has shifted from a procyclical stance (in 1970-2001) to an acyclical one (2002-2014).

We also find the behavior of government consumption expenditure in SSA is asymmetric along the business cycle: it is procyclical during upturns and acyclical in downturns. Given that the magnitude of the coefficient estimate of business cycle is positive and larger during expansions. Hence, the ratio of government spending to GDP is rising during expansions.

Finally, we also test whether the fiscal policy reaction function is different across SSA countries depending upon: the abundance of natural resources, extent of financial openness, reliance on foreign aid, and condition of fragility. Our results show that government consumption expenditure tends to behave: (a) acyclically among resource rich countries, (b) procyclically among low financial openness countries, and (c) more procyclically among non-fragile countries. Finally, the evidence is mixed on the role of foreign aid in explaining fiscal policy cyclicality.

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Table 1. Cyclicality of Fiscal Policy, 1970-2014

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

	Sub-Saharan Africa			Latin America			Developing Asia			Industrial Countries		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	Pooled OLS	Fixed Effect	IV/2SLS	Pooled OLS	Fixed Effect	IV/2SLS	Pooled OLS	Fixed Effect	IV/2SLS	Pooled OLS	Fixed Effect	IV/2SLS
RGDP_Cycle	0.580***	0.582***	0.769**	0.468***	0.467***	0.368***	0.533***	0.532***	0.0378	0.0817	0.0807	-0.00511
	(0.139)	(0.139)	(0.331)	(0.0931)	(0.0924)	(0.114)	(0.112)	(0.113)	(0.251)	(0.0508)	(0.0503)	(0.0457)
GovCons_Cycle (t-1)	-0.0305	-0.0319	-0.0211	0.0624*	0.0636*	0.0695	0.118*	0.116*	0.127	0.226***	0.225***	0.218***
	(0.0488)	(0.0485)	(0.0685)	(0.0371)	(0.0378)	(0.0716)	(0.0647)	(0.0646)	(0.118)	(0.0559)	(0.0560)	(0.0419)
PublicDebt/GDP (t-1)	-0.00133	-0.00154	-0.00144	-0.00157**	-0.00189***	-0.00189*	-0.00167	-0.00231	-0.00266	-0.000648	-0.00106*	-0.00123*
	(0.00287)	(0.00303)	(0.00406)	(0.000621)	(0.000559)	(0.000996)	(0.00382)	(0.00389)	(0.00433)	(0.000430)	(0.000561)	(0.000746)
Observations	1,450	1,450	1,403	854	854	823	708	708	690	957	957	915
R-squared	0.043		0.043	0.088		0.084	0.063		0.024	0.060		0.052
Number of Countries	37	37	37	20	20	20	20	20	20	22	22	22
Kleibergen-Paap rk Wald F statistic			32.6			60.3			36.5			149.9
Country FE		YES	YES		YES	YES		YES	YES		YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. Constants are not reported. Standard errors in parentheses. Pooled and Fixed-Effect regressions with Driscoll-Kraay standard errors, while IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

Table 2. Cyclical Properties of Fiscal Policy during Expansions and Recessions

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

VARIABLES	Sub-Saharan Africa				Latin America				Developing Asia				Industrial Countries			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
			IV/2SLS				IV/2SLS				IV/2SLS				IV/2SLS	
	Pooled OLS	Fixed Effect	Bad Times	God Times	Pooled OLS	Fixed Effect	Bad Times	God Times	Pooled OLS	Fixed Effect	Bad Times	God Times	Pooled OLS	Fixed Effect	Bad Times	God Times
RGDP_Cycle	0.699***	0.697***	0.918	1.593*	0.404***	0.409***	-0.0434	0.835**	0.517**	0.489**	-1.156	0.712*	0.0190	0.0122	-0.608***	0.145
	(0.180)	(0.187)	(0.628)	(0.821)	(0.0898)	(0.0954)	(0.314)	(0.381)	(0.208)	(0.211)	(1.081)	(0.414)	(0.0784)	(0.0734)	(0.122)	(0.119)
DC$^+$x (RGDP_Cycle)	-0.247	-0.240			0.138	0.123			0.0314	0.0839			0.122	0.133		
	(0.334)	(0.343)			(0.192)	(0.206)			(0.255)	(0.271)			(0.125)	(0.121)		
PublicDebt/GDP (t-1)	-0.00102	-0.00113	0.00113	-0.00747	-0.00155**	-0.00186***	-0.00450	-0.00123	-0.00162	-0.00225	-0.00109	-0.00136	-0.000577	-0.000939*	-0.00115	0.000288
	(0.00259)	(0.00272)	(0.00441)	(0.00774)	(0.000620)	(0.000542)	(0.00497)	(0.000996)	(0.00385)	(0.00386)	(0.00790)	(0.00511)	(0.000403)	(0.000530)	(0.00131)	(0.000841)
GovCons_Cylce (t-1)	-0.0284	-0.0296	-0.0400	-0.0317	0.0616	0.0627	0.00158	0.0872	0.118*	0.116*	0.294**	-0.0612	0.225***	0.224***	0.220***	0.204***
	(0.0494)	(0.0492)	(0.0886)	(0.108)	(0.0371)	(0.0377)	(0.102)	(0.0950)	(0.0648)	(0.0646)	(0.132)	(0.164)	(0.0552)	(0.0554)	(0.0619)	(0.0666)
Memo:																
Cyclical Pattern																
RECESSIONS	0.699***	0.697***	0.918		0.404***	0.409***	-0.0434		0.517**	0.489**	-1.156		0.0190	0.0122	-0.608***	
EXPANSIONS	0.452*	0.457*		1.593*	0.542***	0.532***		0.835**	0.548***	0.572***		0.712*	0.141	0.145*		0.145
Observations	1,450	1,450	702	701	854	854	399	424	708	708	335	355	957	957	467	448
Number of Countries	37	37	37	37	20	20	20	20	20	20	20	20	22	22	22	22
Kleibergen-Paap rk Wald F statistic			12.1	9.6			11.5	11.4			4.8	10.4			36.1	36.9
Country FE		YES	YES	YES		YES	YES	YES		YES	YES	YES		YES	YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. DC$^+$ is the dummy for positive cycles. Constants are not reported. Standard errors in parentheses. Pooled and Fixed-Effect regressions with Driscoll-Kraay standard errors, while IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

