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Unilateral Tariff Liberalisation

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Abstract

Unilateral tariff liberalisation by developing nations is pervasive but our understanding of it is shallow. This paper strives to partly redress this lacuna on the theory side by introducing three novel political economy mechanisms with particular emphasis is on the role of production unbundling. One mechanism studies how lowering frictional barriers to imported parts can destroy the correlation of interests between parts producers and their downstream customers. A second mechanism studies how Kojima's pro-trade FDI raises the political economy cost of maintaining high upstream barriers. The third works via a general equilibrium channel whereby developing country's participation in the supply chains of advanced-nation industries undermines their own competitiveness in final goods, thus making final good protection more politically costly. In essence, developing nations' pursuit of the export-processing industrialisation undermines their infant-industry industrialisation strategies.

Keywords: Unilateral tariff liberalisation, race-to-the-bottom, political economy

JEL Codes:F1, F13, F15

[1] This paper was written for a special issue of The International Economy (the journal of the Japan Society of International Economics) in tribute to the late Professor Kiyoshi Kojima. As a great admirer of Professor Kojima's work and wisdom, I was honoured to be asked to help commemorate his life's work with this contribution. I would like to thank Caroline Freund, Paola Conconi, Bernard Hoekman, Pierre-Louis Vezina, Yose Damui, Emanuel Ornelas, an anonymous referee, and Special Issue editor Professor Ruyhei Wakasugi for helpful comments and suggestions that greatly improved the paper.

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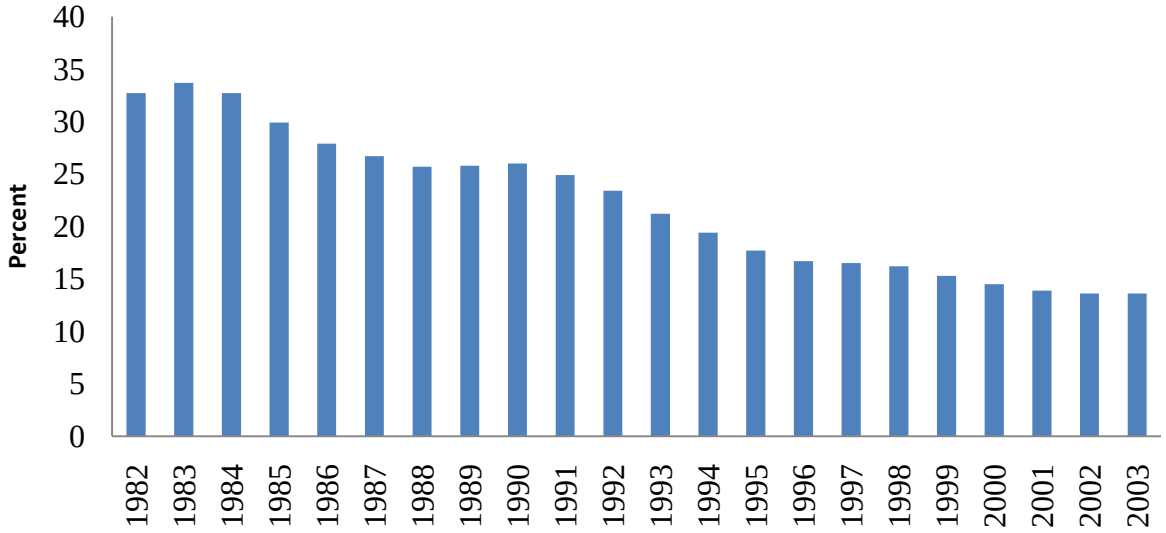
1. INTRODUCTION

Trade liberalization for much of the second half of the 20th century was difficult (Zeiler 1997). It was slow, it involved only rich nations, and it occurred only in the context of reciprocal bargains – both GATT Rounds and Regional Trade Agreements (RTAs).The reciprocity was critical; foreign tariffs fall only if domestic tariffs do, so mercantilists lobby against protectionists in their own nation. As such, governments found it politically optimal to cut tariffs in reciprocal bargains that they had previously found optimal to impose (Moser 1990).

In the late 1980s, this situation changed. Many nations that had previously eschewed all forms of liberalization began to cut their tariffs autonomously. The World Bank, for instance, estimates that developing nations unilaterally lowered their average tariffs by something like 14 percentage points between 1983 and 2003 independently of GATT/WTO rounds and RTAs (Martin and Ng 2004). The evolution of these tariff cuts is illustrated in Figure 1. While some nations lowered their tariffs starting in mid 1980s, most did the bulk of their tariff cutting in the mid to late 1990s.

