RACE-TO-THE-BOTTOM UNILATERALISM

Pierre-Louis Vézina[1]

First version: April 2009
This version: March 2010

Abstract: This paper provides the first empirical assessment of a tariff race-to-the-bottom. Using spatial econometrics methods, I show that political economy forces unchained by FDI-generated employment stir an international tariff cutting competition. This race-to-the-bottom explains part of the unilateral trade liberalization that fostered the creation of Factory Asia.

JEL codes: F13 - Trade Policy; F15 - Economic Integration; N75 - Asia

[1] Graduate Institute of International and Development Studies, Geneva, pierre-louis.vezina@graduateinstitute.ch.
I thank Richard Baldwin and Matthias Rieger as well as seminar participants at the Rigotnomics Brown Bag Lunch on 29 April 2009, SMYE 2010 conference in Luxembourg on 16 April 2010 and GEP conference in Nottingham on 29 April 2010…

1. Introduction

One aspect of trade liberalization that has received too little attention in the economic literature is that of unilateralism. This is puzzling as unilateral trade liberalization accounts for the lion's share of trade liberalization since the 1980s. The World Bank (2005) estimates that it accounts for two thirds of the 21 percentage point cuts in tariffs in developing countries between 1983 and 2003. Baldwin (2006) writes that most of the rapid expansion of trade in East Asia has been fostered by unilateral trade liberalisation rather than preferential trade liberalisation. The Economist (2008) also describes "two decades of unilateral tariff-cutting" in emerging economies.

While some political economy theories have been developed to explain unilateral trade liberalization, such as soft unilateralism (Coates and Ludema 2001, Richardson 2001), ideological leadership (Edwards and Lederman 1998), tariff complementarity of regionalism (Estevadeordal et al. 2008, Calvo-Pardo et al. 2009), none seem appropriate to explain what happened in the emerging economies of East Asia from the end of the 1980's until the mid 2000's. One exception is race-to-the-bottom unilateralism (Baldwin 2006), which suggests that tariff cuts were driven by a competition for FDI.

This paper provides the first empirical assessment of the tariff race-to-the-bottom theory. Using insights from spatial econometrics, I show that political economy forces unchained by a desire for employment-creating FDI can explain part of the unilateral trade liberalization that fostered the creation of Factory Asia.

I focus my empirical analysis on Asian emerging economies which were all competing for Japanese FDI in the 1990s. I show that tariff cuts on parts and components in one country, which were perceived as crucial to attract "production sharing" FDI from Japan, were chronologically caused by lower tariffs and FDI employment gains in competing countries. As a counterfactual I show that these results do not hold when using tariffs on finished products nor when estimating the model for countries that are not part of the manufacturing supply chain, such as Australia. I also find a complementary role for regionalism in MFN liberalization. Indeed, ASEAN regionalism seemed to have amplified the effect of competitive pressure on MFN tariffs.

The next section describes the concept of race-to-the-bottom unilateralism and the setting-up of Factory Asia. In section 3 I provide empirical evidence that tariffs were indeed racing to the bottom. A last section concludes.

2. Race-to-the-bottom unilateralism and Factory Asia

Race-to-the-bottom unilateralism is inspired by a race-to-the-bottom tax competition where countries lower their corporate tax rates in order to attract FDI. This tax cutting, in theory, results in bottom levels of taxation. Here, instead of being a tax cutting competition, it is a tariff cutting competition. The focus on this policy instrument is due to the specific nature of FDI in Factory Asia.

In the 1980s East Asia's developing economies started applying new development strategies which consisted in attracting FDI in manufacturing plants that relied on imports of capital goods and components for local processing. As they knew they were facing serious competition in attracting FDI, especially from Japan (Lamy et al. 2006), they all started to reduce import barriers and cut tariffs, especially on parts-and-components, to provide the best location advantages to Japanese multinationals (Ando and Kimura 2005, Sally 2008). As the tariff cuts were viewed as critical to creating new industry jobs, unilateral tariff cutting became politically optimal, activating the race-to-the-bottom (Kimura 2003, Baldwin 2006).

Unilateral tariff reduction led to the development of regional and global elaborate manufacturing supply chains, first in electronics and then in sport footwear, televisions and radio receivers, office equipment, electrical machinery, power and machine tools, cameras and watches, and printing and publishing (Sally 2008).