Table 3. Fiscal Cyclicality Before and After the Turning Point (year) by Region

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

VARIABLES	Sub-Saharan Africa (Turning Point = 2002)				Latin America (Turning Point = 2005)				Developing Asia (Turning Point = 1999)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			IV/2SLS				IV/2SLS				IV/2SLS	
	Pooled OLS	Fixed Effect	Before Turning Point	After Turning Point	Pooled OLS	Fixed Effect	Before Turning Point	After Turning Point	Pooled OLS	Fixed Effect	Before Turning Point	After Turning Point
RGDP_Cycle	0.814***	0.818***	0.922***	0.395	0.550***	0.549***	0.546***	-0.447**	0.655***	0.655***	0.108	-0.127
	(0.0823)	(0.0836)	(0.292)	(0.849)	(0.0860)	(0.0854)	(0.132)	(0.205)	(0.122)	(0.124)	(0.363)	(0.312)
Break^{TurningPoint}x (RGDP_Cycle)	-0.866***	-0.876***			-0.692***	-0.696***			-0.501**	-0.504*		
	(0.176)	(0.179)			(0.119)	(0.120)			(0.242)	(0.255)		
PublicDebt/GDP (t-1)	-0.00188	-0.00237	-0.00216	-0.000240	-0.00154**	-0.00183***	-0.00189*	0.00444	-0.00173	-0.00246	-0.00240	-0.00914
	(0.00256)	(0.00260)	(0.00348)	(0.00592)	(0.000621)	(0.000570)	(0.00102)	(0.00959)	(0.00382)	(0.00393)	(0.00440)	(0.0127)
GovCons_Cylce (t-1)	-0.0280	-0.0296	-0.00946	-0.0371	0.0622*	0.0635*	0.103	-0.142	0.115*	0.113*	0.0563	0.199**
	(0.0487)	(0.0483)	(0.0769)	(0.141)	(0.0366)	(0.0371)	(0.0774)	(0.146)	(0.0633)	(0.0631)	(0.187)	(0.0949)
Memo:												
Cyclical Pattern												
BEFORE Turning Point (year)	0.814***	0.818***	0.922***		0.573***	0.571***	0.546***		0.643***	0.644***	0.108	
AFTER Turning Point (year)	-0.052	-0.058		0.395	-0.142*	-0.147*		-0.447**	0.154	0.151		-0.127
Observations	1,450	1,450	923	480	854	854	623	200	708	708	372	318
Number of Countries	37	37	37	37	20	20	20	20	20	20	20	20
Kleibergen-Paap rk Wald F statistic			27.4	7.5			41.3	38.6			20.4	24.9
Country FE		YES	YES	YES		YES	YES	YES		YES	YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. Break^{TurningPoint} is the dummy variable for observations after turning point (year). Constants are not reported. Standard errors in parentheses. Pooled and Fixed-Effect regressions with Driscoll-Kraay standard errors, while IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