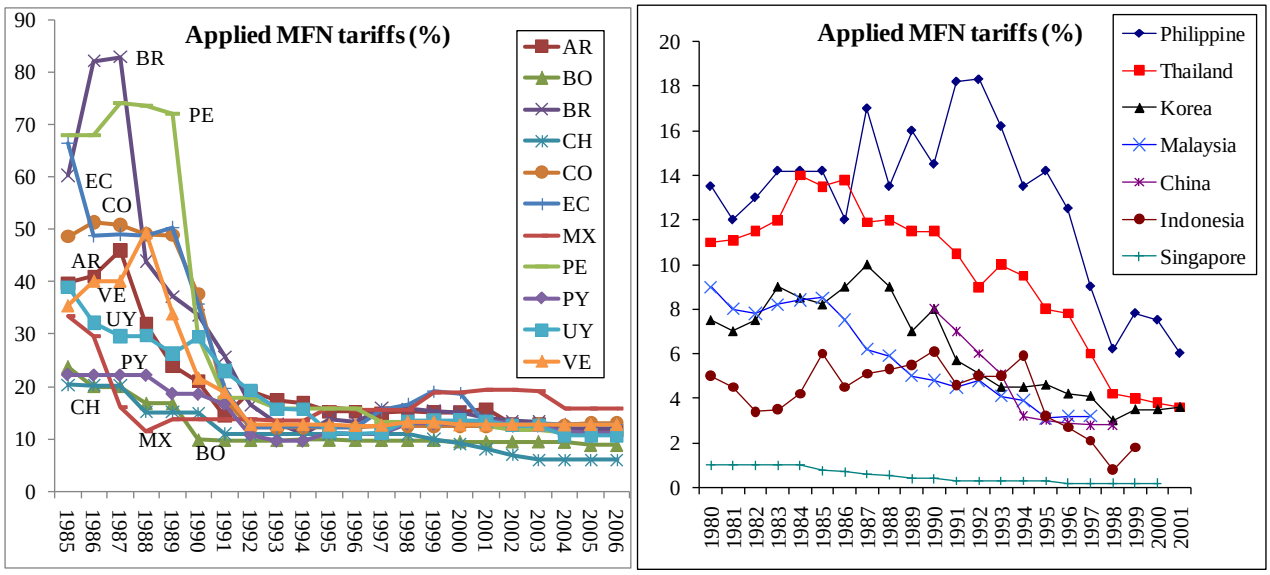
The picture is broadly similar for developing nations in East Asia and Latin America, but the more dramatic Figure 2). Tariffs in Latin America were quite high in the mid-1980s. Averages were all over 20% and many over 40%. All of these tariffs, however, plummeted starting in the late 1980s. Most of the national averages are now down around 10%. The story in East Asia is more mixed. Some – such as Singapore and Hong Kong – have long maintained low applied MFN tariffs, and even the more protectionist nations in the region had tariff averages in the five to fifteen percent range. In the late 1980s for most and early 1990s for others, tariffs started to come down. By the turn of the century, average tariffs in the region were typically 5% or lower.

Figure 1: Evolution of average tariff rates in developing nations.



Source: Martin and Ng (2004). Notes: Average developing nation tariffs (three year moving average).

Figure 2: Unilateral tariff cuts in Latin American and East Asia.

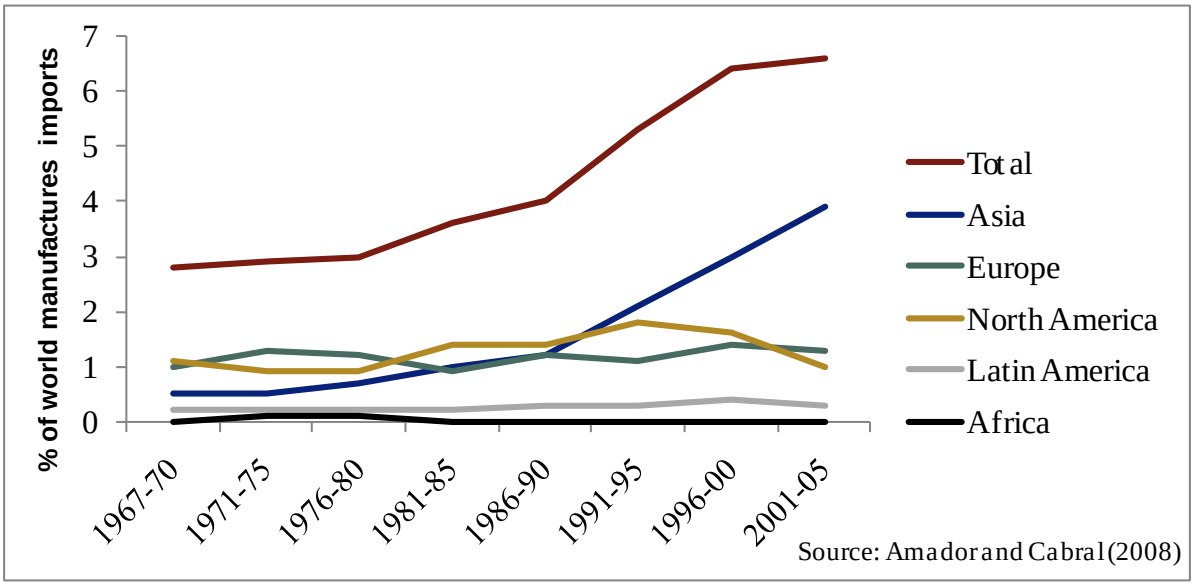


Source: Inter-American Development Bank database and ITC database.

