

Regional Trade Agreements and Growth Volatility: An Empirical Evidence

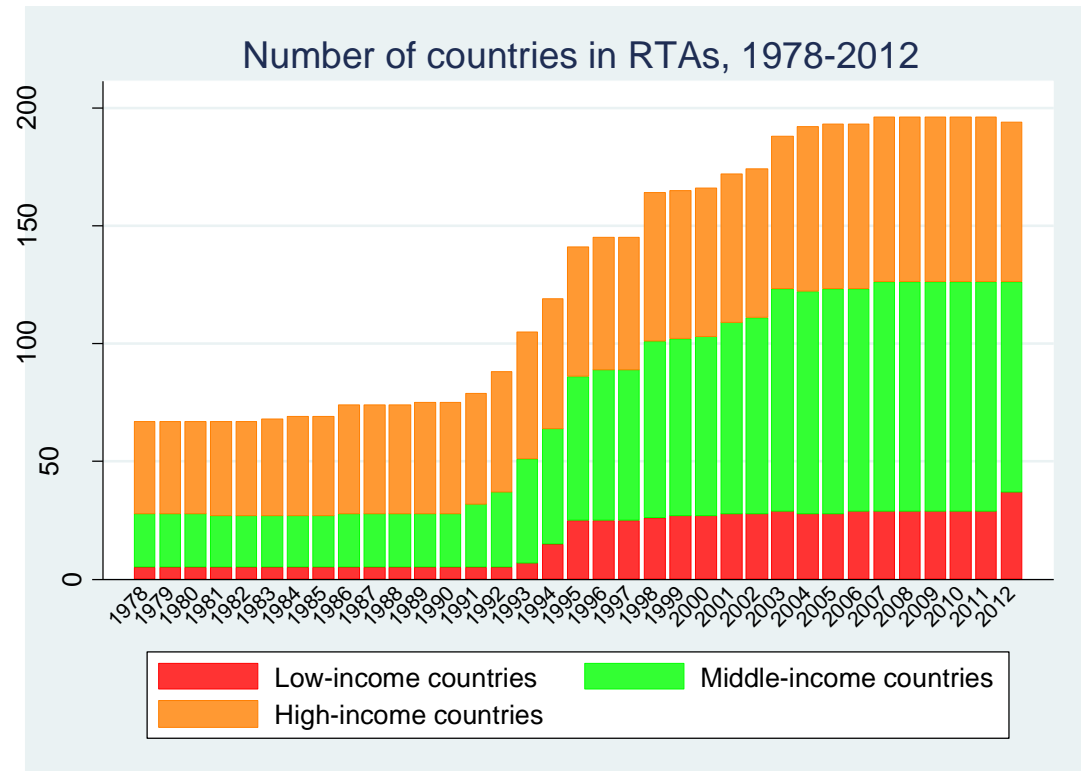
Roland Kangni Kpodar
International Monetary Fund



Symposium "sustainable development, vulnerable development" - 10th anniversary of the FERDI: a birthday for a new step
January 9-10, 2013

1.1. Motivation of the Study

- Growth volatility has become a concern for policy makers
- Regional Trade agreements (RTAs) have gained popularity



1.2. Theory and Empirical Literature

- **RTAs can reduce country's vulnerability to growth shocks**
 - Possibility of risk sharing through product diversification (Acemoglu and Zilibotti, 1997)
 - Free circulation of goods and production factors
 - Policy coordination (Haddad and others, 2010) and supranational rules
- **However, RTAs can also lead to a more “bumpy” growth path**
 - Theory of comparative advantage
 - Business cycle synchronization among RTA members