Table 4. Cyclicality of Fiscal Policy and Financial Openness, 1970-2014

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

VARIABLES	Sub-Saharan Africa				Latin America				Developing Asia				Industrial Countries			
	(1)	(2)	(3) IV/2SLS	(4)	(5)	(6)	(7) IV/2SLS	(8)	(9)	(10)	(11) IV/2SLS	(12)	(13)	(14)	(15) IV/2SLS	(16)
	Pooled OLS	Fixed Effect	Low Financial Openness	High Financial Openness	Pooled OLS	Fixed Effect	Low Financial Openness	High Financial Openness	Pooled OLS	Fixed Effect	Low Financial Openness	High Financial Openness	Pooled OLS	Fixed Effect	Low Financial Openness	High Financial Openness
RGDP_Cycle	0.601***	0.604***	0.894**	-0.0898	0.620***	0.624***	0.524***	0.190	0.675***	0.674***	-0.121	0.229	0.137	0.137	0.0939	-0.0428
	(0.136)	(0.136)	(0.383)	(0.711)	(0.0827)	(0.0835)	(0.177)	(0.138)	(0.123)	(0.121)	(0.492)	(0.234)	(0.138)	(0.137)	(0.122)	(0.0498)
RGDP_Cycle x Finan.Open	-0.0719	-0.0765			-0.298***	-0.309***			-0.338	-0.338			-0.0783	-0.0792		
	(0.339)	(0.335)			(0.110)	(0.108)			(0.218)	(0.221)			(0.133)	(0.132)		
GovCons_Cycle (t-1)	-0.0299	-0.0313	-0.0534	0.184	0.0576	0.0588	0.136	-0.0271	0.116*	0.114*	0.0706	0.191***	0.224***	0.223***	0.0866	0.258***
	(0.0490)	(0.0485)	(0.0755)	(0.137)	(0.0380)	(0.0387)	(0.112)	(0.0773)	(0.0640)	(0.0639)	(0.162)	(0.0733)	(0.0537)	(0.0538)	(0.0881)	(0.0493)
PublicDebt/GDP (t-1)	-0.00136	-0.00157	-0.00123	-0.000890	-0.00154**	-0.00189***	-0.00279***	-0.00347	-0.00172	-0.00247	-0.00280	-0.00527	-0.000648	-0.00106*	-0.00312	-0.00121
	(0.00287)	(0.00302)	(0.00356)	(0.00583)	(0.000622)	(0.000568)	(0.00107)	(0.00328)	(0.00384)	(0.00390)	(0.00498)	(0.00859)	(0.000436)	(0.000574)	(0.00371)	(0.000771)
Memo:																
Cyclical Pattern																
Low Financial Openness	0.601***	0.604***	0.894**		0.620***	0.624***	0.524***		0.675***	0.674***	-0.121		0.137	0.137	0.0939	
High Financial Openness	0.529	0.528		-0.0898	0.322***	0.315***		0.190	0.337*	0.336*		0.229	0.0587	0.0578		-0.0428
Observations	1,450	1,450	1,123	280	854	854	335	487	708	708	449	241	957	957	130	785
Number of Countries	37	37	36	23	20	20	19	19	20	20	20	12	22	22	12	22
Kleibergen-Paap rk Wald F statistic			28.8	7.5			24.2	37.4			17.2	18.2			27.5	124.1
Country FE		YES	YES	YES		YES	YES	YES		YES	YES	YES		YES	YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. Low (high) financial openness is defined when the average value of the Chinn-Ito index of financial openness is below (above) the world median by decade. Constants are not reported. Standard errors in parentheses. Pooled and Fixed-Effect regressions with Driscoll-Kraay standard errors, while IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

Table 5. SSA: The Effect of Natural Resources on Fiscal Cyclicality with different identification techniques of resource-rich countries