The rise of unilateralism occurred at approximately the same time as the internationalisation of supply chains accelerated (Kimura et al 2007, Campa and Goldberg 1997, Hanson and Feenstra 1997). Specifically, the bundling of most stages of manufacturing within a single factory within a single nation came undone and some stages were moved offshore either inside or outside the boundaries of the original manufacturing firm. One very obvious version of this production unbundling is known as outward processing trade, or vertical specialization

trade (Ishii and Yi 1997); intermediate inputs are imported and used in goods that are subsequently exported. Figure 3 shows that this trade was long important in Europe and North America but that it boomed in the late 1980s, especially in Asia.

Figure 3: Outward processing trade, 1967 – 2005.



Source: Amador and Cabral (2008).

Internationalisation of the supply chain – also known as production unbundling, fragmentation, trade in tasks, or the second unbundling – is a much broader phenomenon than outward processing trade. Hanson and Feenstra (1997) document production unbundling across the US-Mexico border, and Ando and Kimura (2005) do the same for intra-East Asian trade. The densification of this production unbundling can be seen in Table 1, which shows the international input-output sector for East Asian nations' manufacturing sectors. In 1985, Japan was an important supplier of inputs to all other East Asian nations but intermediates trade among the developing Asian nations was slender (apart from Singapore which was already a hub of microelectronics production). By 2000, however, the input-output matrix was much fuller with import supply links among nations such as China, Malaysia and Thailand.

Another important – and easily measured – facet of supply-chain internationalisation is foreign direct investment. This also flourished at approximately the same time, namely the mid-1980s and early 1990s. Figure 4 illustrates the case of Japanese auto and electrical machinery plants placed in East Asian nations. The evolution shows a clear acceleration from 1985 with another inflection point in the mid-1990s – mostly due to plants placed in China.

Table 1: Widening and deepening of Factory Asia, 1985 and 2000.

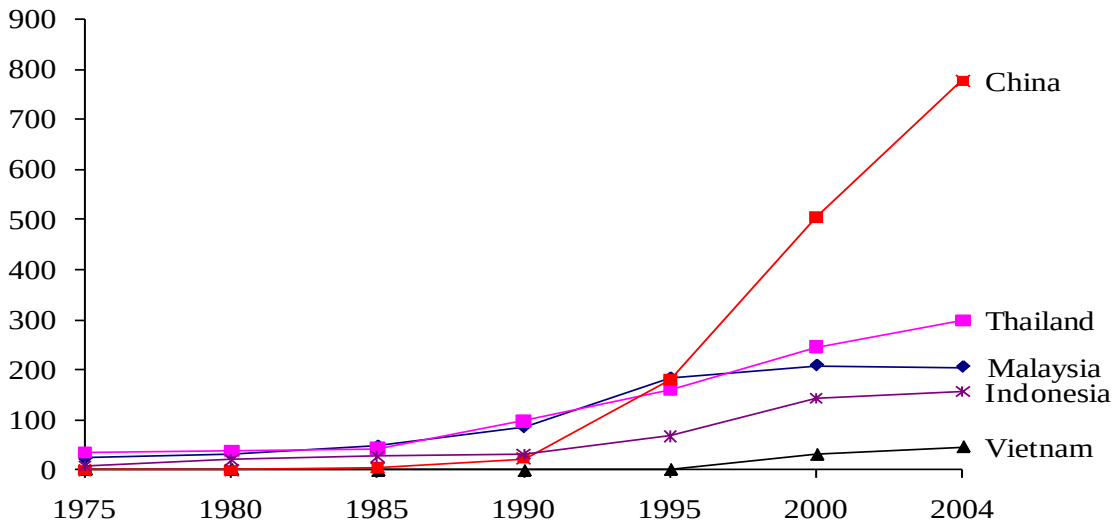
1985	China	Indonesia	Malaysia	Philippines	Thailand	Singapore	Taiwan	Korea	Japan
Indonesia						8%			
Malaysia						16%			
Philippines									
Thailand									
China				2%		14%			
Taiwan						3%			
Korea									
Singapore		3%	7%						
Japan	3%	12%	14%	4%	9%	12%	7%	8%	
RoW		15%	19%	19%	14%	11%	10%	16%	8%
2000	China	Indonesia	Malaysia	Philippines	Thailand	Singapore	Taiwan	Korea	Japan
Indonesia						2%			
Malaysia				3%	4%	12%	2%		
Philippines									
Thailand			4%	3%		3%			
China		2%	3%		4%	5%	2%		
Taiwan			5%	5%	3%	3%			
Korea	2%	3%	4%	8%	3%	4%	4%		
Singapore			13%	6%	4%				
Japan	2%	7%	15%	20%	16%	19%	14%	7%	
RoW	4%	16%	20%	20%	17%	38%	15%	11%	4%

Notes: Share of manufactured inputs bought by column nation's manufacturing sector from the row nation; numbers less than 2% are zeroed out; own-nation purchases are also zeroed out. The columns would sum to 100% if each nation's own supply of inputs to its own manufactured sector were included and all entries below 2% had not been zeroed. RoW equals Rest of World. IDE-JETRO is the source of the Asian input-output matrix (7 sectors) for 1985 and 2000; see Inomata, Satoshi and Yoko Uchida (2009) for background.
Source: Baldwin (2006b).

