Regional Trade Agreements and Growth Volatility

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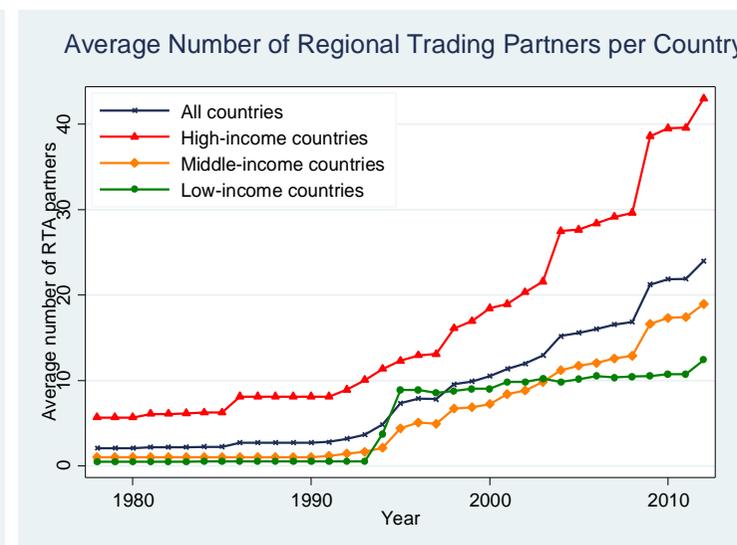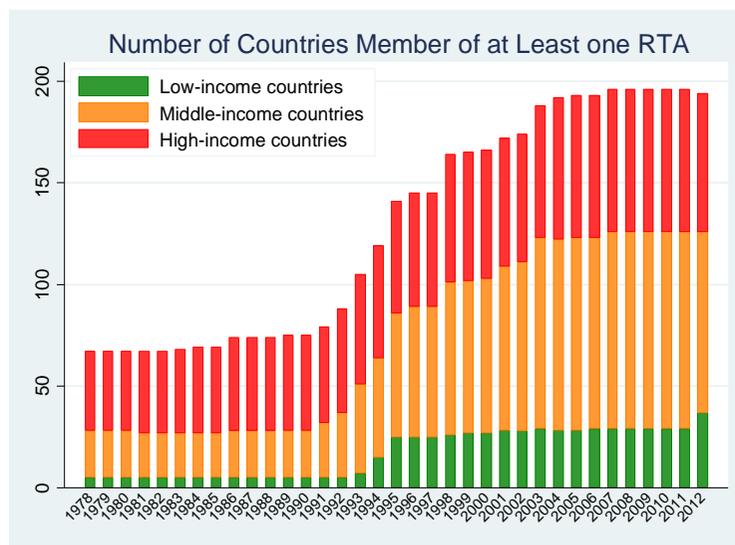
1.1. Motivation of the Study

➢ **Growth volatility has become a concern for policy makers**

➢ **Regional Trade agreements (RTAs) have gained popularity**

Number of Countries Member of at Least one RTA

- Low-income countries
- Middle-income countries
- High-income countries

Average Number of Regional Trading Partners per Country

- All countries
- High-income countries
- Middle-income countries
- Low-income countries

1.2. Outline of the presentation

➢ Theory and empirical evidence

➢ Data, models and estimation strategy

➢ Results

➢ Conclusion

1.3. *Theory and Empirical Literature*

➢ **Trade openness, including through RTAs, is thought to lead to "bumpy" growth path**

– Theory of comparative advantages

– Business cycle synchronization among RTA members

- di Giovanni and Levchenko (2009) illustrate that more open trade itself, accompanied by greater specialization of industries, raises volatility.

- Easterly et al. (2000), find that terms of trade volatility and openness to trade are associated with higher growth volatility, but that effect is lower in richer countries (see also Kose et al., 2005; Cavallo, 2007; Raddatz, 2007).

