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The relationship between trade openness and government size: Does disaggregating government expenditure matter?

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ABSTRACT

This paper is the first to examine the causal relationship between trade openness and government size using both aggregate and disaggregated government expenditure data, including data on social security. Our results indicate that examining the relationship separately for functional categories of government expenditures and based on differences in incomes across countries provide important details on the relationship between the two variables not found elsewhere in the literature. Our causality tests provide little or no support for a causal relationship between openness and aggregate or disaggregated government expenditure. Similar results are obtained when our sample is split into low income versus high income countries. The only evidence of a robust, statistically significant, positive causal relationship is found between openness and education expenditures in low income countries. In no case is there a positive causal relationship between social security and openness. This leads us to conclude that there is no evidence to support the relationship suggested by Rodrik (1998).

1. Introduction

In recent years there has been considerable interest concerning the effects of greater openness on government size. The idea that openness may be positively related to government size was initially proposed by Cameron (1978) and later developed as the 'compensation hypothesis' by Ruggie (1982).[2] It was however Rodrik (1998) who first conducted a detailed empirical study of the issue and then combined the empirical analysis with a simple general equilibrium model that provides a plausible explanation for the direct relationship between openness and government size. According to Rodrik, the most likely reason for this association is that countries exposed to a greater amount of "external risk" demand larger governments as a form of social insurance. Based on this explanation, Rodrik (1998) makes a number of hypotheses including the notion that causality runs from "exposure to external risk to government spending" (p. 998).

In the current paper, we conduct an empirical analysis using both aggregate government expenditure data and eight categories of disaggregated government expenditure data, including social security, to examine whether there is evidence of a causal relationship between trade openness and government size.[3] Further, we extend the analysis to consider whether the relationship between openness and government size differs across low income versus high income countries. While a number

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[2] A competing view is the 'efficiency hypothesis' which proposes that increases in openness lead governments to reduce spending on welfare programs through pressures to reduce taxes (Garrett, 2001). Gemmell et al. (2008) provide a comprehensive review of the evidence for and against this hypothesis. In the current paper we focus on the direct effect of openness on government spending and investigate the 'compensation hypothesis'.

[3] It is important to note that causality tests "only indicate that changes in one variable precede changes in another variable of interest (with a positive or negative sign) rather than establishing causation in the traditional sense of the word" (p. 136, Casu and Girardone, 2009).

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of the hypotheses made by Rodrik (1998) have been examined throughout the literature, little work has been done examining the causal relationship between openness and government expenditure or distinguishing whether this relationship differs between low and high income countries.

The current paper builds on an initial study by Benarroch and Pandey (2008) that employs panel data and aggregate government consumption to test for the causal relationship between openness and government size. They find no support for the positive causal relationship between these two variables. In using government consumption data however, Benarroch and Pandey (2008) cannot consider the impact of openness on transfer payments since such expenditures are not included in government consumption. Further, as shown in the literature, the use of aggregate data can mask the underlying association between openness and specific components of government size (Shelton, 2007; Dreher et al., 2008). Though a causal relationship between aggregate government expenditure and trade openness may not exist, a formal test of Rodrik's hypothesis should address the issue of whether greater trade openness has a causal relationship with specific components of government expenditure. For instance, if as argued by Rodrik (1998), trade openness leads to greater volatility, then greater openness should have a positive causal relationship with social security spending thereby protecting and insuring workers against such shocks while not necessarily increasing overall spending.

Our paper adds to a growing literature that uses both aggregate and disaggregated government spending data to examine whether the results in Rodrik (1998) are robust and whether there is validity in how he rationalizes his findings. Much of this literature finds only weak evidence in support of Rodrik's findings that "there is a positive and robust partial correlation between openness, as measured by the share of trade in GDP, and the scope of government, as measured by the share of government in GDP" (Rodrik, 1998, p. 998). For example, Alesina and Wacziarg (1998) conclude that country size is the key and that small countries tend to be more open. While Alesina and Wacziarg (1998) cast doubt on Rodrik (1998), they do not completely rule out his findings since their regressions show that if one considers government transfers there is "some evidence of a direct relationship between openness and the size of government transfers" (p. 306). Ram (2009) examines the sensitivity of Alesina and Wacziarg's results with regards to the relationship between country size and both openness and government size, and concludes that after controlling for country-specific fixed effects and time effects the results do not hold.

Likewise, studies that primarily use panel data for high income countries have found little evidence to support Rodrik (1998). Specifically, Islam (2004) and Molana et al. (2004) employ OECD data and conclude that size of government has not changed to moderate against greater external risk. Cavallo (2007) finds that openness leads to less volatility, whereas Liberati (2007) employs mostly European data and rejects the Rodrik's hypothesis in favor of a hypothesis that capital openness is negatively related to government expenditures across 20 OECD countries. Further, Garen and Trask (2005), using non-budgetary measures of government size, find that the "scope of government is much larger in less open economies" (p. 534). Their results are however, explained by differences in per capita GDP across countries rather than the reasons given by Rodrik (1998).

A few recent studies analyze the relationship between disaggregated government expenditure and openness. In addition to Alesina and Wacziarg (1998) who employ disaggregated data, Gemmell et al. (2008) use a dynamic model of 25 OECD countries and find that increases in foreign direct investment shifts government expenditure towards social spending. Conversely, Shelton (2007) concludes that openness is not associated with an increase in any of the categories of government expenditure that insure for risk in a large dataset that includes low income countries, while Dreher et al. (2008) conclude that none of the expenditure categories they consider are affected by globalization. None of the papers discussed above however, consider whether there is a causal relationship between openness and disaggregated government expenditures.

The current paper thus contributes to the literature on the relationship between openness and government size in a number of important ways. (1) To our knowledge we are the first to conduct a causality test using aggregate and disaggregated data on government expenditure.[4] Our goal is to examine whether increases in trade openness *cause* government size to expand using a dynamic panel data estimation model. This estimation model allows for an examination of the long-run relationships between openness and government size and Granger causality tests not found elsewhere in the literature. Relative to the fixed effects approach used in most other studies, the estimation of dynamic models control for endogeneity issues when examining whether greater openness in the previous period causes government size to increase in the current period.[5] (2) In addition to the above mentioned tests, we also consider whether there is evidence of a causal relationship between openness and various components of government expenditure separately for low income and high income countries. We believe this is important given that high income countries have well established transfer payment programs relative to low income countries implying that it should be easier for this group of countries to provide greater welfare benefits to offset the negative impact associated with increases in openness (Rodrik, 1998; Shelton, 2007).[6] Finally, (3) we are the first to test whether the causal relationship between government size and openness is robust to a sub-sample restricted only to democratic countries and to an alternate definition of openness that accounts for financial openness.[7,8]

[4] Note that we also estimate regressions similar to Alesina and Wacziarg (1998), Rodrik (1998), Shelton (2007) and others to provide baseline results that are comparable to the rest of the literature.

[5] A number of other advantages of employing the dynamic approach are discussed later in the paper. See also Rodman (2006) for further details.

[6] We use the World Bank definition to classify countries as low and high income. For further details see Footnote 10.

[7] Recent studies suggest that democratic countries, due to pressures from interest groups and/or electorates, are more inclined to use government spending in response to increased volatility from greater trade openness (Avelino et al., 2005; Adserá and Boix, 2002; Rudra, 2002). We thus test to insure that our results are robust to a division of countries based on the degree of democratic rule within the country.

[8] We use the data from the Polity IV Project (url: http://www.systemicpeace.org/inscr/inscr.htm) and define democratic countries as those with a *polity2* score greater than zero. Further details are provided in Section 2.