

**STATE CAPACITY AND THE QUALITY OF POLICIES.  
REVISITING THE RELATIONSHIP BETWEEN OPENNESS AND  
THE SIZE OF GOVERNMENT<sup>∗</sup>**

**ONLINE APPENDIX**

María Franco Chuaire (Inter-American Development Bank)  
Carlos Scartascini (Inter-American Development Bank)  
Mariano Tommasi (Universidad de San Andrés)

This online appendix complements the evidence presented in the paper. It includes the following material:

1. Replicating Rodrik's results
2. Running Regressions in the “small” sample
3. Panel data analysis – Random effects regressions
4. Instrumental variables – Expanded set of instruments

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## 1. Replicating Rodrik's results

**Table 1. Rodrik's Results and Replication**

VARIABLES	Log Government Consumption (% of GDP) 1985-89		Log Government Consumption (% of GDP) 1990-92	
	Rodrik (1998) (1)	Replication (2)	Rodrik (1998) (3)	Replication (4)
Log Openness (1975-84)	0.205*** (0.057)	0.370*** (0.053)		
Log Openness (1980-89)			0.223*** (0.064)	0.276*** (0.062)
log GDP per capita	0.105* (0.063)	0.109* (0.057)	-0.030 (0.084)	0.201*** (0.065)
log dependency ratio	0.630*** (0.193)	0.804*** (0.199)	0.642*** (0.241)	0.579*** (0.208)
log urbanization rate	-0.136* (0.075)	-0.048 (0.070)	-0.203** (0.093)	-0.093 (0.085)
OECD	-0.014 (0.122)	0.358*** (0.116)	-0.007 (0.144)	0.133 (0.124)
Sub-Saharan Africa	-0.239** (0.101)	-0.030 (0.095)	-0.107 (0.118)	-0.010 (0.107)
Latin America	-0.218** (0.094)	-0.203** (0.089)	-0.171 (0.113)	-0.368*** (0.096)
East Asia	-0.338** (0.130)	-0.118 (0.103)	-0.206 (0.140)	-0.181 (0.118)
Socialist	0.092 (0.100)	0.346* (0.196)	0.169 (0.130)	0.339 (0.267)
Constant	3.786*** (0.383)	-2.193* (1.135)	3.289*** (0.536)	-2.193* (1.135)
Observations	125	133	103	133
Adjusted R-squared	0.458	0.348	0.430	0.348

Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 2. Running Regressions in the “small” sample

As it has been discussed in the main text, we run the empirical analysis in two different samples, a “large” sample that includes those country for which data was available in the updated sources and a “small” sample that includes only those countries that are thought to belong to Rodrik's sample according to the data sources used in his work. While in the text we have concentrated on the results based on the first set of countries, here we present the results using the small sample.

In Column 2 of Table 2 we have included the interaction term between bureaucratic quality and openness to Rodrik's baseline regression presented in column 1. Figure 2 plots the marginal effects of interest which, similar to the results with the "large" sample, turns out to be positive and significant for countries with low state capacities but dissipates as these increase. Furthermore, once the three-way interaction term between openness, bureaucratic quality, and TOT volatility is included (Column 4), the effect remains. Figure 3 summarizes the marginal effect of openness for different values of bureaucratic quality when TOT volatility is set at its 50<sup>th</sup> percentile. Table 3 and Figure 4 show that our results remain in a panel setting even after including a full set of time and country fixed effects.

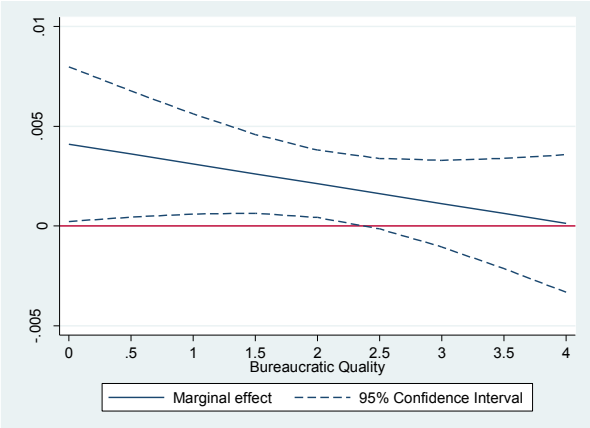
**Table 2. Accounting for Government Capabilities and Terms of Trade Volatility – Cross Section – Small Sample**