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

VARIABLES	The average of natural-resources-rents (excl. forest) exceeds 10% of GDP over each decade				The average of natural-resources-rents (excl. forest) exceeds 10% of GDP over each decade, including BWA & NER				The average of net-exports of commodities exceeds 25% of total exports throughout the sample period			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			IV/2SLS				IV/2SLS				IV/2SLS	
	Pooled OLS	Fixed Effect	Non-Resource-Rich	Resource-Rich	Pooled OLS	Fixed Effect	Non-Resource-Rich	Resource-Rich	Pooled OLS	Fixed Effect	Non-Resource-Rich	Resource-Rich
RGDP_Cycle	0.597***	0.598***	0.843**	0.818	0.609***	0.610***	0.825**	0.776	0.868***	0.868***	0.772***	0.769
	(0.148)	(0.147)	(0.358)	(0.650)	(0.158)	(0.157)	(0.384)	(0.585)	(0.143)	(0.143)	(0.250)	(0.494)
RNR x (RGDP_Cycle)	-0.0799	-0.0785			-0.107	-0.106			-0.484	-0.482		
	(0.194)	(0.197)			(0.173)	(0.172)			(0.323)	(0.323)		
PublicDebt/GDP (t-1)	-0.00135	-0.00155	0.000456	-0.00767	-0.00135	-0.00155	0.000418	-0.00715	-0.00144	-0.00168	-0.000307	-0.00183
	(0.00289)	(0.00306)	(0.00411)	(0.00986)	(0.00290)	(0.00307)	(0.00415)	(0.00908)	(0.00274)	(0.00285)	(0.00314)	(0.00528)
GovCons_Cylce (t-1)	-0.0310	-0.0324	0.0188	-0.121	-0.0313	-0.0327	0.0172	-0.112	-0.0326	-0.0340	0.0453	-0.0416
	(0.0493)	(0.0490)	(0.0663)	(0.152)	(0.0493)	(0.0490)	(0.0676)	(0.147)	(0.0491)	(0.0489)	(0.0656)	(0.0857)
Memo:												
Cyclical Pattern												
Non-Resource-Rich	0.597***	0.598***	0.843**		0.609***	0.610***	0.825**		0.868***	0.868***	0.772***	
Resource-Rich	0.5171**	0.5195**		0.818	0.502***	0.504***		0.776	0.384*	0.386*		0.769
Observations	1,450	1,450	1,171	232	1,450	1,450	1,087	316	1,450	1,450	680	723
Number of Countries	37	37	33	10	37	37	31	12	37	37	18	19
Kleibergen-Paap rk Wald F statistic			22.7	12.6			19.8	15.8			17.8	18.9
Country FE		YES	YES	YES		YES	YES	YES		YES	YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. In columns (1)-(8), RNR is the dummy variable for those countries where the average of natural-resources-rents (excl. forest)/GDP > 10% over each decade (except for Botswana and Niger that are considered resource-rich throughout the sample period). In columns (9)-(12), RNR is the dummy variable for those countries where the average net-exports of commodities exceeds 25% of total exports (based on UNCTAD's database for the period 1995-2014). Constants are not reported. Standard errors in parentheses. Pooled and Fixed-Effect regressions with Driscoll-Kraay standard errors, while IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

Table 6. Robustness check by including Institutional Quality on the Effect of Natural Resources on Fiscal Cyclicality in SSA, based on different definitions

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

VARIABLES	The average of natural-resources-rents (excl. forest) exceeds 10% of GDP over each decade		The average of natural-resources-rents (excl. forest) exceeds 10% of GDP over each decade, including BWA & NER		The average of net-exports of commodities exceeds 25% of total exports throughout the sample period	
	(1)	(2)	(3)	(4)	(5)	(6)
	IV/2SLS with IQ		IV/2SLS with IQ		IV/2SLS with IQ	
	Non-Resource-Rich	Resource-Rich	Non-Resource-Rich	Resource-Rich	Non-Resource-Rich	Resource-Rich
RGDP_Cycle	0.411	0.958	0.361	0.855	0.566*	0.454
	(0.419)	(0.744)	(0.463)	(0.656)	(0.304)	(0.548)
LogIQ	0.00926	-0.0121	0.00997	-0.00720	-0.00558	0.0141
	(0.0243)	(0.147)	(0.0254)	(0.0993)	(0.0240)	(0.0398)
PublicDebt/GDP (t-1)	0.000241	-0.0113	0.000172	-0.0106	-0.000195	-0.00256
	(0.00433)	(0.0119)	(0.00432)	(0.0109)	(0.00411)	(0.00522)
GovCons_Cylce (t-1)	-0.0348	-0.139	-0.0361	-0.133	0.00802	-0.0959
	(0.0814)	(0.156)	(0.0828)	(0.152)	(0.0821)	(0.0968)
Memo:						
Cyclical Pattern						
Non-Resource-Rich	0.411		0.361		0.566*	
Resource-Rich		0.958		0.855		0.454
Observations	806	188	734	260	446	548
Number of Countries	24	8	22	10	13	15
Kleibergen-Paap rk Wald F statistic	15.5	10.1	13.5	13.9	13.0	16.7
Country FE	YES	YES	YES	YES	YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. LogIQ is the log of the Institutional Quality Index from the International Country Risk Guide published by the PRS Group. Constants are not reported. Standard errors in parentheses. IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

Table 7. A Different look at Resource Abundance: Sovereign Wealth Funds in SSA, 1970-2014