1.2. Theory and Empirical Literature

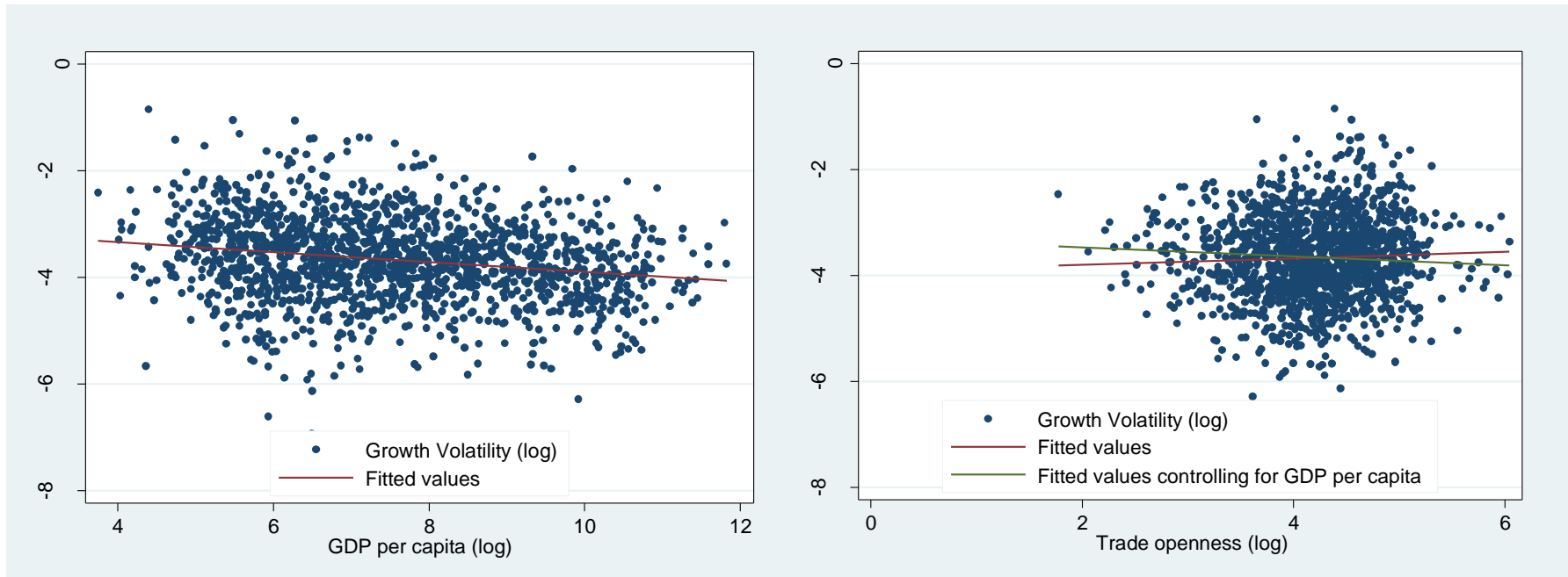
- **The empirical results have been mixed so far**
 - **Macro studies**
 - Easterly, Islam, and Stiglitz (2000)
 - Raddatz (2007)
 - Haddad, Lim and Saborowski (2010)
 - Edwards (2010); Edwards and Ginn (2011)
 - **Firm-level approach**
 - Buch, Döpke and Strotmann (2006)
 - di Giovanni and Levchenko (2009)

2.1. Data and Econometric Approach

- **Worldwide sample: 175 countries**
- **Period of study: 1978-2012 divided in 7 subperiods of 5 years each**
- **Fixed effects and System GMM**
- **Volatility is measured by the residual of an AR(1) process with a trend**