VARIABLES	Log Government Consumption (% of GDP) 2000-05			
	(1)	(2)	(3)	(4)
Openness (1990-99)	0.002** (0.001)	0.004** (0.002)	0.004 (0.003)	0.000 (0.006)
Bureaucratic Quality (1990-99)		0.099 (0.073)		0.008 (0.204)
Openness (1990-99) x Bureaucratic Quality (1990-99)		-0.001 (0.001)		0.004 (0.003)
ToT Volatility (1980-99)			0.391 (1.551)	-1.514 (2.658)
Openness (1990-99) x ToT Volatility (1980-99)			-0.028 (0.023)	0.051 (0.045)
Bureaucratic Quality (1990-99) x ToT Volatility (1980-99)				1.924 (1.805)
Openness (1990-99) x Bureaucratic Quality (1990-99) x ToT Volatility (1980-99)				-0.068** (0.031)
Observations	101	101	63	63
Adjusted R-squared	0.357	0.357	0.122	0.261

Note: Other controls not shown in the table: log GDP per capita (1990-99), log dependency ratio (1990-99), log urbanization rate (1990-99), and dummy variables for OECD, Sub-Saharan Africa, Latin America, East Asia, and Socialist countries. A constant term was included in all regressions.

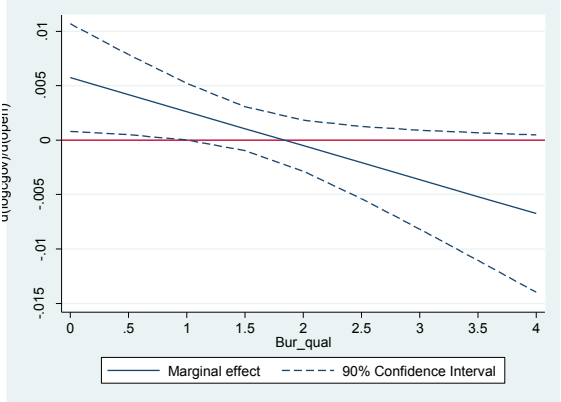
Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Figure 2. Marginal Effect of Trade Openness on Government Consumption along Bureaucratic Quality – Cross Section – Small Sample**



Note: The graph corresponds to the regression in column 2 of Table 1.

**Figure 3. Marginal Effect of Trade Openness on Government Consumption along Bureaucratic Quality – ToT Volatility at 50<sup>th</sup> Percentile – Small Sample**



Note : The graph corresponds to the regression in column 4 of Table 1.

**Table 3. Accounting for Government Capabilities and Terms of Trade Volatility – Panel Data – Small Sample**

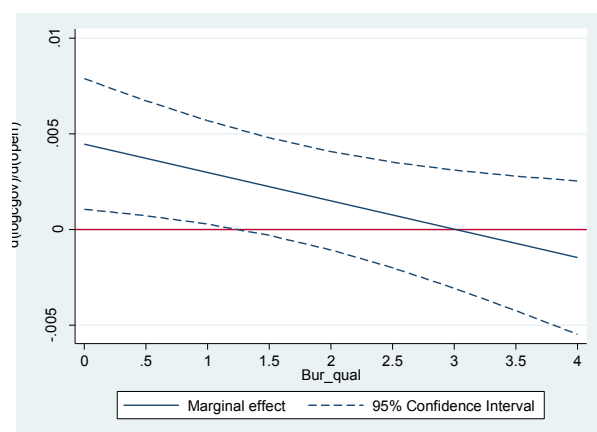
VARIABLES	Log Government Consumption (% of GDP)	
	(1)	(2)
Openness (t-1)	0.004** (0.002)	0.007*** (0.003)
ToT Volatility (t-1)		0.594 (0.704)
Openness (t-1) x ToT Volatility (t-1)		-0.022* (0.013)
Bureaucratic Quality (t-1)	0.107** (0.049)	0.162** (0.069)
Openness (t-1) x Bureaucratic Quality (t-1)	-0.001** (0.001)	-0.003*** (0.001)
Bureaucratic Quality (t-1) x ToT Volatility (t-1)		-0.604 (0.450)
Openness (t-1) x Bureaucratic Quality (t-1) x ToT Volatility (t-1)		0.012 (0.008)
Prob>F	0.000	0.000
Observations	236	236
Number of countries	64	64

Note: Regressions correspond to a Fixed Effects (within) model with time (period) dummies. Data are period averages for 1980-84, 1985-89, 1990-94, 1995-99, 2000-04 (except for the additional controls which belong to the beginning of each period).