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

VARIABLES	SWF throughout the sample period		Counting since the SWF was established	
	(1)	(2)	(3)	(4)
	IV/2SLS		IV/2SLS	
	Non SWF	With SWF	Non SWF	With SWF
RGDP_Cycle	0.978**	0.684	0.757**	0.697
	(0.395)	(0.530)	(0.341)	(0.426)
GovCons_Cycle (t-1)	-0.0174	-0.0351	-0.0210	-0.0868
	(0.0651)	(0.142)	(0.0696)	(0.169)
PublicDebt/GDP (t-1)	-0.000906	-0.00428	-0.00160	-0.00581
	(0.00469)	(0.00958)	(0.00415)	(0.00765)
Memo:				
Cyclical Pattern				
Non SWF	0.978**		0.757**	
With SWF		0.684		0.697
Observations	1,015	388	1,319	84
Number of Countries	27	10	37	10
Kleibergen-Paap rk Wald F statistic	19.4	19.6	30.6	3.7
Country FE	YES	YES	YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. SWF states for Sovereign Wealth Fund. Constants are not reported. Standard errors in parentheses. IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

Table 8. SSA: The Effect of ODA and Institutional Quality on the Cyclical Behavior of Fiscal Policy with Different Thresholds

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

VARIABLES	THRESHOLD = 10% (around the Median of SSA)				THRESHOLD = 13% (Top Tercile of SSA)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	IV/2SLS		IV/2SLS with IQ		IV/2SLS		IV/2SLS with IQ	
	net ODA/GNI < 10%	net ODA/GNI > 10%	net ODA/GNI < 10%	net ODA/GNI > 10%	net ODA/GNI < 13%	net ODA/GNI > 13%	net ODA/GNI < 13%	net ODA/GNI > 13%
RGDP_Cycle	0.405	1.247**	0.521	0.149	0.888**	0.684	0.621	-0.529
	(0.411)	(0.564)	(0.461)	(0.758)	(0.384)	(0.664)	(0.414)	(1.006)
LogIQ			0.0273	0.00793			0.00303	0.0356
			(0.0509)	(0.0383)			(0.0334)	(0.0554)
netODA/GNI (t-1)	-0.0216	0.0366	-0.0290	0.0524**	0.0226	0.0445*	0.00166	0.0645**
	(0.0506)	(0.0229)	(0.0587)	(0.0236)	(0.0371)	(0.0251)	(0.0419)	(0.0255)
PublicDebt/GDP (t-1)	-0.00467	-0.00237	-0.00562	-0.00344	-0.00526	-0.000128	-0.00752	-0.000497
	(0.00714)	(0.00607)	(0.00844)	(0.00493)	(0.00600)	(0.00527)	(0.00712)	(0.00437)
GovCons_Cylce (t-1)	-0.107	0.0233	-0.124	-0.0189	-0.0456	0.0174	-0.102	0.0215
	(0.115)	(0.0626)	(0.126)	(0.0858)	(0.0899)	(0.0765)	(0.104)	(0.131)
Memo:								
Cyclical Pattern								
net ODA/GNI < Threshold	0.405		0.521		0.888**		0.621	
net ODA/GNI > Threshold		1.247**		0.149		0.684		-0.529
Observations	714	689	569	425	971	432	741	253
Number of Countries	28	27	22	19	34	22	25	15
Kleibergen-Paap rk Wald F statistic	24.7	13.1	24.2	6.2	30.3	6.0	29.5	3.1
Country FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. ODA is the dummy variable for those countries where the average of net ODA/GNI exceeds the threshold over each decade. LogIQ is the log of the Institutional Quality Index from the International Country Risk Guide published by the PRS Group. Constants are not reported. Standard errors in parentheses. Pooled and Fixed-Effect regressions with Driscoll-Kraay standard errors, while IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

Table 9. The Effect of Fragile and Conflict Periods on the Cyclicality of Fiscal Policy in SSA, 1970-2014

Dependent Variable: Cyclical component of government consumption expenditure (GovCons_Cycle), Sample Period 1970-2014 (Annual data)

