ARTICLE IN PRESS

Economic Modelling xxx (2018) 1–11

Contents lists available at ScienceDirect

Economic Modelling

journal homepage: www.journals.elsevier.com/economic-modelling

Substitution between private and government consumption in African economies☆

Taufiq Carnegie Dawood [a], John Nana Francois [b,*]

[a] Economics and Business Department, Syiah Kuala University, Darussalam, Banda Aceh 23111, Indonesia
[b] College of Business, West Texas A&M University, 2501 4th Avenue, Canyon, TX 79015, United States

ARTICLE INFO

JEL classification:
C22
C23
E62
F35
H5
O55

Keywords:
Africa
Fiscal policy
Fungibility
Government consumption
Elasticity of substitution
Panel cointegration

ABSTRACT

In a context of elevated public debt and slower global growth, many countries in Africa are facing the prospect of sustained declines in public consumption. The macroeconomic impact of such adjustments will depend importantly on whether a decline in government consumption increases or decreases the marginal utility of private consumption. Employing a cointegration-panel approach, we estimate the intratemporal elasticity of substitution between private and government consumption in 24 African countries. Our estimates suggest that for plausible values of the relevant intertemporal elasticity, private and public consumption are Edgeworth substitutes in private utility. Countries facing fiscal consolidation can therefore expect some degree of demand-side offset to reductions in public consumption, and some resulting moderation in the impact of austerity on real GDP. In the presence of fungibility, our results also imply a labor-supply offset to declines in foreign aid for public investment. Country-level analysis suggests that these impacts of declines in public consumption may be heterogeneous across countries.

1. Introduction

The active use of countercyclical fiscal policy over the past decade has stimulated renewed interest in the impact of changes in public spending on aggregate economic activity (Jha et al., 2014). This impact may soon acquire urgency in a number of African countries, where a combination of countercyclical policies and development ambitions has led to an erosion of the fiscal space these countries enjoyed at the outset of the global financial crisis (World Bank, 2017). In the context of elevated public debts, a period of higher global interest rates and continued weakness in commodity prices and global growth would likely require sustained declines in public consumption.

An extensive literature predicts that increases in government consumption raise output in the short run. Both the short- and long-run impacts, however, are mediated by the response of private consumption to changes in government consumption. The size and direction of this response remain a source of debate in both the empirical and theoretical literature (Leeper et al., 2017). At the core of this issue is whether public and private consumption are Edgeworth substitutes, in which case reductions in public consumption increase the marginal utility of private consumption *ceteris paribus*, or Edgeworth complements. In the substitutes case, a decline in public consumption generates at least a partial offset in private consumption, which may be accompanied by an increase in labor supply. These responses moderate the aggregate impact on output, both in the short run and over time. In the complements case, private-sector responses exacerbate the impact on output of the decline in public consumption (Ganelli and Tervala, 2009).

This paper examines the empirical relationship between government and private consumption in African economies. Following the approach of Ogaki (1992), we estimate the intratemporal elasticity of substitution between government and private consumption in a panel of 24 countries. When combined with plausible values for the relevant intertem-

☆ We would like to thank the Editor Sushanta Mallick, and two anonymous referees, for comments that have significantly improved the paper. The paper has also benefited from presentations at the 2017 Western Economic Association Meeting in San Diego and the University of Kansas. We are grateful to Stephen O'Connell, Kwabena Gyimah-Brempong, Charles Sawyer, Michael Olabisi, Justin Kakeu, Shu Wu, Akwasi Nti-Addae, Eric Hoffmann, and Anne Barthel for suggestions, comments and useful conversations.

* Corresponding author.
E-mail addresses: taufiq.dawood@unsyiah.ac.id (T.C. Dawood), jfrancois@wtamu.edu (J.N. Francois).

https://doi.org/10.1016/j.econmod.2018.03.012
Received 18 May 2017; Received in revised form 13 March 2018; Accepted 13 March 2018
Available online XXX
0264-9993/© 2018 Elsevier B.V. All rights reserved.

Please cite this article in press as: Dawood, T.C., Francois, J.N., Substitution between private and government consumption in African economies, Economic Modelling (2018), https://doi.org/10.1016/j.econmod.2018.03.012

poral elasticity, our pooled results imply that government and private consumption are Edgeworth substitutes in African countries. Countries facing fiscal consolidation can therefore expect some degree of demand-side offset to reductions in public consumption, and some resulting moderation in the impact of austerity on real GDP.

Foreign aid finances a substantial share of government expenditures in African countries, leaving a number of countries in our sample also vulnerable to declines in aid-financed public spending. In an extension of the fungibility literature, we show that the intratemporal elasticities estimated in this paper play an important role in determining the growth impact not only of undifferentiated budget support but also of aid that is earmarked for domestic investment. In the presence of what Morrissey (2006) and others call general fungibility, changes in investment-earmarked aid affect the level of government consumption, altering the marginal utility of private consumption and activating the channels emphasized in this paper. In the Edgeworth substitutes case, fungibility that is high enough to undermine the growth impact of investment-earmarked aid will for the same reason substantially soften the growth impact of a decline in aid.

In what follows, Section 2 reviews the relevant fiscal policy and aid literature. Section 3 presents the econometric methodology, which is based on a cointegrating regression model interpreted as an equilibrium condition in an optimal fiscal policy setting. Section 4 presents and discusses the policy implication of the results, and Section 5 concludes.

