

From SAPTA to SAFTA: The Trade Patterns within the SAARC Region

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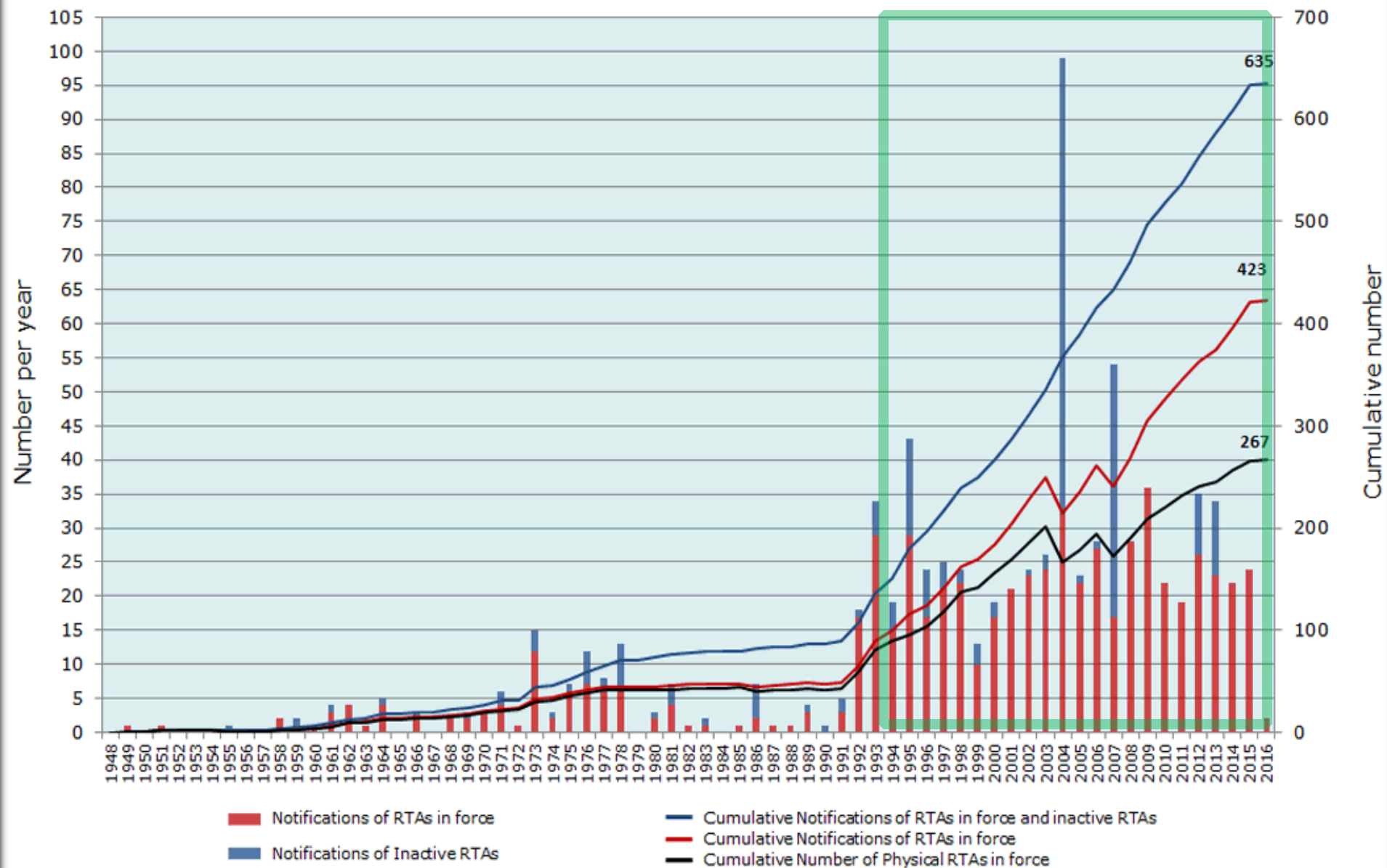
Background

□ The New Regionalism

Explosion of economic integration agreements:

- Common Markets (CMs),
- Customs Unions (CUs),
- Economic Unions (EUs),
- Free Trade Agreements (FTAs),
- Preferential Trade Agreements (PTAs)

Evolution of Regional Trade Agreements in the world, 1948-2016



Note: Notifications of RTAs: goods, services & accessions to an RTA are counted separately. Physical RTAs: goods, services & accessions to an RTA are counted together. The cumulative lines show the number of notifications/physical RTAs that were in force for a given year.
Source: WTO Secretariat.

