



# Redistributive fiscal policies and business cycles in emerging economies<sup>☆</sup>

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## ABSTRACT

Government expenditures are pro-cyclical in emerging markets and counter-cyclical in developed economies. We show this pattern is most pronounced in social transfers which are also a large component of total government expenditures (28–39%). The discrepancy in the cyclical spending on goods and services is smaller, by contrast, and the category accounts for just 11–16% of total government expenditures. In a small open economy model, we find disparate social transfer policies can account for about half of the larger cyclical volatility of consumption relative to output in emerging economies compared to developed. We analyze how differences in tax policy and the nature of underlying inequality amplify or mitigate this result.

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## 1. Introduction

It has been established that total government expenditures tend to be procyclical in emerging economies and either acyclical or countercyclical in developed economies.<sup>1</sup> In this paper, we document that this contrast is particularly stark in a single, large component of government expenditure – social transfers. We then evaluate the implication of our finding by embedding a simple theory of social transfers in a workhorse open economy business cycle model. We show disparate social transfer policies play a significant quantitative role in generating the business cycle anomalies of emerging small open economies, particularly the excess volatility of consumption.<sup>2</sup> The point we make is as follows. There is a very large, *observable* difference in the size and cyclical behavior of

social benefits between developed and emerging economies. Once we account for this difference, a typical emerging economy (with the same stochastic processes for productivity and interest rates as before) may no longer exhibit the puzzling behavior documented in previous studies.<sup>3</sup>

The first half of our paper presents results from our exploration of the cyclical characteristics of disaggregated fiscal data in a set of small open economies.<sup>4</sup> We provide evidence that social transfers are a significant contributor to the variation of government expenditure over the business cycle. They account for an average of 36% of the cyclical component of expenditures within the countries in our sample. In comparison, this figure is 19% and 31%, respectively, for each goods and service expenditures and expenditures on employment. The cyclical pattern of social transfers follows a clear pattern across income groups. They are procyclical in emerging economies and countercyclical in developed economies (correlation with GDP is 0.19 and –0.35, respectively). Furthermore, social transfers are the largest overall expenditure category accounting for 47% of the variance in average total government spending as a share of GDP across our sample. Again, spending levels differ systematically

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<sup>1</sup> An incomplete list of papers establishing this fact include Kaminsky et al. (2005), Ilzetzki and Végh (2008), and Gavin and Perotti (1997). We replicate a comparable result in our study.

<sup>2</sup> Key works in this field include Mendoza (1995), Neumeyer and Perri (2005), Uribe and Yue (2006), and Aguiar and Gopinath (2007).

<sup>3</sup> In Michaud and Rothert (2016) we provide estimates for a panel of countries showing how much the role of unobservable shocks is reduced once the package of observable fiscal policy is accounted for.

<sup>4</sup> We focus our analysis on components of government expenditure. Vegh and Vuletin (2015) provide a complete and complementary analysis of the components of government revenues.

across income groups: developed economies spend an average of 18% of GDP on social transfers annually (39% of total government spending), whereas emerging economies spend just 8% (28% of total government spending). The large differences in transfers trounce the minor differences in other categories such as goods expenses, fixed capital, and employee compensation. Therefore, understanding the impact of transfers is paramount for understanding the impact of fiscal policy on business cycle outcomes.

The contrasting fiscal policy of emerging markets has been an important area of study because fiscal procyclicality tends to amplify underlying forces driving business cycles. In the second half of our paper, we consider how our empirical finding on the dominance of social transfers in accounting for fiscal procyclicality of emerging markets affects our understanding of how those countries experience business cycles. We do so by modifying a prototypical open economy business cycle model to include a role for government expenditures explicitly modeled as social transfers. The base of our model is the workhorse small open economy model of [Mendoza \(1991\)](#) merged with an endogenous country spread on debt following the framework of [Neumeyer and Perri \(2005\)](#). To the base model, we add heterogeneous households in order to provide a meaningful role for social transfers. Households differ in both their labor productivity and access to financial markets. The government provides social transfers to poor households according to an exogenous process replicating the level, standard deviation, and correlation with GDP of social transfers observed in the data. Social transfers are supported by taxes, the composition of which are also calibrated to the data.<sup>5</sup>

We find that differences in fiscal policy go a long way in accounting for one aspect of the contrasting business cycle characteristics of emerging and developed economies — excess volatility of consumption. We estimate the structural fundamentals of the model for a prototype emerging economy to replicate key targets while imposing a social transfer policy calibrated to the average across emerging economies. Among these targets is the relative volatility of consumption (standard deviation of consumption relative to the standard deviation of output) equalling 1.25. We then perform an experiment in which we change the social transfer policies to that of the average developed economy. We find this lowers the relative volatility of consumption, to 1.06, which is equivalent to closing about half of the gap in that statistic between developed and emerging economies. About 40% of that decline is driven by the change in the cyclicity of transfers alone, 40% by the change in the size of social transfers, while the remaining 20% results from the amplification that the larger size of social transfers has on the impact of the cyclicity.<sup>6</sup>