VARIABLES	Failed/Occupied + Autocracy				Failed/Occupied + Autocracy + Closed Anocracy (-0)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	IV/2SLS		IV/2SLS		IV/2SLS		IV/2SLS	
	Non Fragile	Fragile	Non Fragile	Fragile	Non Fragile	Fragile	Non Fragile	Fragile
RGDP_Cycle	1.113**	0.904**	1.949***	0.897**	0.994	0.762*	2.168**	1.006***
	(0.532)	(0.368)	(0.641)	(0.413)	(0.764)	(0.401)	(0.863)	(0.364)
GovCons_Cycle (t-1)	-0.0487	0.0222	0.000741	0.00272	-0.0127	-0.0398	0.0682	-0.0385
	(0.0986)	(0.0895)	(0.0964)	(0.0866)	(0.138)	(0.0801)	(0.129)	(0.0753)
PublicDebt/GDP (t-1)	-0.00371	0.00374			-0.00511	0.000697		
	(0.00488)	(0.00696)			(0.00580)	(0.00638)		
Memo:								
Cyclical Pattern								
Non Fragile	1.113**		1.949***		0.994		2.168**	
Fragile		0.904**		0.897**		0.762*		1.006***
Observations	854	548	887	658	541	861	553	991
Number of Countries	37	31	37	34	30	34	30	35
Kleibergen-Paap rk Wald F statistic	14.3	15.6	16.8	6.6	7.9	21.9	11.6	9.2
Country FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Government Final Consumption Expenditures and GDP in real local currencies filtered using the Hodrick-Prescott Filter. The cyclical component of GDP is instrumented with its own lags and the weighted average of the GDP growth of each country's export partners. Trade-partner growth is weighted by the share of the country's total exports to each of its trading partners, each country's weighted-trade-partner growth is multiplied by the country's average exports/GDP. From Polity IV data set, we define fragile countries as those countries with a failed/occupied scores (special values of -66, -77 and -88) and autocracies (values from -10 to -6 in the polity score). For robustness purposes, we expand the previous definition to include closed anocracies (values from -5 to 0 in the polity score, excluding the 0).Constants are not reported. Standard errors in parentheses. IV/2SLS with HAC standard errors.

***significant at 1%, ** significant at 5%, * significant at 10%

APPENDIX

**Table A1.** Countries in the sample

#	*Sub-Saharan Africa (37)* Name	Code	*Latin America (20)* Name	Code	*Developing Asia (20)* Name	Code	*Industrial Countries (22)* Name	Code
1	Angola	AGO	Argentina	ARG	Bangladesh	BGD	Australia	AUS
2	Benin	BEN	Bolivia	BOL	Cambodia	KHM	Austria	AUT
3	Botswana	BWA	Brazil	BRA	China	CHN	Belgium	BEL
4	Burkina Faso	BFA	Chile	CHL	Fiji	FJI	Canada	CAN
5	Burundi	BDI	Colombia	COL	India	IND	Denmark	DNK
6	Cameroon	CMR	Costa Rica	CRI	Indonesia	IDN	Finland	FIN
7	Cape Verde	CPV	Dominican Republic	DOM	Lao P.D.R.	LAO	France	FRA
8	Central African Republic	CAF	Ecuador	ECU	Malaysia	MYS	Germany	DEU
9	Chad	TCD	El Salvador	SLV	Maldives	MDV	Greece	GRC
10	Comoros	COM	Guatemala	GTM	Mongolia	MNG	Iceland	ISL
11	Congo, Rep.	COG	Haiti	HTI	Myanmar	MMR	Ireland	IRL
12	Congo, Dem. Rep.	COD	Honduras	HND	Nepal	NPL	Italy	ITA
13	Cote d'Ivoire	CIV	Mexico	MEX	Papua New Guinea	PNG	Japan	JPN
14	Gabon	GAB	Nicaragua	NIC	Philippines	PHL	Netherlands	NLD
15	Gambia, The	GMB	Panama	PAN	Samoa	WSM	New Zealand	NZL
16	Ghana	GHA	Paraguay	PRY	Sri Lanka	LKA	Norway	NOR
17	Guinea	GIN	Peru	PER	Thailand	THA	Portugal	PRT
18	Guinea-Bissau	GNB	Trinidad and Tobago	TTO	Tonga	TON	Spain	ESP
19	Kenya	KEN	Uruguay	URY	Vanuatu	VUT	Sweden	SWE
20	Liberia	LBR	Venezuela, RB	VEN	Vietnam	VNM	Switzerland	CHE
21	Madagascar	MDG					United Kingdom	GBR
22	Malawi	MWI					United States	USA
23	Mali	MLI						
24	Mauritania	MRT						
25	Mauritius	MUS						
26	Mozambique	MOZ						
27	Niger	NER						
28	Nigeria	NGA						
29	Rwanda	RWA						
30	Senegal	SEN						
31	Sierra Leone	SLE						
32	South Africa	ZAF						
33	Tanzania	TZA						
34	Togo	TGO						
35	Uganda	UGA						
36	Zambia	ZMB						
37	Zimbabwe	ZWE						

Figure A1. Cyclical properties of Government Consumption Expenditure by Region and Country, 1970-2014

