Are trade blocs building or stumbling blocks? New evidence

Richard Baldwin and Elena Seghezza[1]
30 November 2007

Abstract

The stumbling-block argument asserts that regionalism hinders MFN tariff cutting. If this was of first-order importance over previous decades, we [illegible] products where nations apply high MFN tariff neither a building nor a stumbling block. Secto that generates the positive correlation between

1. INTRODUCTION

Regionalism is sweeping the world trading system like wildfire while multilateral negotiations proceed at a glacial pace. This negative correlation raises the time-honoured question of whether regional trade agreements help or hinder global trade liberalisation. Until recently, much of the discussion was at the purely theoretical level – the so-called stumbling bloc or building bloc debate (see the survey by Panagariya 1999 or the new book by Jagdish Bhagwati 2008). In this debate, trade blocs are stumbling blocks if they prevent or slow multilateral tariff cutting, while they are building blocs if they accelerate or at least do not hinder multilateralism. Numerous mechanisms have been presented to suggest that one or the other position is feasible/likely. These include Reizman (1985), Kennan and Reizman (1990), Krishna (1998), Freund (2000), Limão (2006), and Levy (1997).

In a series of highly innovative empirical papers, Nuno Limão and co-authors have begun to tackle this question empirically. His main approach is to see whether the size of tariff cuts in the Uruguay Round are related to preferential tariffs that existed pre-Uruguay Round. The stumbling block position suggests that nations should have cut their MFN tariffs less on products where they had regional preference in place while the building block position suggests the opposite. His findings support the stumbling block position. Since tariff cutting in the Uruguay Round was generally restricted to developed nations, Limão looks at the US while Karacavaoli and Limão (2008) find similar results for the EU. Estevadeordal, Freund and Ornelas (2006) do a similar exercise on Latin American data and find the opposite, i.e. that Latin American nations unilaterally cut their MFN applied tariffs most in the products where they had extended preferences.

These empirical studies aim directly at the stumbling/building bloc issue by measuring the MFN tariff cutting in products with and without preferences. This difference-in-difference strategy combines policy relevance with econometric sensibility. The approach, however, focuses on only part of the picture. It does not precisely get at the larger debate – the question of whether regionalism has or will harm the global trade system.

As part of the pre-agreed Uruguay Round agenda set in 1986, the US and the EU (inter alia) agreed to cut tariffs by as much as they had in the two previous Rounds, namely 30% on average. The 30% average is basically what was agreed in the deal that was eventually signed in 1994 (Finger and Schuknecht 1999). One interpretation of this commitment is that the overall US tariff cuts in the Uruguay Round were subject to a type of 'budget constraint'. If this is true, then to focusing on

[1] The Graduate Institute, Geneva (Baldwin); University of Genoa (Seghezza). We thank Alan Winters, Gary Hufbauer and Nuno Limão for comments and assistance. We thank Theresa Carpenter and Andy Lendle for help with the data.

cross-product tariff cutting is incomplete. For example, it means that because of Limão's stumbling bloc effect was in effect in some products, the US had to cut tariffs by more in other products.

This line of thinking suggests that the levels of tariffs also hold information that can be used to evaluate the stumbling/building bloc question. If stumbling-bloc mechanisms have had a major impact on tariffs over the past decades, we should be able to detect this in the levels of the tariffs. Specifically, we should observe the highest MFN tariffs in the products where PTA tariffs are the lowest. After all, the juxtaposition of stumbling multilateralism and building regionalism is not new. Before its current manifestation in the Doha Round, it occurred in the early 1990s when regionalism in Europe and the Western Hemisphere was booming but the Uruguay Round was dormant. The same negative correlation between multilateral and regional deal making was observed in the mid-1970s when the Tokyo Round languished while the EU enlarged and simultaneously signed free trade agreements with all non-members in Western Europe.