We consider our results as a plausible upper-bound on the impact of disparate social transfer policies on the excess volatility of consumption within a standard framework used to study emerging markets business cycles. This claim is a consequence of our choice of how to model the rich and poor households between which social transfers redistribute resources. We assume rich agents own the capital stock and poor agents are hand-to-mouth consumers with no means of saving. This imposes that all transfers to poor households are consumed within the period, while maintaining the standard inter-temporal savings problem for the rich. As a result, redistribution towards poor households mechanically drives the relative volatility of consumption to income towards one. The second dimension of inequality that we consider is wage-income inequality. We assume

rich agents have higher efficiency units of labor than poor agents resulting in a higher wage per unit of time worked. This amplifies the effect of redistribution through social transfers on cyclical properties of consumption. While our definition of a poor household is designed to elicit an extreme result to our experiment, we do quantitatively discipline the share of poor agents in the economy and their share of labor income using country-level data. Our objective is to convince a reader that a disaggregated approach to modeling government expenditures, particularly redistributive policies, is a promising approach towards understanding quantitative properties of business cycles over the course of development. It is in this way we use the theoretical model to provide a ball-park figure of the implications of our empirical findings.

### 1.1. Literature

Ours is not the first paper to study disparate fiscal policy in the context of emerging markets business cycles. [Gavin and Perotti \(1997\)](#) first document the pattern of procyclical fiscal policy in Latin America. Their work is followed by broader studies on expenditures ([Kaminsky et al., 2005](#)) and taxes ([Ilzetzki and Végh, 2008](#)) reinforcing their findings. Two complementary theoretical literatures are related to these empirical findings: one seeking to understand the implication of fiscal policy in open economy business cycles and one seeking to understand the fundamental cause of why these fiscal policies differ. Our paper belongs to the first literature.<sup>7</sup> The study of fiscal policy in open economy models was included in early works. [Backus et al. \(1992\)](#) show that an increase in government spending causes a real exchange rate depreciation in the open economy neoclassical model. This response has been shown to be counterfactual. For example, [Ravn et al. \(2012\)](#) document that increases in government expenditure on goods deteriorates the trade balance and depreciates the real exchange rate. They provide a theory of deep habits where an increase in government spending leads firms to lower domestic markups relative to foreign providing a real exchange rate depreciation matching the data.

Our contribution to the quantitative theory literature is to explore how the composition of government expenditures, not just the level, may reconcile outcomes in the neoclassical open economy model with empirical observations. As such we depart from the standard modeling assumptions of government expenditures as a sunk expense, or equivalently as separable in the utility function of households. We also add agents who are heterogenous in wealth and income into the analysis. These departures relate our paper to a third, emerging literature on the calculation of government spending multipliers in models with heterogenous agents. Most related is [Brinca et al. \(2014\)](#). They document a positive correlation between fiscal multipliers and wealth inequality. They show a heterogenous agent neoclassical model of incomplete markets can replicate this fact when government spending is modeled as social security and appropriately calibrated. [Ferriere and Navarro \(2014\)](#) study the impact of tax progressivity on multipliers, but model expenditures as “thrown into the ocean”. Our work is also distinct in considering an open economy setting.

Our empirical analysis of the IMF's Government Finance Survey is an independent contribution apart from our quantitative theory exercises. Changes in the survey overtime and differences in reporting conventions across countries require significant cleaning of the dataset to provide consistent measures of government expenditure at the categorical level. We devise a detailed methodology to achieve this. We then merge the dataset with key variables from other

<sup>5</sup> Sovereign default is obviously an important issue for emerging markets. However, the question we ask in this paper does not require the explicit modeling of default. Instead, we can consider a partial equilibrium interest rate on bonds that depends on the current debt to GDP ratio. This captures the relevant difference in constraints to tax smoothing in emerging and developed countries.

<sup>6</sup> All files necessary to replicate our results are available at the following address: [https://github.com/ammichau/AMJR\\_Fiscal1](https://github.com/ammichau/AMJR_Fiscal1).

<sup>7</sup> The second literature has provided theories related to limited access to international credit markets ([Cuadra et al., 2010](#); [Riascos and Vegh, 2003](#)) and political economy motives ([Talvi and Vegh, 2005](#); [Alesina et al., 2008](#)).

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