Background

- ❑ In 1990s the SAARC countries initiated and implemented trade liberalization policies
- ❑ SAARC Preferential Trading Arrangement (SAPTA) – December 1995
- ❑ South Asian Free Trade Area (SAFTA) – January 2006
- ❑ Encourage and continue reciprocal trade and economic cooperation through granting concessions

Justification

- ❑ The rapid expansion in RTAs has received much attention in the growing trade literature
- ❑ Tinbergen (1962), pioneer
- ❑ Trade Creation and Trade Diversion effects across the FTAs depend on the prevailing condition and time period
- ❑ SAARC region is an ignored one

Justification

- For example among others Coulibaly (2004), Hirantha (2004), Tumbarello (2006) estimated trade creation effects of SAPTA while trade diversion effects by Hassan (2001)
- Rahman (2003) estimated insignificant effect of using dummy for SAARC in his study

Why this study?

- ❑ This study shows the impact of SAPTA and SAFTA on the trade flows in the SSARC region
- ❑ Data from 1980-2015
- ❑ Estimates the gravity model using the PPML family to account for zeros in trade data and heteroskedasticity
- ❑ Fixed effects model (to account for the time varying and country specific factors)

Data

- ❑ Trade data at HS-2 digits: UN-Comtrade.
- ❑ GDP, GDP Deflator, and population: WDI.
- ❑ Common border, common colony, common language, distance, and landlocked countries etc: French Research Center in International Economics (CEPII)

Theoretical and Empirical Models

- The Gravity Model:
Work Horse Trade Model

$$e_j = \sum_i p_{ij} q_{ij} \quad (1)$$

$$x_{ij} = \frac{y_i y_j}{y_w} \left(\frac{c_{ij}}{P_i P_j} \right)^{1-\sigma} \quad (2)$$

$$\begin{aligned} \ln c_{ij} = & \alpha_1 \ln(Ds_{ij}) + \alpha_2 (Br_{ij}) + \alpha_3 (Ln_{ij}) + \alpha_4 (LC_{ij}) + \alpha_5 (Cl_{ij}) + \alpha_6 (SAPTA_{ij}) \\ & + \alpha_7 (SAFTA_{ij}) + \alpha_8 (RTA_{ij}) + e_{ij} \end{aligned} \quad (3)$$

$$\begin{aligned} \ln x_{ij} = & (1 - \sigma) \gamma_1 \ln P_i - (1 - \sigma) \gamma_2 \ln P_j + \gamma_3 \ln Y_i + \gamma_4 \ln Y_j + (1 - \sigma) \alpha_1 \ln(Ds_{ij}) \\ & + (1 - \sigma_k) \alpha_2 (Br_{ij}) + (1 - \sigma_k) \alpha_3 (Ln_{ij}) + (1 - \sigma_k) \alpha_4 (LC_{ij}) + (1 - \sigma_k) \alpha_5 (Cl_{ij}) \\ & + (1 - \sigma_k) \alpha_6 (SAPTA_{ij}) + (1 - \sigma_k) \alpha_7 (SAFTA_{ij}) + (1 - \sigma_k) \alpha_8 (RTA_{ij}) + \epsilon_{ij} \end{aligned} \quad (4)$$

Theoretical and Empirical Models

□ Anderson and Van Wincoop (2003) have categorized trade cost in bilateral trade resistance between country (i) and country (j) and country (i) resistance to trade with all countries.

Theoretical and Empirical Models

□ Hallak (2006) and Haq et al. (2013) distinguished trade cost into three sets:

The first set: transportation costs; distance, landlocked countries, common border, etc.