There are two ways of exploiting the tariff level data – across nations and across products within nations. If regional trade liberalisation has – over past decades – substantially slowed multilateralisation, then we should see that the nations that engaged in an above-average amount of regional tariff cutting should have engaged in a below-average amount of MFN tariff cutting. Second, within nations, the tariff lines where nations cut tariffs the most preferentially should be the sectors where they cut their MFN tariffs the least. One way to express this is that if regionalism is a stumbling bloc, we should expect to see MFN and preferential tariffs as substitutes. If regionalism is a building bloc, we should expect to see MFN and preferential tariffs as complements.

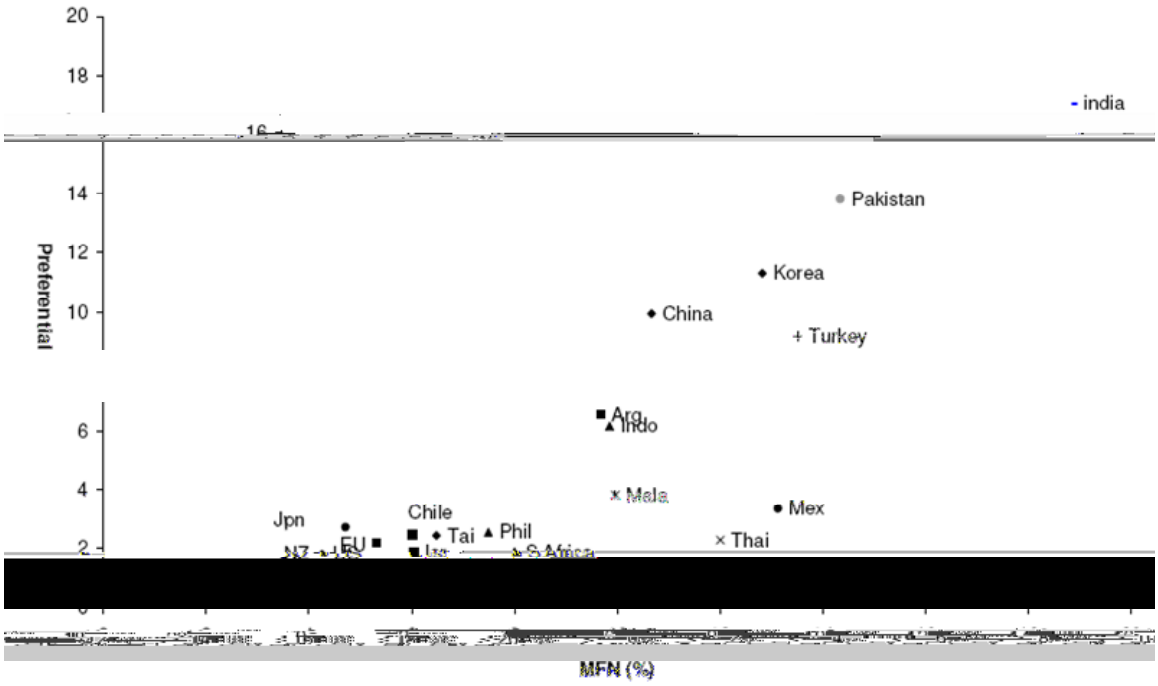
This paper takes a first pass at confronting the tariff data for the world's largest traders with the substitutes-or-complements question.

Plan of the paper

The next section, Section 2, presents some key features of the data. Section 3 discusses an informal model of tariff formation which allows us to think about how we can structure our empirical work. Section 4 presents our data, empirical strategies and results. Section 5 concludes.

2. A FIRST LO

Figure 1: MFN and preferential tariff averages by nation, 2005.



Source: WITS data base.

