



# Trade openness and bigger governments: The role of country size revisited



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## ABSTRACT

This paper revisits the question of why more open countries tend to have bigger governments. We replicate successfully the main results of Ram (2009), who rejects the role of country size as an omitted variable. However, several extensions advise against a hasty conclusion: The results differ substantially depending on the data source used, the timeframe considered, the countries selected, and the way variables are measured. Specifically, we employ newer versions of the Penn World Table (PWT 7.1 and 8.0), allowing us to both extend the number of observations and the timeframe. We find evidence for the claim that smaller countries do indeed have bigger governments, especially when using the PWT 8.0 data, and Ram (2009) findings might be driven by the specific dataset used (PWT 6.1) and the countries included in that sample. Finally, we also conduct quantile regression analyses to pin down at which point of the distribution the suggested relationships come out.

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## 1. Introduction

Over the past 50 years, the world has experienced a prodigious rise in international trade relationships. Trade openness of the average country, measured as exports plus imports as a share of GDP, has increased from 54.4% in 1960 to 87.3% in 2010.<sup>1</sup> As globalization has progressed, so has the need to understand the consequences from trade. In the public economics literature, Cameron (1978) is among the first to note that trade openness in OECD countries is positively related to subsequent government size. Since the size of governments may carry macroeconomic consequences, for example impeding economic growth (see Barro and Lee, 1994; Barro, 2001; Afonso and Furceri, 2010; Bergh and Henrekson, 2011), it is important to understand which factors shape the extent of the public sector.

Twenty years later, Rodrik (1998) suggests a potential causality between trade openness and government size. In his explanation, trade openness is associated with increased uncertainty, which in turn leads citizens to request stronger public safety nets. Thus, a higher degree of openness should lead to bigger governments in per capita terms. Following Rodrik (1998), numerous papers challenge this “compensation hypothesis” (e.g. Liberati, 2007; Benarroch and Pandey, 2008; Dreher et al., 2008). However, there exist

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<sup>1</sup> Numbers derived from the Penn World Table version 7.1, comparing 112 countries, which show data for trade openness in 1960 and 2010.

few alternative theories on the observed positive link between trade openness and the size of government. One of the strongest explanations is developed by [Alesina and Wacziarg \(1998\)](#) (AW hereafter), who argue that the size of a country influences both variables: Smaller countries tend to have bigger governments in per capita terms (less economies of scale), but are also more open to international trade, naturally owed to physical limitations in their domestic economies. Both [Rodrik \(1998\)](#) and AW find empirical evidence lending support to their theories.

A decade later, [Ram \(2009\)](#) revisits both competing theories in a panel data framework using a more expansive and updated dataset than found in either [Rodrik \(1998\)](#) or AW. Investigating these two competing theories on government size with panel data hinges critically in the presence of unobserved country specific heterogeneity, which is likely to be present. Using Penn World Table data version 6.1 (PWT 6.1) from 1960 to 2000, [Ram's \(2009\)](#) results support the openness to trade theory, whereas [Alesina and Wacziarg's \(1998\)](#) theory is not confirmed by the data when controlling for unobserved country and time specific heterogeneity.

This paper replicates the main results of [Ram \(2009\)](#) and extends his empirical analysis in several dimensions. We consider data source and timeframe extensions, as well as the set of countries selected, the form of measurement for the key variables, and alternative features of the conditional distribution aside from the conditional mean (quantiles). The use of alternative data sources represents an attractive avenue to assess the robustness of [Ram's \(2009\)](#) insights given that different updates of the PWT have been criticized (see [Breton, 2012](#)) and provide more data in both the country and time dimensions. Checking the robustness of empirical results across various updates of the PWT within the cross-country growth literature has unveiled serious concerns regarding many key insights from older versions ([Johnson et al., 2013](#)), drawing into question the robustness of standard results. To date, these analyses center around the GDP per capita estimates and the resulting growth literature, for example by [Atherton et al. \(2011\)](#) and [Ciccone and Jarocinski \(2010\)](#).<sup>2</sup>

The results stemming from our extensions of [Ram \(2009\)](#) provide another avenue beyond cross-country growth for which the robustness of key empirical results is not immune to alternative updates of the Penn World Table. Finally, quantile analyses are able to trace out a better understanding as to where exactly the suggested relationships are present. Taken together, our extensions present evidence that the main findings of [Ram \(2009\)](#) are not as clear cut as one might hope. Our findings demonstrate that changes in the timeframe, dataset, and sample countries, along with focusing on conditional quantiles (as opposed to the conditional mean), demonstratively provide less clear support for [Rodrik \(1998\)](#) and [Ram \(2009\)](#). This implies that there are still theoretical links which can be exploited to connect the works of AW and [Rodrik \(1998\)](#). In general, the hypothesis put forth by AW, namely that country size is driving the observed positive link between trade openness and government size, cannot be dismissed.

The following section outlines the methodology and data of our analysis. [Section 3](#) presents our findings and [Section 4](#) concludes with a brief summary of our results.

## 2. Empirical strategy

### 2.1. Methodology

In order to estimate the effects of country size and trade openness on government size, [Ram \(2009\)](#) estimates three main equations of interest for country  $i$  at year  $t$ :

$$LGOV_{it} = a_0 + a_1 LSIZE_{it} + a_2 LRY_{it} + \alpha_{1i} + \lambda_{1t} + u_{1it}, \quad (1)$$

$$LOPEN_{it} = b_0 + b_1 LSIZE_{it} + b_2 LRY_{it} + \alpha_{2i} + \lambda_{2t} + u_{2it}, \quad (2)$$

and

$$LGOV_{it} = d_0 + d_1 LOPEN_{it} + d_2 LRY_{it} + \alpha_{3i} + \lambda_{3t} + u_{3it}, \quad (3)$$

where  $LGOV$  and  $LSIZE$  measure the size of government and the size of the country.  $LOPEN$  represents trade openness of the country and  $LRY$  measures the wealth of the country. The natural logarithm is applied to all variables for comparability of results, and is denoted by an  $L$  in front of each variable. Country and time specific heterogeneity are captured by  $\alpha_{ji}$  and  $\lambda_{jt}$ , while  $u_{jit}$  represents the idiosyncratic error term for  $j = 1, 2, 3$ .

Eqs. (1) and (2) represent the empirical counterpart to the theoretical insights of AW, whereas Eq. (3) is the empirical model of [Rodrik \(1998\)](#). AW pointed out that one may witness a positive coefficient in Eq. (3), but this may not necessarily reflect the causal impact of trade openness on government size. Specifically, smaller countries both tend to select bigger governments in relative terms and be more open to international trade relationships. The first observation relies on a basic economy of scale argument, since a variety of public institutions and services (e.g., national security) require substantial setup costs, but the cost per capita only increases marginally with a bigger population. The second relationship stems from the observation that smaller countries naturally exhibit smaller domestic markets and international trade relationships alleviate this shortcoming. Hence, AW's theory was one of an omitted variable – namely country size – that, when accounted for, explained the finding in [Rodrik \(1998\)](#).

<sup>2</sup> The development of PWT 8.0 focuses on addressing these issues with a strong emphasis on the calculation of PPPs when deriving GDP per capita. See [Feenstra et al. \(2009\)](#) and the PWT 8.0 user guide ([Feenstra et al., 2011](#)).

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