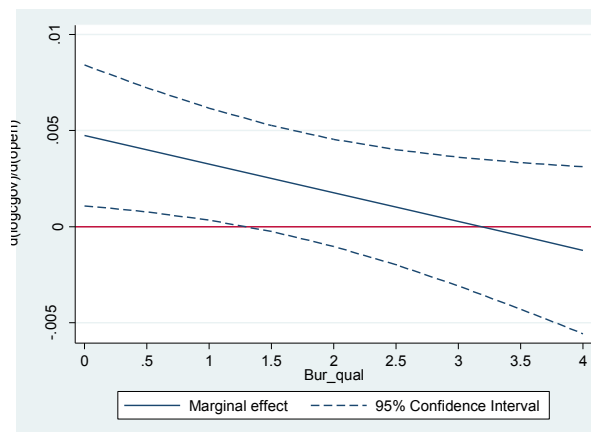
Additional controls: log GDP per capita, log urbanization rate, and log dependency ratio all at the beginning of each period, and OECD and socialism dummies. A constant term was included in all regressions.

Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Figure 4. Marginal Effect of Trade Openness on Government Consumption along Bureaucratic Quality – Panel Data – Small Sample**



a. Column 1 of Table 3.

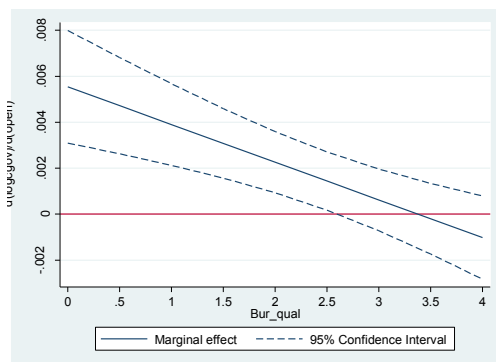


b. Column 2 of Table 3 (TOT Volatility 50<sup>th</sup> p.)

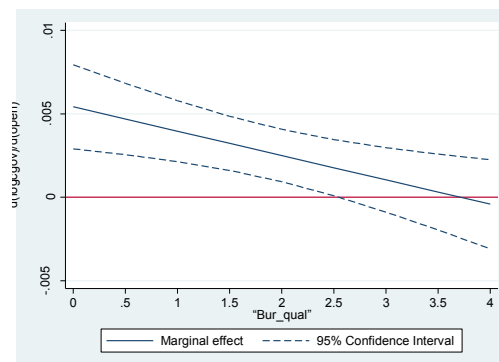
### 3. Panel data analysis – Random effects regressions

The panel regressions were run using both fixed effects and random effects. As mentioned in the paper's core results, the Hausman test favors the fixed effects model. However, we present the random effects model in Table 2 of the paper (columns 3 and 4) and the respective figures in this appendix. Figure 5 shows that past exposure to external risk is a statistically significant determinant of government consumption when the quality of the bureaucracy is low. As in the fixed effects model, this effect dissipates as the state capacities increase.

**Figure 5. Marginal Effect of Trade Openness on Government Consumption along Bureaucratic Quality – Panel Data – Random Effects – Large Sample**



a. Column 3 of Table 2 in the main article.



b. Column 4 of Table 2 in the main article (TOT Volatility 50<sup>th</sup> p.)

#### 4. Instrumental variables – Expanded set of instruments

The following tables present the results using the other instruments mentioned in the main body of our work, namely Persson and Tabellini's (2003) age of democracy (*age*) and its square, and a dummy variable for former colonies (*ex-colony*), Rokey's (2012) date of first democratic constitutions (*mc*) and its square, Besley and Persson's (2009) measure of political stability (*pol. stab*), and Acemoglu et al. (2001) measure of European settler mortality during colonization (*settler mort.*)

**Table 4. Second Stage Results – Instrumental Variables – Expanded Set of Instruments**

VARIABLES	Log Government Consumption (% of GDP) 2000-05						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Openness (1990-99)	0.002 (0.004)	0.002 (0.005)	0.005 (0.005)	0.009* (0.005)	0.004 (0.003)	0.008*** (0.001)	-0.002 (0.003)
Bureaucratic Quality (1990-99)	0.016 (0.113)	0.139 (0.120)	0.029 (0.121)	0.082 (0.134)	0.231*** (0.025)	0.118 (0.100)	0.152*** (0.035)
Openness (1990-99) x Bureaucratic Quality (1990-99)	-0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.003** (0.001)	-0.001 (0.001)	-0.002*** (0.000)	0.000 (0.001)
Expanded Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Excluded Instruments	age, age*openness	age, age*openness, age^2, age^2*openness	mc, mc*openness	mc, mc*openness, mc^2, mc^2*openness	ex-colony, ex- colony*openness	pol. stab, pol. stab*openness	settler mort., settler mort.*openness
Observations	64	64	77	77	77	75	34
Adjusted R-squared	0.529	0.595	0.449	0.426	0.494	0.485	0.207

Fuller(4) estimator.