Plainly the 23 points have too little information in them to really understand the relationship between MFN and PTA tariffs. Two observations, however, are worth retaining. First, it seems that some nations have liberalised a great deal and these nations have done it both multilaterally and preferentially. Second, the figure shows clearly that

$$u = c_0 + \sum_{i=1}^{n} u_i[c_i], \quad v = E + \sum_{i=1}^{n} s_i[p_i] \qquad (1)$$

where n is the number of non-numeraire sectors, the u_i sub-utility functions for each non-numeraire sector, E is expenditure, $s_i(p_i)$ are sector-specific consumer surplus functions, c_0 is consumption of the untaxed, numeraire good and c_i is consumption of typical good i.[4]

To simplify the supply side, we adopt a Ricardo-Viner set-up, so labour's price is pinned down by productivity in the numeraire sector and each sector-specific factor is paid its Ricardian rent. This means that E for a typical consumer equals her labour income wL plus her share of tariff revenue, r, plus the payment to whatever sector-specific factors she owns.

In the PFS framework, the government's objective function Ω is a weighted sum of standard utilitarian social welfare function W, and lobbying contributions, $\Omega = aW + \Sigma_{i\in\Lambda} C_i[p_i]$ where capital lambda, Λ, is the set of sectors that are organised politically (and thus can make political contributions) and C_i is the contribution of sector i. Here we assume:

$$\Omega = W[\tau] + \Sigma_{i\in\Lambda}\Pi_i[\tau] \qquad (2)$$

where $W[\tau]$ is the utilitarian welfare index and Π_i is the rents earned by special interest groups in sector i; as before, Λ, is the set of sectors that are organised politically. This has the drawback that we do not explicitly model how the rents of special interest groups affect policymakers' utility (PFS assumes it is as if the cash is handed directly to policymakers). The advantage is that it may be appropriate to a wider range of political systems where 'lobbying' is not cash-based as in the US.

Politically optimal tariff

The first order condition for the choice of the tariff in a typical sector that is organised is:

(3) $$0 = W'[\tau] + \Sigma_{j\in\Lambda}\Pi_i'[\tau]$$

where the first term can be thought of as the marginal cost of raising the tariff from its optimal level and the second term can be viewed as the marginal benefit (to the government) of doing so. Using the analogy of the supply curve as the marginal cost of production and the demand curve as the marginal utility of consumption, we call the first term the protection supply curve and the second term the protection demand curve.

The protection supply and demand curves are plotted in Figure 2. The demand curve is upward sloped since the amount of domestic production to be protected on the margin rises with the level of the tariff. The supply curve is upward sloped since the damage to the economy rises with the level of the tariff when the tariff is beyond the optimal tariff level. It intersects the x-axis at the naïve 'optimal' tariff (i.e. welfare maximising). The intersection of the two curves (drawn linearly for graphically convenience) is the solution to the government's first order condition.

[4] Note that consumer surplus perfectly captures the welfare impact of price changes. Indeed, the typical indirect utility function is just income, denoted as E, plus the sum of sector-specific consumer surplus measures, $s_i(p_i)$.

The net effect on the politically optimal MFN tariff is ambiguous as shown in Figure 3. There are four possible cases involving the various in-or-out shifts of the

Figure 4: Intuition for the strong correlation between MFN and preferential rates.

The right panel shows the sort of data we should expect if the stumbling bloc logic were dominant, i.e. MFN and PTA tariffs were substitutes. Here countries would tend to grant preferences in the country-tariff-line observations with high MFN rates. The shaded blocs are massed on the vertical axis since countries would maintain high MFN tariffs on goods as a substitute for low PTA tariffs they extended. For products with low MFN tariffs, there would be little use in extending preferences, so the low MFN tariffs would be massed on the 45 degree line. The regression line in this case would have a positive intercept and a negative slope, as the dashed line shows.

4. EMPIRICAL ANALYSIS

The simple theory discussed above captures the notion that preferential and MFN tariffs may be complements or substitutes, with substitutes suggesting that the stumbling bloc logic has been strongest, and complements suggesting the building bloc logic.