Sub-Saharan Africa

Latin America
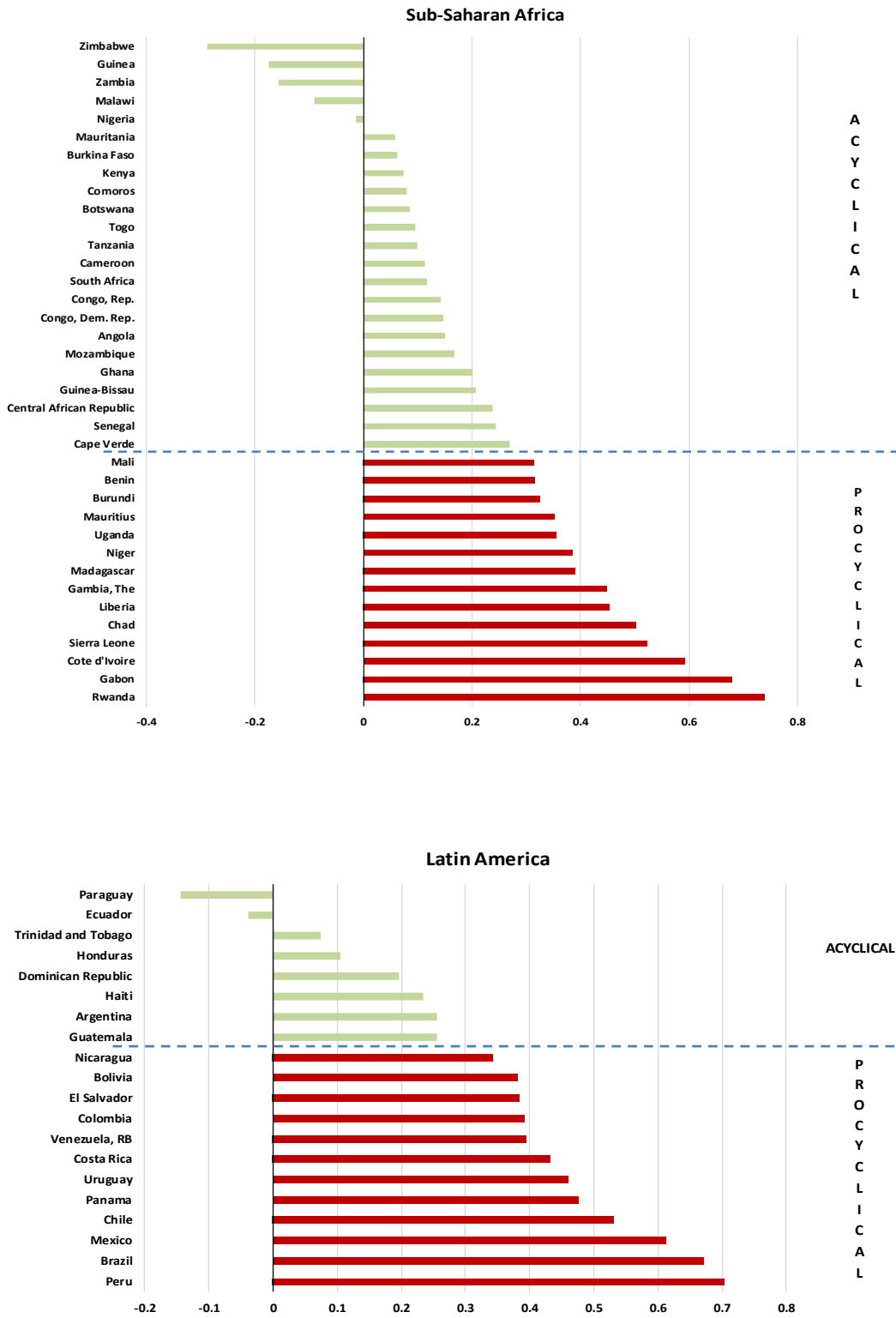
Developing Asia
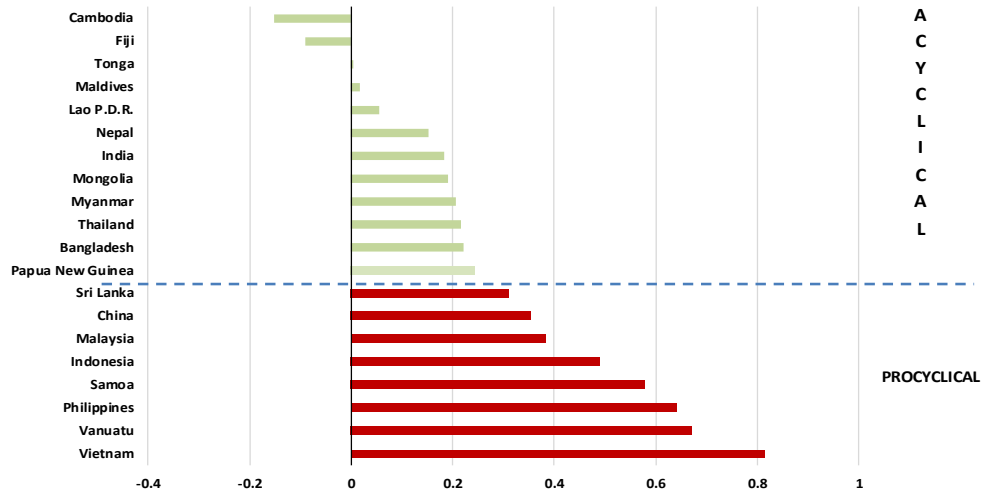
Industrial Countries
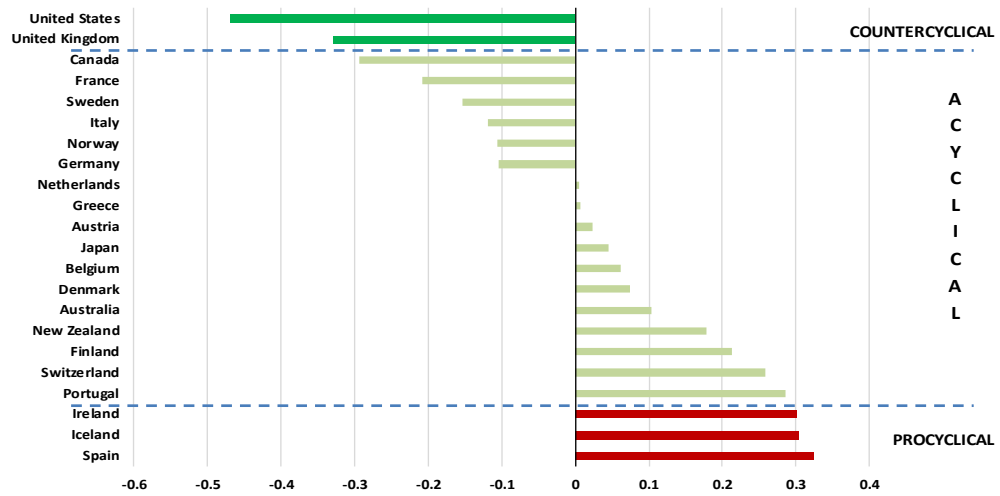
Table A2. Countries included as Resource-Rich in each classification technique