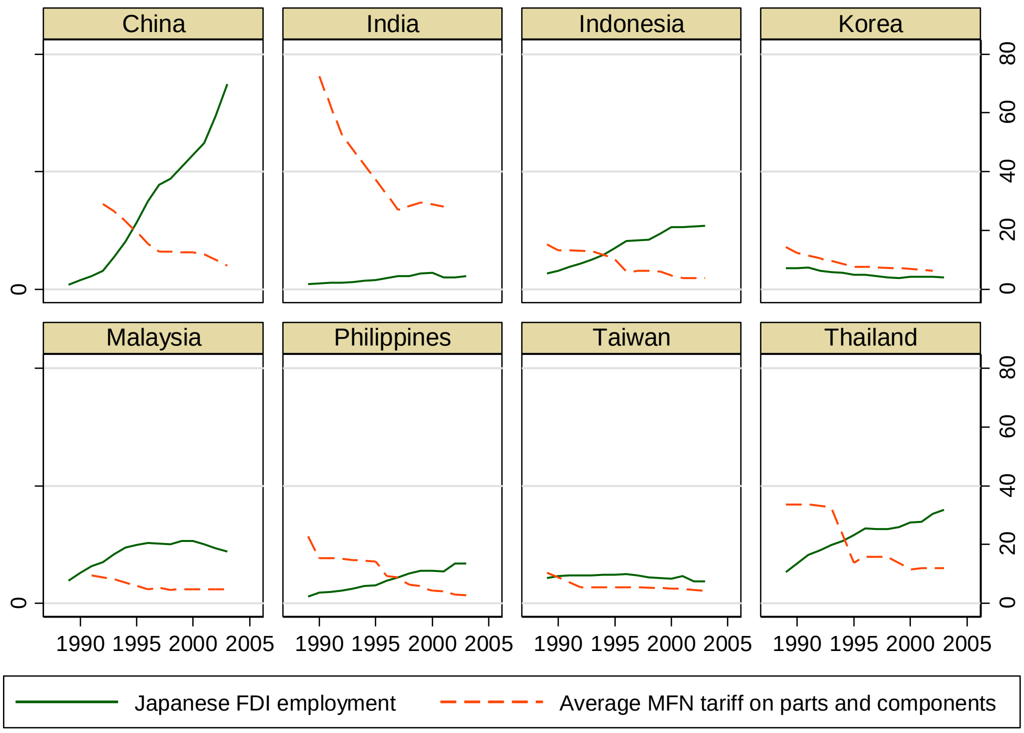
This theory assumes that low tariffs on parts and components are a locational determinant of FDI and that FDI can unchain political economy forces. I examine both of these before turning to the empirical analysis that wioll focus on the determinants of unilateral tariff cutting.

Assumption 1. Low tariffs on parts and components attract FDI

While most trade economists believe that trade openness is a major determinant of FDI, empirical evidence relating trade barriers to FDI inflows is scarce (Blonigen 2005). One reason is the difficulty to distinguish vertical FDI from horizontal FDI which substitutes local production for exports to avoid tariffs (tariff jumping) and is hence positively related with trade protection. Still, in the context of the sliced-up supply chains of Factory Asia, where imported inputs are a matter of utmost importance, Inui et al. (2008) show that supplier access, which includes the level of tariffs, does play an important role in the location choices of foreign affiliates by Japanese firms using a firm-level dataset. This is because imports are crucial to Japanese firms. In 1996, Japanese firms accounted for almost 30% of all of Thailand's imports (see Table 1), or around $22 billion of imports (UN Comtrade). Hence a one percentage point difference in tariff could involve amounts of more than $200 million for Japanese firms, something that is certainly non negligible.

Figure 1 indicates that Japanese FDI did increase as countries were cutting their tariffs on parts and components.

Figure 1. Tariffs on parts and components and Japanese FDI employment



Assumption 2. FDI can unchain political economy forces

East Asian countries started hosting massive FDI before local indigenous firms were well developed. Hence the industrial organization of the manufacturing sector was characterized by a heavy dependence on foreign affiliates (Kimura 2003, see Table 1). This heavy dependence on FDI, not only for international trade but also for employment creation at home must have been enough to convince politicians.

Table 1. The significance of Japanese and US firms in East Asian economies, 1996 (%)

	Employment		Exports		Imports	
	Japanese	*US*	*Japanese*	*US*	*Japanese*	*US*
Korea	0.33	0.17	6.95	na	6.34	na
Malaysia	2.67	1.62	13.1	18.5	15.2	na
Thailand	0.89	0.26	33.3	na	29.8	na
Philippines	0.34	0.24	14.0	31.0	9.70	na
Indonesia	0.26	0.06	11.3	18.9	15.3	na
China	0.05	0.02	3.82	5.32	4.51	na

Source: Kimura (2003)

So far, it seems highly likely that lower tariffs attracted Japanese FDI and that FDI created much employment and economic activity, making tariff cutting politically optimal. But did tariffs really race-to-the-bottom?