The underlying causes of this new, more complex form of international commerce are not fully understood. I have elsewhere argued that the key was the revolution in information and communication technologies (ICT) that occurred in the 1980s (telecoms) and 1990s (internet) – see Figure 5.[2]

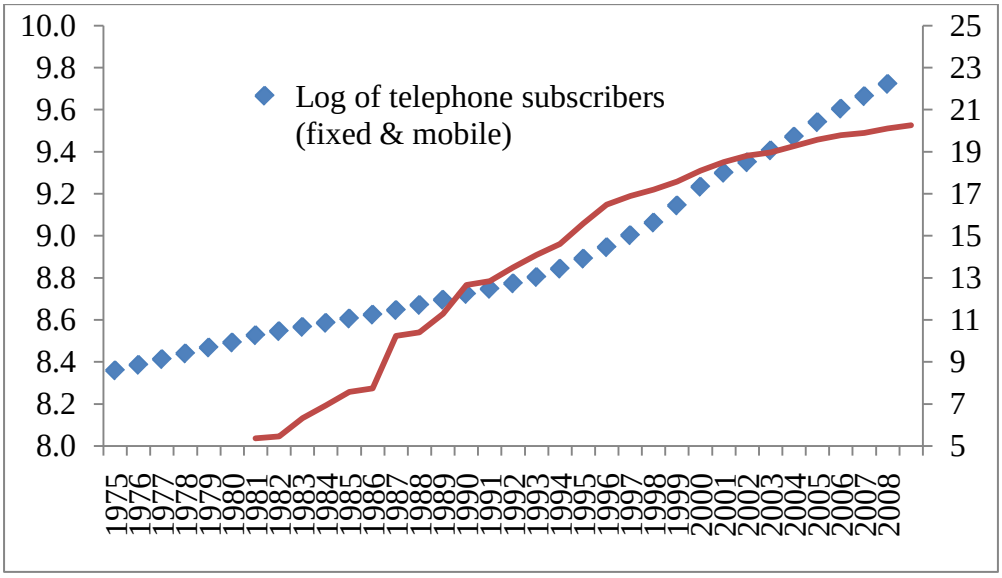
Figure 4: Number of Japanese auto and electrical machinery plants in East Asia, 1975 – 2004.

[2] See Baldwin (2006a) for details and policy implications. See Ariu and Mion (2010) for evidence on the link between ICT and offshoring.



Source: Fujita and Hamaguchi (2006).

Figure 5: ICT revolution indicators



Sources: World Bank, Doing Business database, and www.isc.org/solutions/survey/history.

The assertion is that the initial clustering of manufacturing stages was not due to transportation costs but rather what might be called ‘coordination costs’. The initial bundling of manufacturing stages stemmed from the way that the costs of coordinating complex processes are reduced by physical proximity. This distinction between transportation and coordination costs is relevant since there is little evidence that the world experienced a sharp reduction in shipping costs after the 1970s (Hummels 1999).

As some of these coordination costs are related to communications, the ICT revolution fundamentally changed the balance between agglomeration and dispersion of manufacturing stages (Baldwin and Venables 2010). Coordination at distance became cheaper and more reliable and this made it economically feasible to offshore some manufacturing stages without hindering the overall functioning of the supply chain. As the factor intensity of manufacturing stages can vary greatly within a single production process, and factor prices variable greatly across nations, trade in parts and components flourished as rich-country manufacturers offshored labour-intensive stages to emerging economies. Foreign direct investment and other more subtle forms of cross-border corporate control also boomed.

This paper is an effort to understand the political economy of unilateral liberalization and -- in particular -- its association with the ICT revolution and production unbundling; plainly this cannot account for all the unilateralism and the stories work best for trade among the members of what has been called 'Factory Asia', and by extension trade among the members of Factory North America, and Factory Europe. The paper presents three novel mechanisms that can account for unilateral liberalisation of tariffs that occurs in tandem with production unbundling.

Each mechanism tackles the "liberalisation paradox" directly. As Baldwin and Baldwin (1996) note, tariff liberalisation is something of a paradox. Assuming policy choices are endogenous, the initial tariff must have been optimal, so why would removing the tariff also be optimal? Any complete model unilateralism thus requires three elements: an explanation of why protection was politically optimal in the first place, a shock that changes the political and/or economic setting, and an explanation of why the shock makes a lower tariff politically optimal. Arguing that governments removed tariffs because they finally understood that free trade was in their nation's own best interest is insufficient as one then must then explain why governments failed to understand this previously. The rest of the introduction provides a verbal description of the three economic logics.

Unilateral liberalisation and Kojima's pro-trade FDI

The first mechanism assumes the (developing country) government is a 'development state', i.e. interested in industrialisation per se. If the weight the government applies to industrialisation versus general welfare is high enough, the initial situation is one of high tariff barriers on final manufactured goods as well as their parts and components – i.e. a policy of infant industry protection. This starting point is meant to represent the 1960s and

1970s when most developing nations pursed import substitution policies and most industries in developed nations were clustered spatially – often in a particular city or region.