		Based on the Rents from Natural Resources (exlcuding forest) over GDP		Based on the Net-Exports of Commodities/Total Exports > 25%
		Threshold 10%	*Threshold 10% (including BWA & NER throughout the sample period)*	
Sub-Saharan Africa	1	Angola	Angola	Angola
	2	Cameroon	Botswana	Benin
	3	Congo, Dem. Rep.	Cameroon	Botswana
	4	Congo, Rep.	Congo, Dem. Rep.	Central African Republic
	5	Gabon	Congo, Rep.	Cote d'Ivoire
	6	Liberia	Gabon	Cameroon
	7	Mauritania	Liberia	Congo, Dem. Rep.
	8	Nigeria	Mauritania	Congo, Rep.
	9	Chad	Niger	Gabon
	10	Zambia	Nigeria	Ghana
	11		Chad	Guinea
	12		Zambia	Liberia
	13			Mali
	14			Mauritania
	15			Malawi
	16			Nigeria
	17			Chad
	18			Zambia
	19			Zimbabwe

Table A3. Countries that exceed each threshold in Table 5

		(Net ODA /GNI) > Threshold		
		THRESHOLD = 8% (Average of Developing Countries)	THRESHOLD = 10% (around the Median of SSA)	THRESHOLD = 13% (Top Tercile of SSA)
Sub-Saharan Africa	1	Benin	Benin	Botswana
	2	Botswana	Botswana	Burkina Faso
	3	Burkina Faso	Burkina Faso	Burundi
	4	Burundi	Burundi	Cape Verde
	5	Cape Verde	Cape Verde	Central African Republic
	6	Central African Republic	Central African Republic	Chad
	7	Chad	Chad	Comoros
	8	Comoros	Comoros	Congo, Dem. Rep.
	9	Congo, Dem. Rep.	Congo, Dem. Rep.	Gambia, The
	10	Congo, Rep.	Congo, Rep.	Guinea-Bissau
	11	Cote d'Ivoire	Gambia, The	Liberia
	12	Gambia, The	Guinea	Madagascar
	13	Ghana	Guinea-Bissau	Malawi
	14	Guinea	Liberia	Mali
	15	Guinea-Bissau	Madagascar	Mauritania
	16	Kenya	Malawi	Mozambique
	17	Liberia	Mali	Niger
	18	Madagascar	Mauritania	Rwanda
	19	Malawi	Mozambique	Sierra Leone
	20	Mali	Niger	Tanzania
	21	Mauritania	Rwanda	Uganda
	22	Mozambique	Senegal	Zambia
	23	Niger	Sierra Leone	
	24	Rwanda	Tanzania	
	25	Senegal	Togo	
	26	Sierra Leone	Uganda	
	27	Tanzania	Zambia	
	28	Togo		
	29	Uganda		
	30	Zambia		