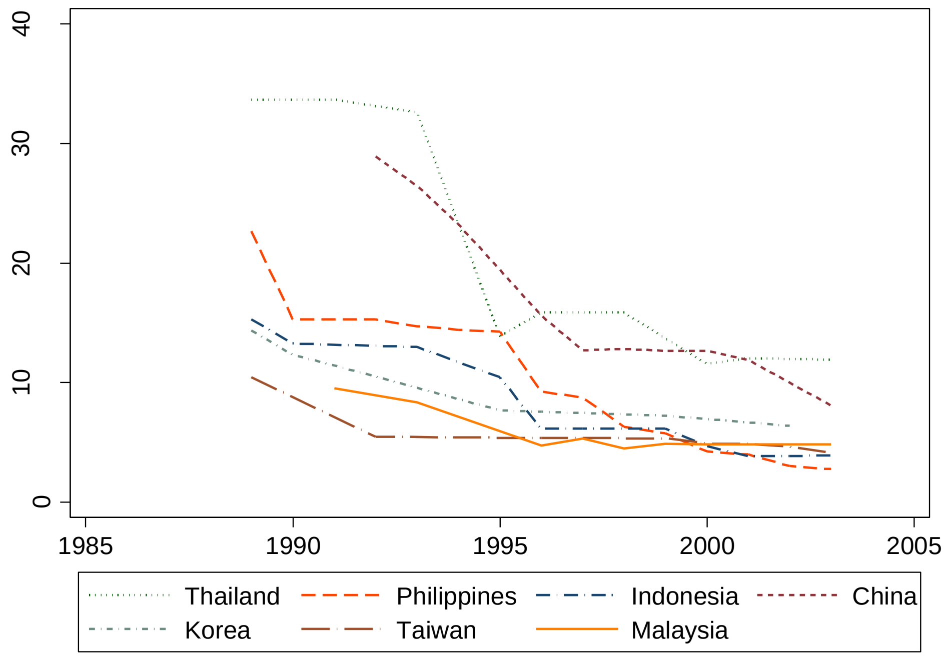
3. Did tariffs race-to-the-bottom?

3.1 Data

I focus on seven Asian emerging economies that constitute Factory Asia, i.e. Thailand, Indonesia, Malaysia, the Philippines, South Korea, Taiwan, and China as they were all competing for Japanese FDI over the 1989-2003 period. I look at tariff data for 125 product lines (parts and components are defined as in Ando and Kimura (2005) aggregated at the HS 4-digit level; examples include bases and covers for sewing machines, carbon electrodes, carbon brushes, lamp carbons, watch cases, compression-ignition internal combustion pistons etc…) from the TRAINS database. I also use Japanese FDI employment data from the Japanese Research Institute of Economy, Trade and Industry Foreign Direct Investment Database which contains estimates on employment for Japanese foreign affiliates by country and industry from 1989-2003. The estimates are obtained by adjusting the Survey of Overseas Business Activities of Japanese Enterprises. Finally, I use real GDP per capita data from the World Penn tables and geographic distance from CEPII.

As can be seen in Figure 2, tariffs in parts and components were on average repeatedly cut from 1989 till 2003. After 1995, when the WTO was set up, MFN tariffs went down in all Asian countries, racing to the bottom, while the bound rates remained flat, indicating unilateral tariff cutting.

Figure 2. Tariffs on parts and components racing to the bottom



3.2 Convergence in tariffs

To further investigate the convergence in tariffs associated with a race-to-the-bottom, I first estimated beta convergence coefficients. Table 2 gives the estimates across countries, within product-period. For parts and components, countries with a tariff one point higher cut them by 0.86 percentage points more over the entire period, and by 0.35 percentage points more on a yearly basis. These highly significant results suggest that, for any given component in a particular year, cuts were systematically deeper in countries that had a higher applied MFN tariff. For example, if Thailand had tariffs on rubber soles as high as 35% in 1989 while the Philippines had them at 15%, over the whole period studied, cuts would have been 17 percentage points deeper for Thailand. So a cut from 15% to 5% in the Philippines would have been matched by a cut from 35% to 8% in Thailand. I also find that beta convergence is a bit more pronounced in parts and components than in finished products, as predicted by the FDI competition.

Table 2. Beta convergence in MFN tariffs (within product-period, across countries)

	1989-2004		Yearly	
	Parts	Non-parts	Parts	Non-parts
Tariff (at t=0)	-0.862***	-0.842***	-0.343***	-0.306***
	(0.01)	(0.01)	(0.01)	(0.01)
R2	0.929	0.899	0.507	0.504
N	875	875	4375	4375

OLS regressions within product-period across countries. Dependent variable is tariff change in levels. Robust standard errors in parenthesis. *** denote statistical significance at the 1% level.

As seen in figure 3, tariffs across countries were converging to similar levels as the standard deviation fell (sigma convergence). Table 3 gives summary statistics of MFN tariffs for each period.