From the perspective of developing nations – especially those geographically close to industrial powerhouse nations like Japan, the US and Germany – this opened a new pathway to industrialisation. Rather than developing domestic capacities over a span of decades (as was done in the US, Germany, Japan, Korea and others) offshoring allowed nations like Thailand and the Philippines to set up sophisticated manufacturing facilities in a matter of months, or years.

In the model, this new form of industrialisation changes the political economy problem facing the developing nation government. The shock is that the 'pro-trade FDI' shifts the developing nation's comparative advantage; the nation switches from being an importer (or potential importer if tariffs were prohibitive) to being an exporter of the product concerned – be it a part, component, or final good. In addition to directly rendering import tariffs on the newly exported good useless, the new production shifts the government's view on upstream tariffs. Protection of upstream inputs always harms downstream production, but the newly established factory expands the marginal cost of any given upstream tariff. Thus whatever the optimal tariff was on parts before the offshoring, it becomes lower in response to the pro-trade FDI. In this way, pro-trade FDI fosters unilateral liberalisation by developing nations. A slight twist on this – so-called race-to-the-bottom unilateralism – considers the possibility that the multinational establishing the new factory may have a variety of location choices and so may bargain for a zero tariff on upstream inputs.[3]

One reaction to this change could be more nuanced than a lowering of the MFN applied tariff. Governments could – and many did – set up export processing zones where tariffs in imported parts were zero or subject to a duty drawback scheme that had the same effect. This would allow the nation to both exploit the new industrialisation opportunities offered by pro-trade FDI while simultaneously maintaining high infant-industry tariffs for production destined for the domestic market. We return to this point in the third mechanism.

Infant industry protection and production unbundling

[3] Baldwin (2006b) informally sketches the logic Vezina (2010) presents empirical that the mechanism was in action in East Asia.

The second model of unilateral tariff liberalisation focuses on trade in parts and components per se – abstracting from offshore investment by high-technology nations. The developing country government in this model is assumed to be of the Grossman-Helpman "Protection for Sale" (PFS) type (Grossman and Helpman 1994).

In this sort of political economy setting, a positive tariff on imported intermediates is politically optimal only if the protection somehow lowers the local cost of the intermediates. The point is that price-rising protection of upstream segments of the production chain is worse than a zero sum game when it comes to profits (and thus political contributions in the PFS set up). Given that the government cares about the sum of contributions and this is tied to the sum of profits, the optimal upstream tariff is zero (Cadot, de Melo and Olarreaga 2004).

To explain the presence of high tariffs on parts and components as well as final goods, an economic model where protection may lower local prices is needed, i.e. where infant-industry protection makes economic sense. Parts production, it is assumed, is subject to economies of scale; local production is only economic if it takes place on a sufficiently large scale. This creates multiple equilibria and the easiest way to model it is to assume external economies of scale. Without a sufficiently high tariff on parts, there would be little domestic parts production and marginal production costs would be high forcing domestic final goods producers to import parts. Even if imported parts are cheaper in foreign nations (FOB), it is assumed that frictional barriers (coordination, communication, etc.) make importing parts very costly for developing nation final good producers. In this situation, a tariff on parts can stimulate domestic production and thus actually lower the domestic costs of parts (as local production avoids the frictional barriers). In this setting, lobbying for a tariff on parts is lobbying for lower priced parts, not higher priced parts. For this reason, final goods producers and parts producers find their interests aligned; high tariffs on both are politically optimal.[4]

As our goal is to explain historical policy choices, we only need that the government and final good producers *believe* that protection of parts will lower costs. Here it is worth noting that the efficacy of infant-industry protection was a mainstream belief in the 1950s and 1960s, even if such faith is rare in the modern world. In the early days of the post-war trade system,

[4] The simple model in this paper focuses on one set of assumptions that generates infant-industry protection, but there are many more. For example there are several new economic geography models where protection lowers domestic prices by fostering an industrial cluster that would not have otherwise existed (Venables, 1985, 1987).

the merits of industry-creating protection were regarded as clear cut. For example, the 1958 Haberler Commission – which examined the problems of developing nations in the world trade system – summarises the pervasive belief in the need for and effectiveness of infant industry protection. We can see this belief in a contemporary review of the Report published in the Quarterly Journal of Economics. "Referring to the underdeveloped countries in a general way, the authors recognize that, in their case, special considerations justify a rather greater use of trade controls and of protection than in the highly industrialized countries. Few economists will disagree with this view." (Richter 1959).[5]

Taking this economic model as given, the initial political equilibrium features high tariffs on both upstream and downstream goods. The trigger for unilateral tariff liberalisation is a drop in the frictional trade costs due to the ICT revolution. When these costs fall enough to make imported parts cheaper than locally made parts the correlation of interests between final and parts producers breaks down. When it does, full liberalisation of parts is the PFS equilibrium, at least if both parts and final goods makers are organised.

The death of infant-industry industrialisation strategies

As mentioned, pro-trade FDI need not result in the removal of infant industry tariffs directly if they government can segment imports between domestic-oriented production and export-oriented production. The third mechanism introduced in this paper combines the first two in a way that explains the demise of government's faith in infant industry protection. The basic story is simple.