2. Related literature

Two goods are Edgeworth substitutes (complements) in utility if their cross-partial derivative is negative (positive), so that *ceteris paribus*, an increase in consumption of the first good reduces (increases) the marginal utility of the second (Amano and Wirjanto, 1998; Karras, 1994). A well-known implication of Edgeworth complementarity is that changes in government consumption can alter the demand for private spending in a direction that offsets the conventional wealth effect of the fiscal policy (Ercolani and e Azevedo, 2014). Intuitively, when private and government consumption are complements (substitutes), an increase in government consumption increases (decreases) the marginal utility of private consumption, which then mitigates (reinforces) the negative wealth effect of higher public spending. If complementarity is sufficiently strong, the marginal utility effect can fully outweigh the negative wealth effect, leading to an increase in private consumption (Bouakez and Rebei, 2007). In contrast, substitutability is a sufficient condition for increases in public consumption to crowd out private consumption.

While there is an extensive empirical literature on the relationship between private and government consumption, that literature has focused predominantly on non-African countries (Amano and Wirjanto, 1997, 1998; Aschauer, 1985; Auteri and Costantini, 2010; Brown and Wells, 2008; Chiu, 2001; Ho, 2001; Karras, 1994; Kormendi, 1983; Kwan, 2009; Okubo, 2003). These studies suggest that patterns of substitutability vary across countries and regions and may be correlated with structural features that include development levels and the composition of public spending (Karras, 1994). The central aim of this paper is to extend the literature to African countries by using time-series methods to uncover the intratemporal elasticity of substitution between private and public consumption in a sample of 24 African countries during the period 1981–2013. To our knowledge, this paper is the first to present systematic evidence on this key substitution elasticity in African countries.

Our approach follows Amano and Wirjanto (1997, 1998) and more closely Kwan (2009) and Brown and Wells (2008), who employ the cointegration-based strategy of Ogaki (1992) and Ogaki and Park (1997) to estimate the elasticity of substitution in private utility between government and private consumption. This strategy uses the long-run restriction imposed by the intraperiod first-order condition that characterizes the optimal choice of private and government consumption from the perspective of a social planner. Taken together with plausible values of intertemporal elasticity of substitution, our pooled estimates show that private and public consumption are Edgeworth substitutes, implying that increases in public consumption reduce the marginal utility of private consumption.

The pattern of Edgeworth substitutability or complementarity is an issue of potential urgency in the context of African countries. While aggregate growth in the continent is projected to rise in the near term, with projected growth rates of 3.2 and 3.5 percent in 2018 and 2019 (IMF, 2017), public debt as a share of GDP has been increasing. In close to half of the economies in the sub-Saharan African region, public debt as a ratio to GDP stands above 50 percent (IMF, 2017). As global interest rates rise and particularly if global outcomes falter, these countries may face a period of fiscal consolidation in order to ensure macroeconomic stability and sustained growth. In the past, fiscal consolidations in developing economies have generally been associated with negative effects on output.[1] A number of studies find, moreover, that adjustments accomplished through reductions in government investment have larger contractionary effects than adjustments based on cuts in government consumption (Arizala et al., 2017; Mallick, 2006). These observations suggest that fiscal consolidations have to be well designed to avoid highly adverse impacts on output. Given the substantial reliance on publicly-provided goods and services in African countries, it is important to investigate the relationship between private and government consumption and how a fiscal consolidation involving cuts in government consumption will impact aggregate output. As developed further below, our pooled estimates suggest that in Africa, substitutability patterns will typically moderate rather than exacerbate the contractionary impact of cuts in government consumption.

A distinctive feature of African economies is their dependence on foreign aid to finance public expenditures. The role of intratemporal substitutability in mediating the economy-wide impact of changes in aid provides a final and novel motivation for our analysis. McGillivray and Morrissey (2001) note that most of the aid that is intended to expand productive capacity and improve long-term growth in Africa goes to the public sector, where it is managed by the recipient government. The growth impact of such aid depends among other things on the degree of general fungibility, defined as the share of such aid that ends up financing an increase in government consumption rather than the intended increase in government investment. The growth impact of investment-earmarked aid, in the McGillivray and Morrissey analysis, is a declining function of the degree of general fungibility. Morrissey (2015) argues, in contrast, that government consumption typically complements public investment and enhances its productivity, so that concerns about general fungibility are misplaced.[2] Neither study, however, examines how intratemporal substitutability interacts with general fungibility to determine the effectiveness of investment-earmarked aid in raising growth. In an analytical appendix, we develop and numerically simulate a simple theoretical model to illustrate the implications of our empirical findings for the aggregate impact of aid in African countries.

3. Empirical evidence

In this section we investigate the intratemporal elasticity of substitution between private and public consumption by estimating a cointegrating regression of the form

$$\ln(C_t/G_t) = \beta_0 + \beta_1 \ln(P_t^g/P_t^c) + v_t, \tag{1}$$

[1] See, IMF (2017) for further discussion. In the context of developing Asia, it was observed that in the aftermath of the Asian financial crisis, IMF-supported fiscal austerity measures contributed to output collapse in the first year of the stabilization programmes (Mallick, 2006).

[2] Other authors have argued that fungibility does not undermine aid effectiveness in an environment of sound policies, appropriate allocations and effective services (e.g., Wagstaff, 2011; McGillivray and Morrissey, 2004; Morrissey, 2006; Hauck et al., 2005; Pettersson, 2007).

Download English Version:

https://daneshyari.com/en/article/7346749

Download Persian Version:

https://daneshyari.com/article/7346749

Daneshyari.com