Figure 3. Sigma convergence in MFN tariffs on parts and components (across countries)

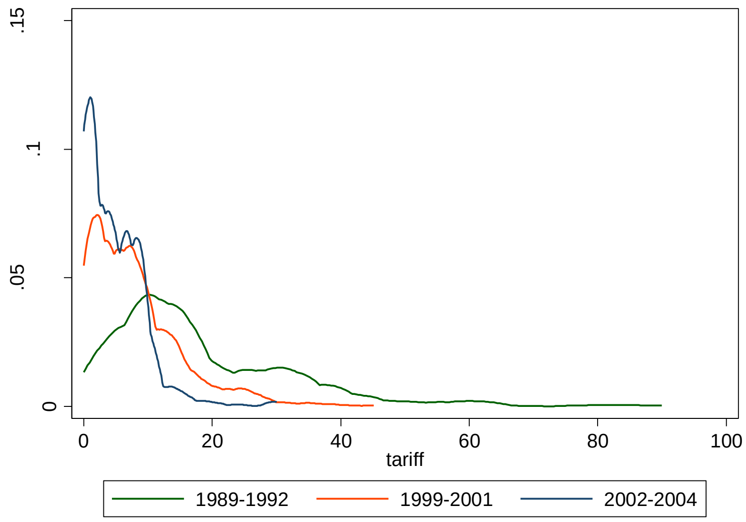


Table 3. Summary statistics over time

MFN tariffs in parts and components					
Period	Obs	Mean	Std. Dev.	Min	Max
1989-1992	875	17.82	13.92	0	90
1993-1995	875	13.16	11.32	0	82.68
1996-1998	875	7.97	7.42	0	56.25
1999-2001	875	7.65	7.13	0	45.11
2002-2004	875	5.35	5.74	0	40
2005-2006	875	4.54	4.54	0	30
MFN tariffs in finished products (random sample)					
Period	Obs	Mean	Std. Dev.	Min	Max
1989-1992	875	21.25	19.37	0	110
1993-1995	875	17.875	17.19	0	90
1996-1998	875	11.83	10.81	0	62.5
1999-2001	875	10.53	9.84	0	61
2002-2004	875	7.71	7.46	0	54.6
2005-2006	875	7.13	7.34	0	60

The evidence so far is indicative of tariffs racing-to-the-bottom, as countries with higher tariffs were cutting deeper, trying to catch-up on their competitors. But the question of who cuts and when and whether or not governments were reacting to FDI employment gains in competing countries remains.

3.3 Did FDI employment in competing countries cause tariff cuts?

While there is no direct evidence in the literature that the unilateral tariff cutting in this phase was caused by competition for Factory Asia investment, there is a small amount of anecdotal evidence (see for example Kuchiki 2003). To fill the empirical void, I run the regressions of

Table 2 adding an indicator of FDI employment gains in competing countries. Results are in Table 4. While total or average FDI employment in neighbouring countries are insignificant in explaining tariff cuts, a weighted sum of FDI employment in competing countries, where the weights are the inverted difference in GDP per capita[2], shows negative and significant for parts and components. This suggests that tariff cuts were deeper in countries losing Japanese FDI employment to competitors at a similar level of development. This result does not hold for finished products, reinforcing the idea that it is tariffs in parts and components that were racing-to-the-bottom.

Moreover, cuts in tariffs on parts and components are significantly smaller, or even inexistent, when FDI employment gains are above the weighted sum of FDI in competing countries. This suggests that FDI *jealousy* and the tariff cuts that follow is strongest when countries miss out on most employment gains. Again, this result does not hold for finished products.

Table 4. Who cuts? Determinants of cuts in MFN tariffs (within product-period, across countries)

	Parts	Non-parts	Parts	Non-parts
Tariff (at t=0)	-0.343***	-0.305***	-0.347***	-0.307***
	(0.01)	(0.01)	(0.01)	(0.01)
GDPPC weighted FDI employment in competing countries	-0.000***	-0.000		
	(0.00)	(0.00)		
Difference between FDI employment and GDPPC weighted FDI employment in competing countries			0.000***	0.000
			(0.00)	(0.00)
R2	0.559	0.504	0.557	0.504
N	4375	4375	4375	4375

OLS regressions within product-period across countries. Dependent variable is tariff change in levels. Robust standard errors in parenthesis. *** denote statistical significance at the 1% level.

I replicate these regressions across time and within country-product to examine the timing of cuts. Results in Table 5 indicate that countries cut their tariffs most when competing countries attracted the most FDI employment but not necessarily when they did worse than them at attracting FDI.

Table 5. When? Determinants of cuts in MFN tariffs (within country-product, across time)

	Parts	Non-parts	Parts	Non-parts
Tariff (at t=0)	-0.587***	-0.472***	-0.474***	-0.388***
	(0.03)	(0.03)	(0.02)	(0.02)
GDPPC weighted FDI employment in competing countries	-0.000***	-0.000***		
	(0.00)	(0.00)		
Difference between FDI employment and GDPPC weighted FDI employment in competing countries			-0.000**	-0.000
			(0.00)	(0.00)
R2	0.587	0.516	0.564	0.496
N	4375	4375	4375	4375

OLS regressions within country-product across time. Dependent variable is tariff change in levels. Robust standard errors in parenthesis. *** denote statistical significance at the 1% level.