In the 1960s and 1970s, many developing nations (especially in East Asia) pursued dual track industrialisation strategies (Ando and Kimura 2005). The first track was import substitution that encouraged the development of the full supply chain behind tariff barriers. The second track was to encourage export processing activities where the nation's low-cost labour was used by multinational corporations to lower the cost of their components. As the production unbundling proceeded and the offshoring of segments of the value added chain spread, the

[5] The authors comprised three of the most eminent trade economists of the time – Gottfried Haberler, James Meade and Jan Tinbergen – and that it was commissioned by GATT members which included all the major Western powers and many developing nations. The Report's conclusions provided important intellectual underpinnings for the rather general exceptions that developing nations were granted in the GATT (Title IV) to refrain from making reciprocal tariff cuts in GATT Rounds.

relative competitiveness of infant-industry goods was undermined. In essence, developing nations' participation in international supply chains undermined their own competitiveness in final goods.

To put it differently, observe that before unbundling, manufacturing involved a collection of labour intensive stages and knowledge intensive stages. This bundling tended to mute comparative advantages. Competitiveness of the, say, Japanese carmakers was hindered by the fact that labour-intensive stages had to be done by high-wage Japanese. When production unbundling became possible, the cost of the Japanese production fell since offshoring allowed Japan to borrow elements of developing nation's comparative advantage in labour-intensive activities. Importantly, this was not mutual. The developing nation automakers did not enjoy a corresponding 'borrowing' of the Japan's comparative advantage in knowledge-intensive stages. The net result is that production unbundling heightens the rich nation's comparative advantage in cars as its costs fall but the developing country carmaker's costs did not.

As far as the mechanism is concerned, the key point is that the shift in competitiveness tended to raise the political economy cost of infant-industry protection in two ways. First, by lowering the world price of cars, offshoring raised the domestic welfare costs of any given level of final good production. The politically optimal response would be some lowering of final good protection. Second, if developing country car marker hoped to maintain their competitiveness, they would have to purchase components from the lowest cost source rather than favouring local parts makers created by infant-industry policies. This increases political pressure to reduce tariffs on parts and components. To put it differently, maintaining the same rate of effective protection in the face of offshoring-induced drops in final-good prices would require a reduction in upstream tariffs. As this process proceeds, maintenance of the same level of effective protection leads to a progressive hollowing out the infant-industry cluster, starting for the beginning of the supply chain and working down towards the final good. In the extreme, the only thing that 'infant industry' protection can salvage is the assembling of 'knock-down kits' (i.e. imported kits that contain all the necessary parts and components to make the final automobile). At this point, faith in the eventual maturation of the infant may be fatally eroded with the result that the nation decides to turn itself into one big export processing zone and jettison its infant-industry track.

1.1. Plan of the paper

As it turns out, the particular modelling choices for the three mechanisms make it more convenient to address the second mechanism first, followed by the first and then the third. Before turning the new theory, the next section, Section 2, extensively reviews the existing literature as a to situate this paper's contribution into the ongoing effort to understand the political economy of unilateral tariff liberalisation. After that Section 3 introduces basic issues by working through a protection-for-sale (PFS) political economy model in the presence of a simple supply chain. Section 4 presents the two basic models, and the subsequent section discusses a number of obvious extension and combinations of the two that may account for various aspects of the observed liberalisation. The penultimate section sketches out a model of the 'death of dual track development' and the final section present some concluding remarks.

2. LITERATURE REVIEW

The political economy logic of reciprocal liberalisation is well understood. As Cooper (1971 p.410) puts it: "The principle of reciprocity is designed to hold out the promise of export gains to certain sectors of the economy, and thereby to establish a counterweight to those who will be hurt by increased imports. Reciprocity attempts to build pluralistic support for tariff reduction." [6]Reciprocity, in short, harnesses mercantilists in each nation to the task of lobbying against their own protectionists – a political economy realignment that means governments find it political optimal to negotiate down tariffs they previously found optimal to put up. Liberalisation continue due a 'juggernaut effect' whereby tariff cuts strengthen exporters and weaken import competitors in all nations. After a few years of industrial adjustment, governments once again find it optimal to bargain down tariffs they previous found optimal to preserve in earlier rounds.[7] This accounts for the GATT's success, but not

[6] Well known to trade negotiators, this point was surely not novel to Cooper and many have made it subsequently including Roesseler (1978), Blackhurst (1979), and Baldwin (1980). For an early formal treatment see Moser (1990), or Hillman and Moser (1992); the political economy logic in these early papers was brought to the attention of the broad community of trade scholars via the parameterisation introduced by Grossman and Helpman (1995).

[7] The juggernaut effect, i.e. the idea that initial tariff cuts trigger a second round of cuts after industrial adjustment, is due to Baldwin (1994 p. 73); Baldwin and Robert-Nicoud (2008) provide a mathematical treatment. Baldwin (2010) uses the framework to structure the historical narrative of the GATT's 50 years of

unilateralism; reciprocity played no direct role in developing nations' autonomous tariff cutting.