1.3. *Theory and Empirical Literature*

➢ **However, unlike broad trade liberalization, RTAs have special features that can reduce country's vulnerability to growth shocks**

- Possibility of risk sharing trough product diversification (Acemoglu and Zilibotti, 1997)

- Free circulation of goods and production factors

- Signaling commitment to predictable macroeconomic policies, policy coordination (Haddad and others, 2010), supranational rules (enhanced policy credibility), and less distortionary policies (Cadot, Olarreaga, and Tschopp, 2009)

- Reduced risk of conflicts

2.1. Data, models and estimation strategy

- ➢ **Worldwide sample: 170 countries**

- ➢ **Period of study: 1978-2012 divided in 7 sub periods 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, models and estimation strategy

➤ **Countries in RTAs tend to experience lower growth volatility**
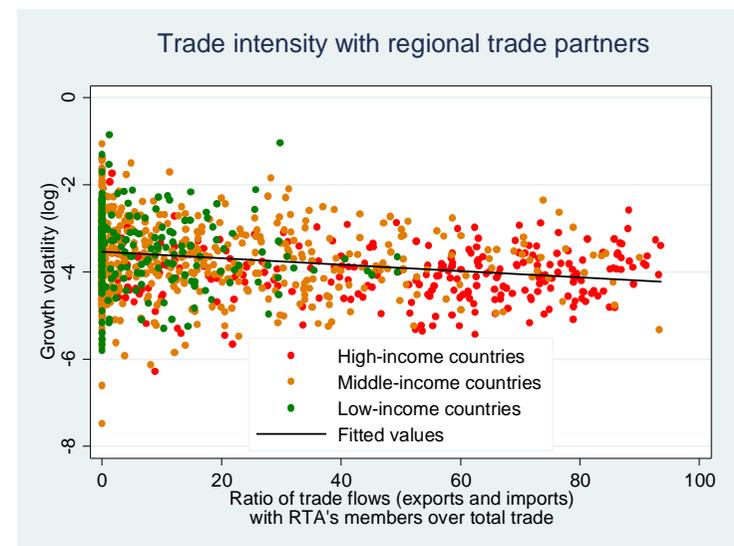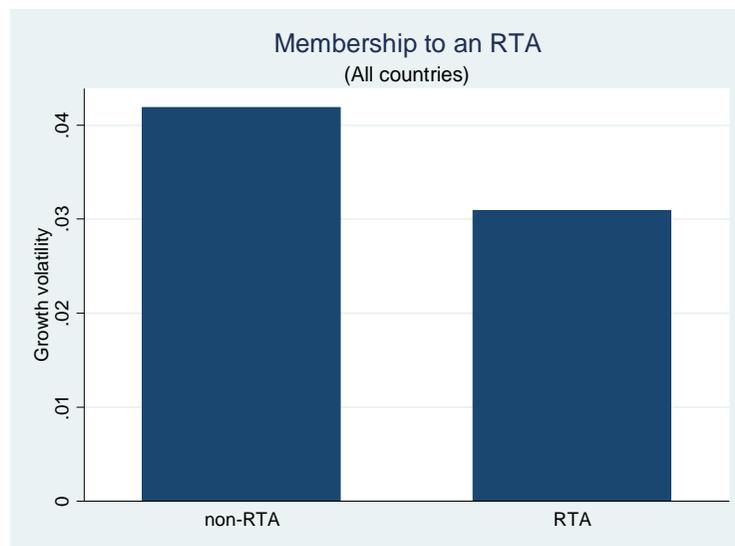
2.1. Data, models and estimation strategy

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

Where:

➢ $Vgrowth$ represents growth volatility

➢ y is the level of GDP per capita

➢ RTA is alternatively one of the four indicators considered (RTA dummy variable, RTA export share, RTA import share, regional trade openness)

➢ X is a set of control variables including trade openness, terms of trade volatility, inflation volatility, and volatility of private credit growth.