[2] GDPPC weighted FDI employment in competing countries for country i can be expressed as $\sum_{j, j\neq i}^{n}\left(\left|GDPPC_i - GDPPC_j\right|^{-1} FDI_{employment} j\right)$. The weighting matrix is then row-standardized.

3.3 *Spatial* dependence

Racing-to-the-bottom, tariffs should be correlated in competitive space. More precisely, tariffs should follow tariffs of competing countries if the latter are lower, if FDI *jealousy* is high and if competing countries are at a similar level of development. To test for such *spatial* dependence in competitive space, I estimate the following model,

$$\tau_{ijt} = \alpha_{ij} + \upsilon_t + \rho W \tau_{ijt_{-1}} + \varepsilon ,$$

where τ_{ijt} is the tariff of product i, in country j in period t, α_{ij} is a country-product fixed effect, υ_t is a period dummy, which accounts for the general downward trend, and W is the weighting matrix.

The choice of W determines the type of *spatial* correlation. The first prediction of the race-to-the-bottom theory is that tariffs follow their competitors' only if the latter were lower. Hence, I define W_1 as a matrix that gives weight only to competing countries' tariffs that are lower[3].

The second prediction of the theory is that Japanese FDI employment in competing countries is seen as "lost" employment, creating FDI jealousy. If competing countries had lower tariffs and "stole" FDI employment, it is even more likely for tariffs to follow these competitors. Hence I build W_2 whose elements contain the amounts of Japanese FDI employment in each country in each period to give more weights to tariffs of countries that received more FDI employment. I also build a more "extreme" version of W_2 where employment gains in neighbouring countries will only matter if they are superior to those at home. The idea is that a country that benefits from the biggest employment gains might not be *jealous* of modest employment gains in competing countries. But countries might want it all, and all FDI that goes to competing countries could be considered as "lost" and breed FDI *jealousy*.

Finally, if countries at similar levels of development (proxied by GDP per capita) have similar wage structures and labour force qualifications, they might be competing more intensively at the tariff level. Hence I also construct W_3, whose elements are the inverted GDP per capita differences between countries.

The *spatial* weighting matrix can thus be computed as the row-standardized sum of the Hadamard product of W_1 and W_2 and the Hadamard product of W_1 and W_3, i.e. W= ($W_1 \circ W_2$

---

[3] If τ is the column vector of tariffs, Γ a row vector of one, I first compute $\Gamma \otimes \tau - \Gamma' \otimes \tau'$ which gives a skew-symmetric matrix whose elements are the differences in tariffs between countries. To obtain W_1, I replace negative values, which correspond to periods and products in which the tariff in competing countries is higher, with zero, and I replace positive values with ones.

+ $W_1 \circ W_3$). For each period, τ_i will therefore be regressed on the lag of the row-normalized form of

$$\left(\sum_{j \neq i; \tau_j < \tau_i}^{n} \tau_j * FDI\_employment_j + \sum_{j \neq i; \tau_j < \tau_i}^{n} \tau_j * \left| GDPPC_i - GDPPC_j \right|^{-1} \right).$$

I use OLS to estimate the coefficients. The fixed effect allows me to avoid the problems of an autoregressive spatial lag model as it takes away the spatial correlation in the errors and the lag on the right-hand side takes away the reverse causality (Egger and Larch 2008).

I estimate the model for parts and components and for finished products separately. Results should hold mostly for parts and components as they constitute the requirement of Japanese firms. Since the matrix weighting analysis requires a balanced panel and some observations were missing, I aggregated the data into six time periods as in Calvo-Pardo et al. (2009). The six periods are: 1. the pre-ASEAN Free Trade Agreement period (before 1993); 2. the early years of the agreement (1993-1995); 3. the Asian crisis period (1996-1998); 4. the post-crisis period (1999-2001); 5. (2002-2004); 6. further liberalization by all members (2005-2006).

Results

The results are in table 6. The first row gives the results using W as described above, using the less "extreme" version of W_2. I obtain a significant and positive ρ of 0.852 which indicates a strong and positive dependence in competitive space, as predicted by theory. I computed robust standard errors but also standard errors clustered at the country, product or period level to check for potential correlation of errors within clusters. The second line of coefficients gives the estimate for finished products. As expected, the size of the coefficient is smaller, at 0.385. Moreover, the R^2 is higher for parts and components, at 74%, suggesting the model provides a better fit for parts and components, as predicted.