The second set: tariff structure; such as trade agreements.

The third set: common language, colonial relationship, etc.

Zeros in Trade Data

- ❑ Selection bias and heteroskedasticity is common to the gravity equation - presence of zeros in trade
- ❑ Zeros in trade data: no trade between the countries; trade data is missing; and the trade volume is low and rounded to zero
- ❑ Log-linear specification omit zeros that lead to biasness (Heckman, 1979)

Estimation Technique

- ❑ OLS is a common method to ignore the zeros
- ❑ Replace zeros with a small value: but no theoretical and empirical justification (Linders and De Groot, 2006) and change the estimated results (Flowerdew and Aitkin, 1982), confirmed that replacing zeros with small values change the estimated results.
- ❑ NLS, PPML and the Heckman sample selection model

Estimation Technique

- ❑ In the presence of heteroskedasticity both the traditional log-linear and the Tobit regression are questionable (Liu, 2009)
- ❑ PPML addresses the issues of zeros trade data and heteroskedasticity (Silva and Tenreyro, 2006)

Fixed-Effect OLS and Poisson Estimates

Variables	OLS	OLS (1+X)	PPML-I	PPML-II	PPML-III	PPML-IV	PPML-V
GDP of partner	0.49	-0.48*	0.08	0.08	0.08	0.08	0.08
GDP of reporter	0.57	0.33	0.25*	0.25*	0.228	0.25*	0.25*
Distance	-1.97***	-0.85***	-0.64***	-0.64***	-0.61***	-0.64***	-0.64***
Border	0.98***	1.49***	0.32***	0.32***	0.39***	0.32***	0.32***
Language	-2.99***	-1.96***	-0.99***	-0.99***	-1.40***	-0.99***	-0.99***
Land locked	2.89***	-0.38	-0.49***	-0.49***	-1.065***	-0.49***	-0.49***
Colony	2.29***	2.48***	1.51***	1.51***	1.51***	1.51***	1.51***
SAPTA	1.07***	1.05***	1.55***		1.55***	1.55***	
SAFTA	1.39***	2.94***	1.21***		1.24***		1.21***
RTA	1.81***	0.83***	0.58***	0.57***		0.57***	0.57***
Constant	-1.38***	-0.49	-0.36	-0.36	-0.23	-0.36	-0.36

* p<0.05, ** p<0.01 and *** p<0.001

Fixed-Effect OLS and Poisson Estimates



Variables	OLS	OLS (1+X)	PPML-I	PPML-II	PPML-III	PPML-IV	PPML-V
Fixed Effects:							
Exporting Country	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Importing Country	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Observation	1306	2650	2650	2650	2650	2650	2650
Statistics							
R ²	0.77	0.59					
Pseudo R ²			0.39	0.39	0.39	0.39	0.39
F-statistic	0.00	0.00					
Wald Chi ²			0.00	0.00	0.00	0.00	0.00

Elasticity estimates of Poisson models

Variables	PPML-I	PPML-II	PPML-III	PPML-IV	PPML-V
GDP of partner	0.165	0.165	0.146	0.165	0.165
GDP of reporter	0.544*	0.544*	0.498	0.544*	0.544*
Distance	-0.240***	-0.240***	-0.226***	-0.240***	-0.240***
Border	0.061***	0.061***	0.075***	0.061***	0.061***
Language	-0.042***	-0.042***	-0.059***	-0.042***	-0.042***
Land locked	-0.151***	-0.151***	-0.330***	-0.151***	-0.151***
Colony	0.624***	0.624***	0.558***	0.624***	0.624
SAPTA	0.598***		0.603***	0.598***	
SAFTA	0.469***		0.482***		0.469***
RTA	0.096***	0.096***		0.096***	0.096***

* p<0.05, ** p<0.01 and *** p<0.001

Sum up

- ❑ 60%, 50% and 10% increase in trade volume due to SAPTA, SAFTA and other agreements.
- ❑ Low trade volume between the trading partners sharing common language due to prevailing law and order situation in the region and conflict between India and Pakistan



THANKS