Given the pervasiveness of unilateralism, and the fact that has been going on since the mid 1980s, there is remarkably little theoretical literature exploring the political economy of unilateral trade liberalization. In the economics literature, most discussions of unilateralism consist of practical accounts of how and why various nations undertook such measures (e.g. Garnaut 1991, Young 1996, Edwards and Lederman 1998, Richardson 2001, and Sally 2008). The political economy theories that account for unilateralism include Coates and Ludema (2001), Krishna and Mitra (2008), and very recently Ludema, Mayda and Mishra (2010), and Conconi and Perroni (2010). Ethier (2002) presents a model of unilateral protection (so-called aggressive unilateralism) but his model does not work in reverse to explain unilateral tariff cutting.

Coates and Ludema (2001) work in the tradition that borrows industrial organisation models of collusion between firms, relabeling the firms as nations, and cooperative price-setting as cooperative tariff-setting (see Dixit 1987 for an early example). Coates and Ludema (2001) borrow a set-up akin to the Porter and Green (1984) model of collusion with imperfect monitoring and uncertain demand where an unobservable shock may disturb what would otherwise be a standard dynamic game of collusion. Coates and Ludema (2001) assume that two nations sign a reciprocal tariff-cutting agreement, but its ratification in one nation is unsure in the short-run – although it is 100% certain in the long run. Using a repeated game set-up, they show that the partner nation might unilaterally implement its side of the reciprocal agreement in the first period, even if the other nation fails to ratify the agreement right away.

There are two difficulties in using Coates and Ludema (2001) to structure our thinking about the late 1980s and 1990s unilateralism. First their model is about not really about unilateralism; it is about temporary unilateral implementation of a reciprocal trade agreement. Second, their model works in the 'self-enforcing' trade agreement tradition which is marred by a fatal flaw when applied to tariff liberalisation.[8]

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tariff cutting success. Empirical support can be found in Fugazza and Robert-Nicoud (2010).

[8] The self-enforcing liberalisation model was first explained in modern terms by Dixit (1987) and Jensen and Thursby (1984); Bagwell and Staiger (1990) extended the model and brought it to the attention of the broad

The flaw shows up even in the simplest self-enforcing model. Define W^c, W^n, and W^d as a nation's welfare when, respectively, the trade agreement is implemented ('c' being a mnemonic for cooperation), when all play is non-cooperative ('n' for Nash), and when the nation in question unilaterally deviates from the cooperative equilibrium ('d' for deviation). Under standard assumptions, the stage-game is a prisoners' dilemma, i.e. $W^d>W^c>W^n$. Cooperation is sustained by the threat of a permanent revision to W^n the period after deviation is observed. Formally, the present value of cooperating forever, and of playing Nash forever after any deviation are, respectively, $W^c/(1-\delta)$ and $\delta W^c/(1-\delta)$, where δ equals $1/(1+\rho)$ and ρ is the discount rate. Price collusion in an industrial organisation model, and reciprocal tariff cutting in the self-enforcing trade agreement model works if and only if $W^c > (1-\delta)W^d+\delta W^n$. The maximum sustainable cooperation can be measured by W^c-W^n.

For any given annual discount rate, say 5%, the key to this condition is the length of the period in which deviation can occur without retaliation. If a nation can maintain the high, deviation-tariff while others keep theirs at the cooperative level for, say a year, δ is about 0.95; if the deviation is detected and punished quickly, say after one day, then δ is 0.999863. The maximum sustainable cooperation that can be explained by this approach – which is equal to $(1-\delta)(W^d-W^n)$ – limits to zero as the non-detection period shortens to zero.

In industrial organisation models, this is not a problem since collusion involves prices (or quantities) that are hard to observe; prices are often in private contracts struck between one producer and her customers, neither of which has an incentive to reveal the information to the other producers. By contrast, this is fatal flaw when applied to tariffs as the non-detection period is a matter of hours.[9] Foreign companies who pay the deviation-tariff know about it immediately and have an incentive to report it to their own government who can then implement the punishment strategy at the stroke of a pen. Thus δ essentially equals unity in tariff games. This means that self-enforcing tariff agreement models – such as Coates and

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community of trade scholars.

[9] For example, the surprise announcement of a 10% US tariff hike on 15 August 1971 was made on national television by President Nixon; the nightly news coverage a few hours later included the reaction of European and Japanese policy makers. The deviation was detected even before the deviation tariff was applied.

Ludema (2001) – cannot account for tariff cooperation, i.e. $(1-\delta)(W^d-W^n)=0$. Cooperation does, of course, occur, but we need a different approach to explain it.

Ludema, Mayda and Mishra (2010) develop a model whereby firms influence government's tariff choices by transmitting information about the value of protection via cheap-talk messages and costly lobbying. They apply this to a particular form of temporary unilateralism in the US known as 'tariff suspensions'. Their model does not help us understand the mass shift to unilateralism, as it fails to tackle the paradox of liberalisation. The model opens with an exogenously set tariff on an intermediate good and in the first period the government may decide to rescind the tariff. The heart of the model lies in the political competition between upstream and downstream firms, but if rescinding the tariff is politically optimal in period one, why was it in place in period zero?

A much more promising mechanism is presented in Krishna and Mitra (2008). This paper presents an appealing account of the basic political economy forces behind unilateral tariff cutting, or more specifically of 'reciprocated unilateralism' whereby a unilateral tariff liberalisation by one nation triggers unilateral tariff liberalisation in another. When both nations' trade policies are determined endogenously, multiple equilibriums arise; either both liberalise or neither do. The basic logic can be thought of as picking up half way through the juggernaut effect; instead of trade talks triggering a reciprocal tariff cut that then induces industrial restructuring which in turn sets the scene for further tariff cutting, this model starts the juggernaut rolling with an autonomous foreign tariff cut.