Robustness checks

I proceed to a number of robustness checks. First, I check if the results change when using the more "extreme" version of W_2, where only the tariffs of countries that received more FDI employment matter. The estimates in the second row indicate that, while the results still hold, they are not as strong. This provides support to the idea that all FDI employment that goes to competing countries is considered as "lost", no matter how much one receives.

Second, to verify if similar levels of development really matter, I use only $W_1 \circ W_2$ as a weighting matrix, omitting the importance of GDP per capita differences. The results, given in the third row, are again very convincing, with a ρ of 0.816 and an R^2 of 73.35% for parts and components suggesting tariff competition is intense even between countries at different levels of development. But the lower R^2 and coefficient indicate that the full weighting matrix provides a better fit. In the fourth row I show results using only $W_1 \circ W_3$, where only GDP per capita similarity would drive the correlation in tariffs. Again, the "competitive space" correlation still holds, but the fit is not as good as when including FDI employment *jealousy*, hence reinforcing support for the race-to-the-bottom theory.

Finally, one might object that these results hold no matter what weighting matrix is used and hence do not provide much evidence of a race-to-the-bottom in tariffs. In the fifth row I provide the results using a placebo, non-theory based weighting matrix that gives equal weight to each competitor's tariff. I fail to find the same results as before. Not only does this model fit better tariffs of finished products, the estimated ρ are very low. Inspired by traditional spatial economics, I also test the model using a weighting matrix giving more weight to geographically close countries, i.e. using inverted distance between countries' main cities as weights. The coefficient is now negative, once again providing support for previous results as being consequential.

Table 6. Do tariffs follow "competitors'" lower tariffs?
Tariffs on parts and components vs. finished products

Weighting matrix	ρ estimate	Robust s.e.	Period clustered s.e.	Product clustered s.e.	Country clustered s.e.	Adjusted R2	Obs.
Inverted difference in GDP per capita + "lost" Japanese FDI employment	.852 .385	.068*** .044***	.421 .187	.050*** .066***	.272** .150*	.7399 .7120	3207 3457
Inverted difference in GDP per capita + "lost" Japanese FDI employment (only if they got less FDI)	.448 .271	.050*** .035***	.283 .193	.0387*** .044***	.202* .193	.7116 .7102	3207 3457
"Lost" Japanese FDI employment	.816 .243	.074*** .045***	.440 .137	.053*** .063***	.295** .132	.7335 .7016	3207 3457
Inverted difference in GDP per capita	.764 .417	.056*** .038***	.346* .182***	.046*** .060***	.217* .142**	.7360 .7205	3207 3457
Equal weights	.095 .178	.042** .041***	.036* .048*	.049* .050***	.125 .189	.7144 .7109	4340 4374
Inverted distance	-.129 -.077	.029*** .029***	.061 .034*	.054* .053	.084 .159	.7124 .7090	4340 4374

Within country-product regressions with period dummies. Dependent variable is MFN tariff. Explaining variable is weighted sum of tariffs of competing countries in previous period. First line is for parts and components; second line is for finished products.

Another placebo test is to estimate the model on Australia, a country that is not part of Factory Asia and did not participate in the tariff race-to-the-bottom. I first check if tariff cuts in Australia were deeper when FDI employment was higher in Factory Asia, giving more weight to countries at a closer level of development (as in table 4), such as Taiwan and Korea.

As seen in table 7, I find the opposite. Tariff cuts were shallower when "lost" employment was bigger.

Table 7. Do cuts in Australian tariffs on parts depend on Factory Asia?

	Parts
GDPPC weighted FDI Employment in Factory Asia	.000*** (.00)
R2	.249
N	500

OLS regressions within product across time. Dependent variable is tariff change in levels. Robust standard errors in parenthesis. *** denote statistical significance at the 1% level.

I also check for a spatial correlation between the tariffs on parts and components in Australia and in the countries of Factory Asia. I weight Factory Asia tariffs by FDI employment. I found a coefficient as low as 0.08, indicating a quasi inexistent relationship.

Table 8. Do Australian tariffs on parts and components follow Factory Asia's tariffs?

Weighting matrix	OLS coefficient	Robust s.e.	Period clustered s.e.	Product clustered s.e.	Obs.
"Lost" Japanese FDI employment	.080	.034**	.026*	.045*	500

Within product regressions with period dummies. Dependent variable is MFN tariff. Explaining variable is weighted sum of tariffs of Factory Asia countries in previous period.

Hence, as predicted, the model provides no predictive power when estimated on Australia, which is not part of the manufacturing supply chain of Factory Asia.

Could this be the result of regionalism?

Another hypothesis explaining unilateral cuts in MFN tariffs is the advent of regional trade agreements. Indeed, Calvo-Pardo et al. (2009) suggest that the preferential tariff cuts in ASEAN caused the cuts in MFN tariffs. One might therefore ask whether this is the case for all countries of Factory Asia.