To look at this issue, we examine the cross-section relationship between MFN and preferential rates at the detailed product level for a wide range of nations. We think it is important to work with tariff line data – rather than aggregates – since this allows us to avoid standard aggregation biases. We also think it is important to work with a broad set of nations to study the impact of PTAs on the world trade system. Of course both of these desiderata rule out some of the more sophisticated panel techniques, like those of Limão (2006). In compensation, we can look at a broad range of nations.

4.1. The data

The data we work with is at the most detailed level possible – the tariff line level, which is up to 10 digits in HS system depending upon the nation. It is from the TRAINS database accessed through WITS for the year 2005. For each country, the MFN ad valorem tariffs is well defined, but for preferential tariffs we have to address the fact that most nations have more than one vector of preferential tariffs; the preferential tariffs applied differs by partners. Some of these preferences are very mi ty2ffs; tie-05aalo(e)-6(ofiw Zo6w[(rs. S ; tieTc-0.002 ector06 Tw[(d stand)p)0 ; tieTc-o-8(ig-0.,r.8(sho

members and thus do not have MFN rates (the Russian Federation, Vietnam, Ukraine, Iran), others are dropped since they are oil exporters and thus are not setting tariffs according to the usual political economy logic (United Arab Emirates and Saudi Arabia). We also drop nations where all MFN rates are zero (and therefore all preferential rates are zero); these are: Hong Kong and Singapore. Switzerland is dropped since most of its tariffs are specific and thus not comparable. The 23 nations left are Argentina, Australia, Brazil, Canada, Chile, China, European Union, India, Indonesia, Israel, Japan, Korea, Malaysia, Mexico, New Zealand, Norway, Pakistan, the Philippines, South Africa, Taiwan, Thailand, Turkey, and the United States. Table 1 shows some summary statistics for our data.

Table 1: Summary statistics

Variable	Observations	mean	Std dev	min	max	Number of zeros
MFN rate	1,430,933	8.40	16.28	0	1235	445,768
Preferential rate	1,430,933	5.34	15.34	0	887.4	837,305
GAP (MFN-PTA)	1,430,933	3.06	7.11	0	1235	821,320

Source: Authors' calculations.

4.2. Tariff-line level analysis

Our question is a simple one – are MFN and PTA tariffs complements or substitutes? – so we start with a very simple regression specification. The estimated equation is:

constant	5.19	6.32	4.90
	(0.029)	(0.82)	(0.03)
R-squared overall	0.81	0.81	0.82 (within)

Notes: Robust standard errors in parentheses. [1] The number of clusters is 23; the number of observations is 985,165. Chapter dummies not reported.

Once we have eliminated the tariff lines with zero MFN rates, we find that 375,552 of the 985,165 country-tariff-line observations have the same rate for MFN and preferential, i.e. for a great many products (38%), nations grant no preferences at all. In the country-tariff-line observations where preferences are granted, two-thirds of the preferential rates are zero.

The OLS regression strongly suggests that the data resembles the left panel of Figure 4 – i.e. a situation where MFN and preferential rates are generally complements, not substitutes. The high R-square is probably accounted for the fact that MFN and preference rates are really not that different, or in other words tariff preferences are not all that important in the 2005 data for a broad range of nations.

Refining the standard errors

The pooled OLS estimator ignores the within cluster correlation of the errors. In the presence of correlation within clusters, the pooled OLS estimator is consistent but not efficient. Since we are dealing with nations of widely differing average tariffs, the amount of within cluster correlation can be substantial, so the OLS standard errors can be misleading. Of course with almost a million observations even an inefficient estimator may be good enough, but it is important to undertake the standard adjustments to verify this conjecture.

One way to correct for this problem and get efficient estimates is to run the random effects estimator. This estimator assumes more stringent hypothesis about the errors. In particular it assumes strict exogeneity, that is, a tariff line error cannot be correlated with the explanatory variables on a different tariff line of the same country. The results are reported in the second column of Table 2. We see that little changes in terms of the point estimates.