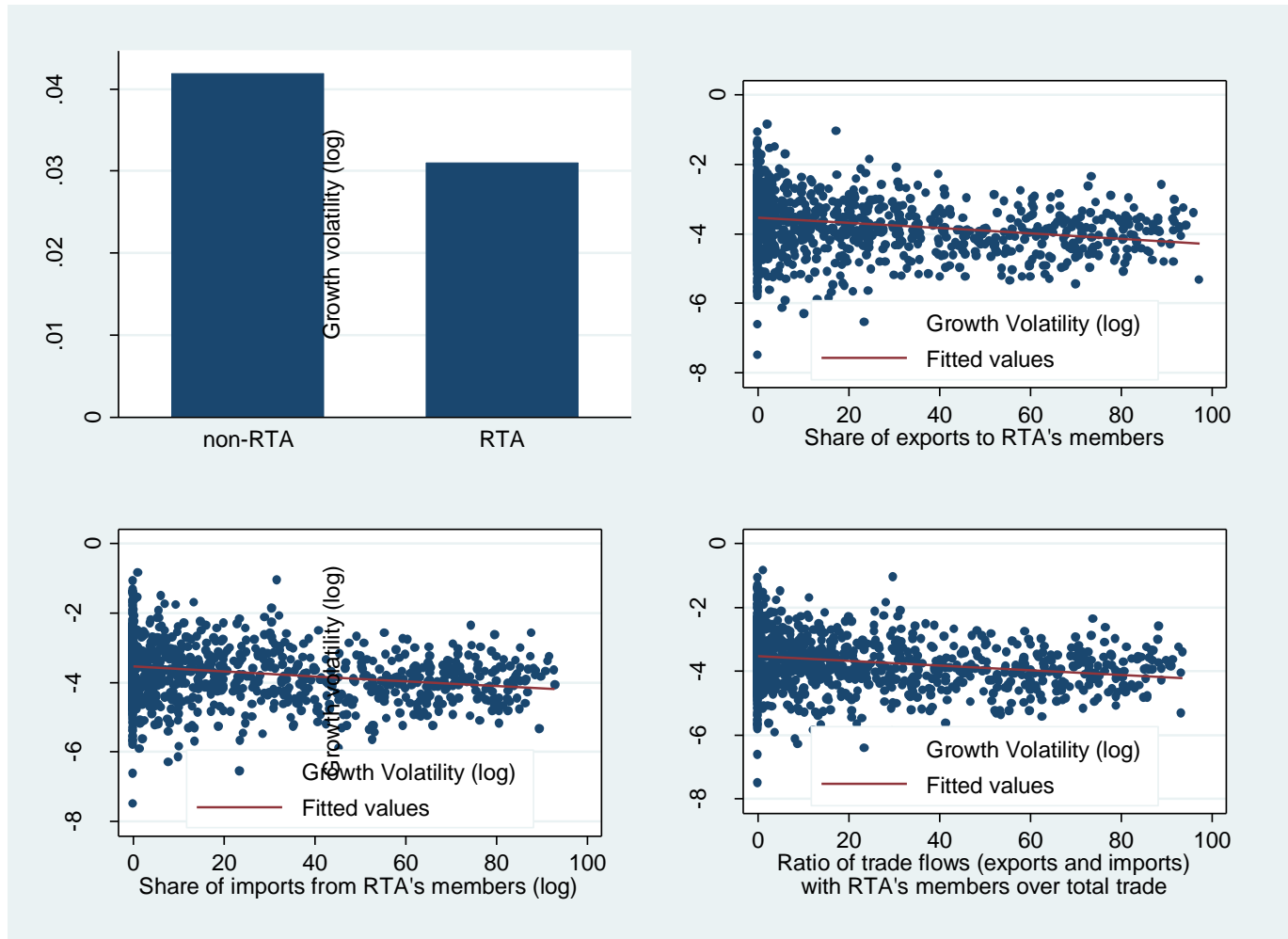
2.1. Data and Econometric Approach

- Growth is more volatile in developing economies, whereas trade openness is negatively associated with growth volatility (after controlling for GDP per capita)



2.1. Data and Econometric Approach

➤ Countries in RTAs tend to experience lower growth volatility



2.2. How Do RTAs Affect Growth Volatility?

$$GrVol_{i,t} = \lambda_0 + \lambda_1 y_{i,t} + \lambda_2 RTA_{i,t} + AX_{i,t} + u_i + e_{i,t}$$

Where:

- GrVol represents growth volatility
- y is the level of GDP per capita
- RTA is a dummy variable taking 1 when the country belongs to an RTA, and 0 otherwise
- X is a set of control variables including trade openness, terms of trade volatility, inflation volatility, volatility of private credit growth and the quality of institutions
- u is the country-specific effect and e is the error term

2.2. How Do RTAs Affect Growth Volatility?

Dependent variable: Growth Volatility	System GMM						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GDP per capita	0.059 [0.048]	0.062 [0.046]	0.045 [0.049]	0.129 [0.061]**	0.085 [0.045]*	0.088 [0.043]**	0.097 [0.041]**
RTA		-0.406 [0.093]***	-0.374 [0.096]***	-0.430 [0.101]***	-0.433 [0.090]***	-0.391 [0.095]***	-0.315 [0.099]***
Trade openness	0.041 [0.177]	0.285 [0.155]*	0.030 [0.171]	0.158 [0.150]	0.220 [0.149]	0.133 [0.156]	0.054 [0.165]
Terms of trade volatility	0.085 [0.051]*	0.090 [0.047]*	0.142 [0.040]***	0.142 [0.046]***	0.113 [0.045]**	0.129 [0.043]***	0.135 [0.055]**
Inflation volatility	0.210 [0.057]***	0.217 [0.054]***		0.167 [0.054]***	0.138 [0.053]***	0.127 [0.057]**	0.152 [0.073]**
Inflation rate			0.300 [0.132]**				
Private credit/GDP				-0.095 [0.089]			
Volatility of private credit to GDP					0.271 [0.077]***		0.320 [0.084]***
Volatility of private credit growth						0.205 [0.075]***	
Rule of law							0.132 [0.156]
Constant	-3.407 [0.641]***	-4.125 [0.626]***	-3.580 [0.622]***	-3.793 [0.609]***	-3.516 [0.577]***	-3.443 [0.613]***	-2.964 [0.590]***
Observations	737	737	759	723	698	726	510
Number of countries	170	170	173	170	169	170	127
Hansen test	0.17	0.46	0.46	0.60	0.68	0.49	0.39
AR(2)	0.39	0.58	0.50	0.82	0.91	0.87	0.75

Note: Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%. All variables, except RTA, are in logarithm.

3. Conclusion and Possible Extensions

- **RTA does reduce growth volatility**

- **This study can be extended in several directions:**
 - Identify the sources of growth volatility (external or domestic)
 - Extend the scope of the study to a broader concept of country's vulnerability
 - Does growth volatility play a role in a country's decision to join an RTA (done)
 - Is absolute volatility or relative volatility that matters for an RTA?

Thank You