First, while countries in Factory Asia are now increasingly active in forming trade agreements, this was not the case during the period of study. China may now have sealed 14 trade agreements, it started only in 2002 when signing with ASEAN. South Korea signed its first with Chile in 2004. Even Japan's trade agreements started in 2002. Malaysia signed its first with Japan in 2005, while the Philippines did the same in 2006 and Indonesia in 2007. Thailand signed a limited one with China including only agriculture in 2003. Hence only ASEAN preferences could have mattered for the period studied in this paper.

I therefore test for this first by looking at whether tariff cuts in the four concerned ASEAN countries are explained by preferential margins. To do so, I regress tariff cuts on a dummy indicating whether or not the product has a preferential margin. For parts and components, about 55% of products (HS4 level) do. For finished products, the share is as high as 70%. I look across products with country-period fixed effects to check whether MFN cuts were deeper for products with preferences. I base my estimation on table 4, leaving out the weighted sum of FDI employment as it doesn't vary within country-period. Results are in table 9. Cuts are significantly deeper for parts and components categories with preferential margins, confirming the result of Calvo-Pardo et al. (2009). Moreover, using the margin itself as an explaining variable I find that MFN cuts were deeper for products with bigger preferential margins, indicating that regionalism did most likely have a positive effect on unilateral tariff cutting.

Table 9. Do preferential margins explain tariff cuts in ASEAN?

	Parts	Non-parts	Parts	Non-parts
Tariff (at t=0)	-.301***	-.245***	-.293***	-.247***
	(0.03)	(0.02)	(0.03)	(0.03)
Preferential margin dummy (at t=0)	-1.901***	-.349		
	(0.28)	(0.25)		
Preferential margin (%) (at t=0)			-.074***	-.026***
			(0.01)	(0.01)
R2	1380	1392	1380	1392
N	.322	.270	.398	.266

OLS regressions with country-period fixed effects. Dependent variable is tariff change in levels. Robust standard errors in parenthesis. *** denote statistical significance at the 1% level.

I also look at the *spatial* correlation in the presence of preferential margins. I include the preferential margin as a determinant of tariffs on parts and components and look at whether products with bigger margins still follow tariffs in competing countries. I thus estimate

$$\tau_{ijt} = \alpha_i + \eta_j + \upsilon_t + \rho W \tau_{ijt_{-1}} + \beta m_{ijt} + \theta W \tau_{ijt_{-1}} * m_{ijt} + \varepsilon ,$$

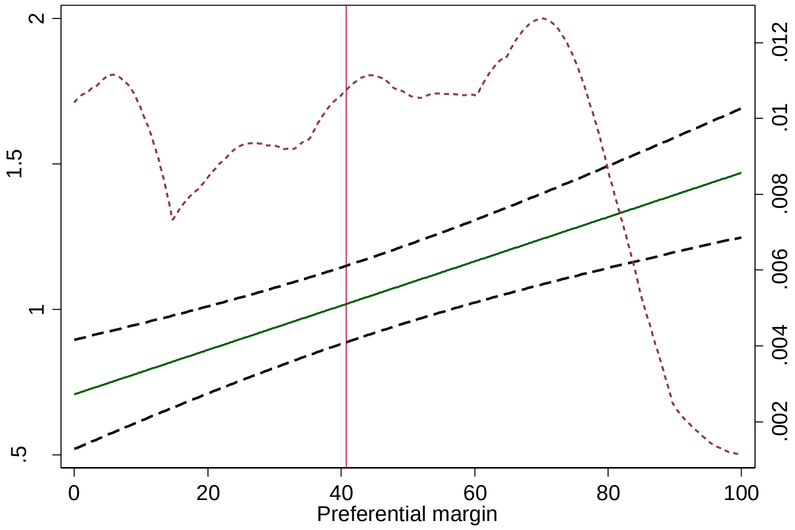
where m_{ijt} is the preferential margin (in percentage terms) on product i in country j in period t, W is the weighting matrix defined as including the inverted difference in GDP per capita and the "lost" Japanese FDI employment. Results in Table 10 show that controlling for regionalism does not make the race-to-the-bottom forces insignificant. In figure 4 I show that the *spatial* correlation increases for products with higher preferential margins. This suggests that regionalism and the competitive forces that trigger unilateral trade liberalization may be complement. Still, regionalism cannot be considered strictly exogenous to the model as it might also have been caused by the forces of the race-to-the-bottom. Indded, when the regionalism process started in 1993, the political economy forces were already well into play. Still, from these results it appears regionalism had an amplification results on the race-to-the-bottom.

Table 10. Do tariffs on parts and components follow Factory Asia's tariffs even in the presence of regionalism?