We also try the fixed effects estimator, which, in our data set, amounts to adding country dummies. The third column of Table 2 shows that the fixed effect estimator produces coefficients that are quite similar.

4.2.2. Rich and poor nations

So far we have pooled data from all 23 nations. It is easy to think that the political economy process is quite different in rich and poor nations. In particular, nations that declared themselves as developed in the GATT/WTO are required to respect a number of disciplines on their tariffs, such as bindings. Moreover, during the eight rounds of

constant	1.42	0.014	0.0	4.19	0.029	0.0
R-squared	0.67			0.84		
Countries	7			16		
Observations	506,333			924,600		

Note: Standard errors (s.e.) corrected for heteroschedasticity. Chapter dummies not reported.
(1)

larger than -1.0. We note that the Poisson estimators do converge and they yields point estimates that are in line with the others.

Table 5: Regressions of MFN-PTA on PTA (all observations)

	Pooled Tobit[(1)]	Pooled OLS	Random Effects	Fixed Effects	Pooled Poisson	Fixed Effects Poisson	Random Effect Poisson
PTA	-0.54*	-0.06*	-0.057*	-0.057*	-0.091*	-0.117*	-0.117*
	(0.0019)	(0.0012)	(0.0013)	(0.0013)	(0.0009)	(0.0001)	(0.0001)
constant	-2.13	3.07	3.74	3.07	1.26		1.52
	(0.047)	(0.019)	(0.54)	(0.018)	(0.006)		(0.13)
R-squared	0.02	0.03	0.03	0.04	0.11		
overall				(within)			

Notes: Standard errors in parentheses. A * means that the coefficient is statistically greater than -1 at the 1% level of significance. Number of clusters (country) = 23; number of obs. 1,430,933. Coefficients for chapter dummy variables not reported. [(1)]Standard errors are corrected for heteroschedasticity. [(1)] 821,320 left-censored observations at 0. Chapter dummies not reported.

Table 6 shows the results with all observation and Tobit estimation of (2) for developed and developing nations separately. Apart from reducing the slope estimates the results are qualitatively similar to those of Table 3.

Table 6: Developed and developing nation samples (Tobit estimation of MFN-PTA on all observations).

Our paper does not propose or estimate a structural model, but the results hint at an underlying mechanism that rejects the framing of the question that is standard in the stumbling/building bloc approach. One interpretation of our findings is that regionalism is neither a building nor a stumbling bloc. Rather, political-economy factors produce forces that simultaneously influence the selection

Limão, N. (2007). “Are Preferential Trade Agreements with Non-trade Objectives a Stumbling Block for Multilateral Liberalization?” Review of Economic Studies. July 2007, 74(3), pages 821-855.

Limão, N. (2006). “Preferential Trade Agreements as Stumbling Blocks for Multilateral Trade Liberalization: Evidence for the U.S.” American Economic Review. June 2006, 96(3), pages 896-914.

Limão, N. (2006). “Preferential vs. Multilateral Trade Liberalization: Evidence and Open

APPENDIX

(List of all PTAs, highlighted PTAs are excluded for having too few preferences and thus being too close to MFN)