Note: Other controls not shown in the table: log GDP per capita (1990-99), log dependency ratio (1990-99), log urbanization rate (1990-99) and dummy variables for OECD, Sub-Saharan Africa, Latin America, East Asia, and Socialist countries. Expanded set of controls: log population (00), GASTIL, *pres*, *maj*, and tariff rate. A constant term was included in all regressions.

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5. First Stage Results – Instrumental Variables – Expanded Set of Instruments**

FIRST-STAGE VARIABLES	Bur. Quality (1)	Open * Bur (2)	Bur. Quality (3)	Open * Bur (4)	Bur. Quality (5)	Open * Bur (6)	Bur. Quality (7)	Open * Bur (8)	Bur. Quality (9)	Open * Bur (10)	Bur. Quality (11)	Open * Bur (12)	Bur. Quality (13)	Open * Bur (14)
age	0.065 (0.049)	-8.231* (4.179)	0.420** (0.189)	3.977 (15.845)										
age x Openness (1990-99)	-0.000 (0.001)	0.153** (0.059)	-0.001 (0.002)	0.191 (0.248)										
age^2			-0.041* (0.021)	-1.323 (1.777)										
age^2 x Openness (1990-99)			0.000 (0.000)	-0.007 (0.030)										
mc					0.129 (0.083)	-9.263 (9.540)	0.538 (0.366)	-29.729 (36.695)						
mc x Openness (1990-99)					-0.001 (0.001)	0.304** (0.128)	-0.002 (0.005)	1.133* (0.678)						
mc^2							-0.090 (0.075)	5.223 (8.245)						
mc^2 x Openness (1990-99)							0.000 (0.001)	-0.200 (0.158)						
Ex-colony									0.604* (0.337)	100.063*** (33.891)				
Ex-colony x Openness (1990-99)									-0.008* (0.005)	-1.271** (0.492)				
Pol. Stab											-0.726 (0.769)	-50.622 (72.132)		
Pol. Stab x Openness (1990-99)											0.002 (0.011)	0.161 (1.057)		
Settler mort.													0.069 (0.174)	-20.347 (20.609)
Settler mort. X Openness (1990-99)													-0.006 (0.181)	-1.673 (12.752)
Expanded Controls	Yes	Yes	Yes age,	Yes age,	Yes	Yes	Yes mc,	Yes mc,	Yes ex-colony,	Yes ex-colony,	Yes	Yes	Yes settler mort.,	Yes settler mort.,
Excluded Instruments	age, age*openness	age, age*openness	age*openness, age^2,	age*openness, age^2,	mc, mc*openness	mc, mc*openness	mc*openness, mc^2,	mc*openness, mc^2,	ex-colony*openness, ex-colony*openness	ex-colony*openness, ex-colony*openness	pol. stab. pol. stab*openness	pol. stab. pol. stab*openness	settler mort.*openness mort.*openness	settler mort.*openness mort.*openness
Observations	64	64	64	64	77	77	77	77	77	77	75	75	34	34
Adjusted R-squared	0.771	0.945	0.798	0.946	0.755	0.920	0.755	0.922	0.757	0.918	0.765	0.916	0.807	0.954
F	1.700	3.410	3.080	3.170	1.350	4.130	1.540	3.090	1.630	4.380	1.380	0.940	0.090	0.520
Prob>F	0.194	0.041	0.025	0.022	0.266	0.021	0.202	0.022	0.204	0.017	0.259	0.395	0.913	0.600
A-P F test of weak excluded instruments														
F	3.320	6.820	3.330	3.270	2.700	7.620	1.800	3.360	0.030	0.080	0.000	0.000	0.000	0.080
Prob>F	0.075	0.012	0.027	0.029	0.105	0.008	0.157	0.025	0.859	0.772	0.984	0.989	0.946	0.780

Note: Other controls not shown in the table: log GDP per capita (1990-99), log dependency ratio (1990-99), log urbanization rate (1990-99) and dummy variables for OECD, Sub-Saharan Africa, Latin America, East Asia, and Socialist countries. Expanded set of controls: log population (00), GASTIL, pres, mai, and tariff rate. A constant term was included in all regressions. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