(Inverted difference in GDP per capita + "lost" Japanese FDI employment) weighted lagged tariffs	.708 *** (.114)
Preferential margin (%) (at t=0)	-.058*** (.009)
Interaction	.007 (.001)
Adj R2	0.692
Obs	855

Country, period and product dummies. Dependent variable is MFN tariff. Robust standard errors in parenthesis. *** denote statistical significance at the 1% level.

Figure 4. Race-to-the-bottom and regionalism



Thick dashed lines give 90% confidence interval.
Thin dashed line is a kernel density estimate of preferential margin.

4. Conclusion

This paper provides the first empirical assessment of a tariff cutting race-to-the-bottom. I show that political economy forces, by which more FDI generated employment stirs a competition for low tariffs, does explain part of the unilateral trade liberalization that took place in Factory Asia during the last 20 years. As Sally (2008) observes, in an increasingly integrated region with supply chains spread across countries, unilateral measures and competitive emulation, rather than WTO negotiations, are likely to be the main vehicle for future trade and FDI liberalisation. As development policy, the Factory Asia model reveals that an initial openness to "production sharing" FDI can unchain competitive forces and provide the right political incentives for unilateral liberalization and trade integration.

References

Ando, M. (2006), 'Fragmentation and Vertical Intra-industry Trade in East Asia', *North American Journal of Economics and Finance*

Ando, M. and F. Kimura (2005), 'The Formation of International Production and Distribution Networks in East Asia', in T. Ito and A. Rose (eds.), *International Trade in East Asia, U*niversity of Chicago Press, 2003

Baldwin, Richard E. 2006. "Multilateralising Regionalism: Spaghetti Bowls as Building Blocs on the Path to Global Free Trade," The World Economy, Blackwell Publishing, vol. 29(11), pages 1451-1518, November.

Blonigen, Bruce A. "A Review of the Empirical Literature on FDI Determinants." Atlantic Economic Journal, Vol. 33(December 2005): 383-403.

Calvo-Pardo, Hector & Freund, Caroline & Ornelas, Emanuel, 2009. "The ASEAN free trade agreement : impact on trade flows and external trade barriers," Policy Research Working Paper Series 4960, The World Bank

Coates, D., and Ludema, R., 2001, "A Theory of Trade Policy Leadership", Journal of Development Economics 65(1)

Edwards, Sebastian and Lederman, Daniel, "The Political Economy of Unilateral Trade Liberalization: The Case of Chile" (April 1998). NBER Working Paper W6510.

Egger, Peter and Mario Larch (2008), Interdependent preferential trade agreement memberships: An empirical analysis, Journal of International Economics, Volume 76, Issue 2, December

Estevadeordal, Antoni & Caroline Freund & Emanuel Ornelas, 2008. "Does Regionalism Affect Trade Liberalization toward NonMembers?," The Quarterly Journal of Economics, MIT Press, vol. 123(4), pages 1531-1575, November

Fukao, K., H. Ishito and K. Ito (2003), 'Vertical Intra-industry Trade and Foreign Direct Investment in East Asia', *Journal of the Japanese and International Economies*, **17**, 4, 468–506.

Inui, T., Matsuura, T. and Poncet, S. (2008) The Location of Japanese MNC affiliates: agglomeration, spillovers and firm heterogeneity, The Institute of Economic Research, Hitotsubashi University, Discussion Paper Series A No.506

Kimura, Fukunari. (2003) "Development Strategies for Economies under Globalisation: Southeast Asia as a New Development Model." In Tran Van Hoa and Charles Harvie, eds., New Asian Regionalism: Responses to Globalisation and Crises, London: Palgrave

Kuchiki, A. (2003), 'Agglomeration and Exporting Firm in Industrial Zones in Northern Vietnam: Players and Institutions', in M. Kagami and M. Tsuji (eds.), Industrial Agglomeration (Tokyo:IDE-JETRO 2003).

Lamy, P., H. Dieter, J. Defraigne and R. Higgott (2006), 'Report on East Asian Integration: Opportunities and Obstacles for Enhanced Economic Co-operation', (Paris: Notre Europe).

Richardson, Martin (2001) Unilateral Liberalisation in a Multilateral World, University of Otago Economics Discussion Papers No. 0102, February 2001

Sally, Razeen (2008) Globalisation and the Political Economy of Trade Liberalisation in the BRIICS, working paper

The Economist, Fare well, free trade, Dec 18th 2008 print edition

World Bank (2005) Global economic prospects 2005: Trade, Regionalism and Development, Washington, D.C.

Xing, Yuqing & Guanghua Wan (2006). "Exchange Rates and Competition for FDI in Asia," The World Economy, Blackwell Publishing, vol. 29(4), pages 419-434, 04

Young (1996) Political Economy of Trade Liberalization in East Asia in The World Trading System by Jeffrey J. Schott, Institute for International Economics