Nation	number of tariff lines listed
USA	
Most favoured nation tariff	10502
African Growth and Opportunity Act Preferential Rate	1644
Andean Trade Preference Act (ATPA) and Andean Trade Promotion and Drug Eradication Act (ATPDEA)	5169
Caribbean Basin Economic Recovery Act	5246
Caribbean Basin Trade Partnership Act	224
GSP : Generalized System of Preference	3396
LDC rates	1415
Tariff concession for Dyes	109
US-Australia Free Trade Area Agreement	6441
US-Canada free trade area	6408
US-Chile Free Trade Area Agreement	6572
US-Israel free trade area	6460
US-Jordan Free Trade Area Implementation Act	6548
US-Mexico free trade area	6449
US-Singapore Free Trade Area Agreement	6521
EU	
Most favoured nation tariff	12733
Preferential tariff for GSP countries	7169
Preferential tariff for Turkey	8017
Preferential tariff for Norway	6636
Preferential tariff for Mexico	7655
Preferential tariff for Switzerland	6213
China	
MFN rates	11717
Preferential rates for Bangladesh	19
Preferential rates for Brunei	860
Preferential rates for Cambodia	777
Preferential rates for Indonesia	854
Preferential rates for Lao PDR	589
Preferential rates for Malaysia	862
Preferential rates for Myanmar	838
Preferential rates for Singapore	863
Preferential rates for Thailand	841
Preferential rates for Vietnam	803
Preferential tariff for African LDC countries	441
Preferential tariff for Bangkok agreement	1824
Japan	
GSP rates	3628
GSP rates for LDC	2499
MFN Applied (Generated)	9261
Preferential Rate for Mexico	7917
Preferential Rate for Singapore	7015
Turkey	
MFN rates	12300
Preferential rates for Bosnia and Herzegovina	9232
Preferential rates for Israel	7043
Preferential rates for Macedonia, FYR	7131
Preferential rates for Romania	7355
Preferential tariff for EFTA countries	7945

Chile

MeasureName	Totale
MFN duties (Applied)	5672
Preferential tariff for Argentina	4372
Preferential tariff for Bolivia	4567
Preferential tariff for Brazil	4372
Preferential tariff for Colombia	5617
Preferential tariff for Cuba	4463
Preferential tariff for Ecuador	5568
Preferential tariff for MERCOSUR countries	5631
Preferential tariff for Mexico	5623
Preferential tariff for Paraguay	4374
Preferential tariff for Peru	5304
Preferential tariff for Uruguay	4372
Preferential tariff for Venezuela	5600

South Africa

MFN duties (Applied)	6654
Intra SACU rate	6653
Preferential tariff for European Union countries	2902
Preferential tariff for SADC countries	3141

Canada

MFN rates	8531
Canada-Chile Free Trade Agreement	4142
Canada-Costa Rica Free Trade Agreement	3798
Canada-Israel Free Trade Agreement	3529
Canada-United States Free Trade Agreement	4143
Commonwealth Caribbean Countries Tariff	3045
GSP rates	2744
GSP rates for LDC	4145
Preference for Australia	569
Preference for Mexico	4026
Preference for New Zealand	592

Korea

Thailand	
MFN	5417
ASEAN rates	4727
Malaysia	
MFN	10284
ASEAN rates	3675
BRAZIL	
MFN	9784
Preference for Argentina	99
Preference for Bolivia	8422
Preference for Chile	8289
Preference for Columbia	8632
Preference for Cuba	8509
Preference for Ecuador	8623
Preference for Guyana	224
Preference for Mexico	8465
Preference for Peru	2807
Preference for Paraguay	26
Preference for Uruguay	100
Preference for Venezuela	8647
Mercosur	8942
INDONESIA	
MFN	11110
Preferential rates for China	538
Preferential tariff for ASEAN countries	7481
NORWAY	
MFN rates	6453
GSP rates	490
GSP rates for LDC	1163
Preference for EU	467
Preference for EFTA	372
Preference for EEA	364
Preference for Chile	447
Preference for Turkey	451
Preference for Israel	460
Preference for Tunisia	495
Preference for Bulgaria	478
Preference for Romania	479
Preference for Faroe Islands	479
Preference for Greenland	471
Preference:for Morocco	494
Preference for Palestine	429
Preference for Mexico	430
Preference for Croatia	362
Preference for Jordan	424
Preference for Macedonia	440
Preference for Singapore	438
Preference for Botswana and Namibia	945
Pakistan	
Customs duty	6336
SAARC preferential trading arrangement for LDCs members	457
SAARC preferential trading arrangement for all members	342