➢ u is the country-specific effect and e is the error term

2.2. How Do RTAs Affect Growth Volatility?

System GMM – Log of growth volatility	(1)	(2)	(3)	(4)
RTA Membership	-0.391			
	[0.095]***			
Share of Imports from Regional Trade Partners		-0.005		
		[0.002]**		
Share of Exports to Regional Trade Partners			-0.005	
			[0.002]**	
Regional Trade Openness				-0.004
				[0.002]*
Observations	726	632	632	632
Number of countries	170	147	147	147
Hansen test p-values	0.49	0.79	0.77	0.81
AR(2) test (p-values)	0.87	0.77	0.81	0.80

2.2. How Do RTAs Affect Growth Volatility?

System GMM – Log of growth volatility	(1)	(2)	(3)
Share of Imports from FTAs/CUs	-0.005 [0.002]**		
Share of Imports from PTAs	-0.002 [0.005]		
Share of Exports to FTAs/CUs		-0.005 [0.002]**	
Share of Exports to PTAs		0.003 [0.006]	
Regional Trade Openness – FTAs/CUs			-0.005 [0.002]**
Regional Trade Openness – PTAs			0.000 [0.006]
Observations	632	632	632
Number of countries	147	147	147
Hansen test p-values	0.92	0.87	0.91
AR(2) test (p-values)	0.75	0.82	0.81

2.2. How Do RTAs Affect Growth Volatility?

System GMM – Log of growth volatility	(1)	(2)	(3)
Share of Imports from Regional Trade Partners			
North-south agreement	-0.090		
	[0.023]***		
North-south agreement* GDP per capita (log)	0.011		
	[0.003]***		
South-south agreement	-0.006		
	[0.003]*		
North-north agreement	-0.003		
	[0.003]		
Share of Exports to Regional Trade Partners			
North-south agreement		-0.077	
		[0.022]***	
North-south agreement* GDP per capita (log)		0.009	
		[0.003]***	
South-south agreement		-0.012	
		[0.004]***	
North-north agreement		-0.007	
		[0.003]**	
Regional Trade Openness			
North-south agreement			-0.081
			[0.020]***
North-south agreement* GDP per capita (log)			0.010
			[0.002]***
South-south agreement			-0.009
			[0.004]**
North-north agreement			-0.004
			[0.003]

2.3. *How Do RTAs Affect Growth Volatility?*

➢ **Robustness checks**

– Exploit the theory of contagion effects to instrument RTA variables

– Exclusion of potential outliers

– Measure volatility by the standard deviation of growth rate

– Sensitivity to the start and end period (regression over 1983-2007)

– Data splitting (use of 7 year averages)

2.4. Are RTAs a response to growth volatility?

➢ **Assess the critical role of RTAs in mitigating growth volatility by investigating whether countries that are more prone to shocks are more likely to chose to join an RTA**

➢ **Extensive literature on why a country may want to sign an RTA, but two studies stand out:**

– Whalley (1998)

– Baier and Bergstrand (2004)

2.4. Are RTAs a response to growth volatility?

➢ **Data are the same as above**

➢ **We adopt a panel logit model**

$$\text{RTA}_{it} = \partial + \sum_{j=2}^{3} \delta_j Vgrowth_{it-j} + BZ_{i,t} + u_i + \varepsilon_{it} \, ,$$

where RTA_{it} is a dummy variable for country i at time t; $Vgrowth_{it-j}$ is the lagged volatility of real GDP growth for country i at time t-j; $Z_{i,t}$ is a set of control variables for country i at time t; term u_i is a country-specific effect for country i, and ε_{it} is the error term for country i at time t.

2.4. Are RTAs a response to growth volatility?

Dependent variable: RTA dummy	(1)
	Panel logit
Growth Volatility (Lag 2)	-0.266
	[0.307]
Growth Volatility (Lag 3)	1.072
	[0.341]***
Ratio of Average Growth Volatility in RTA to that of the ROW	-2.293
	[1.089]**
RGDP (Lag 1)	1.844
	[0.332]***
DKL (Lag 1)	6.678
	[1.257]***
DROWKL (Lag 1)	-1.492
	[0.470]***
Observations	466
Number of countries	72
Pseudo R2	0.67

3. Conclusion and policy implications

➢ **RTA does reduce growth volatility, notably through the policy credibility channel**

➢ **Low-income countries, including in the WEAMU, would gain from deeper trade integration with advanced economies, but also among themselves.**

➢ **The results are robust across specifications, indicators of regional integration, types or regional agreements and time period.**

Thank You