In the Krishna-Mitra model, a nation's tariff is the outcome of a domestic struggle between pro-unilateral-liberalisation interests in the export sector (they want to lower the cost of imports) and anti-unilateral-liberalisation interests in the import-competing sector. If a nation's trade partner removes its tariffs unilaterally, the additional foreign market access shifts economic resources from the pro-tariff group to the anti-tariff group. As political power is linked to a sector's economic size, the result is unilateral liberalisation of a type that might be called 'contagious' unilateralism.

This insightful logic is very appealing and almost surely plays an important role in understanding some aspects of the observed unilateral tariff cutting. For example, it explains how shifted political power among domestic special interest groups can make low-tariffs self-enforcing without relying on the flawed self-enforcement approach discussed above.

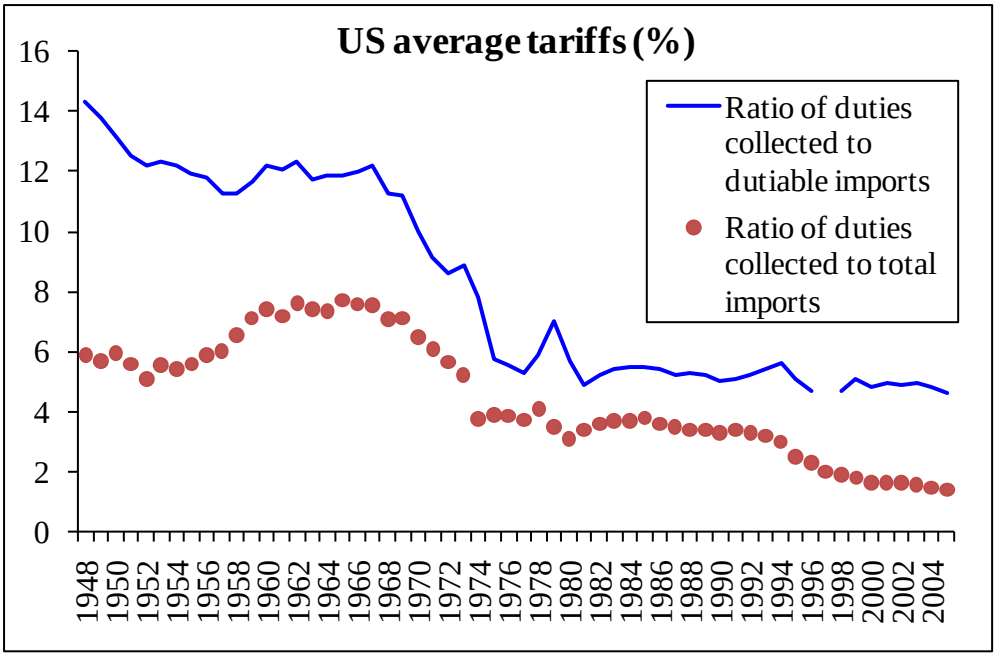
There are, however, a couple of difficulties in using this analytic framework to understand the facts discussed above. The first could easily be remedied. Krishna and Mitra (2008) do not directly tackle the liberalisation paradox, but it is easy to imagine an extension which it did. Their foreign nation could be taken as the collection of advanced nations whose tariffs were liberalised by a juggernaut mechanism in GATT rounds. The foreign unilateralism in Krishna-Mitra could then be taken as the MFN extension of GATT Round tariffs cuts to developing nations.

The second is more serious as it concerns timing of the unilateralism. The rich nations – whose markets are the main destination for developing nation exports – lowered their tariffs progressively from 1948, with major steps in the 1950s, 1960s (Kennedy Round), and 1970s (Tokyo Round), and 1990s (Uruguay Round); see Figure 6 for the facts for the US, which are broadly in line with those of the EU and Japan (imports of these three accounted for over 70% of world imports up to 1995).

Presuming that Krishna and Mitra (2008) have this GATT-driven liberalisation by rich nations in mind, the fact that the timing of the unilateral cuts in developing nations does not match the timing of the rich nations' cuts is a problem. The general point is clear in the comparison of Figure 1 and Figure 6, and even clearer in the charts for Latin America and East Asia in Figure 2. The major MFN tariff cutting in the advanced economies occurred in the late 1960s and 1970s. As the developing nation unilateralism started a decade later, it is somewhat strained to view rich-nation tariff cutting in the GATT Rounds as the main trigger of developing-nation unilateralism.

Another line of reasoning that surely is part of the complete story of global unilateralism concerns 'spillover' effects from reciprocal liberalisation. Two economic mechanisms have been highlighted in the literature that link preferential liberalisation done in reciprocal RTAs to unilateral MFN liberalisation. The first links RTAs to unilateral MFN liberalisation. The second looks at how a RTA can lower or raise a nation's 'effective' MFN tariff rate.

Figure 6: US tariff reductions, 1948 to 2005.



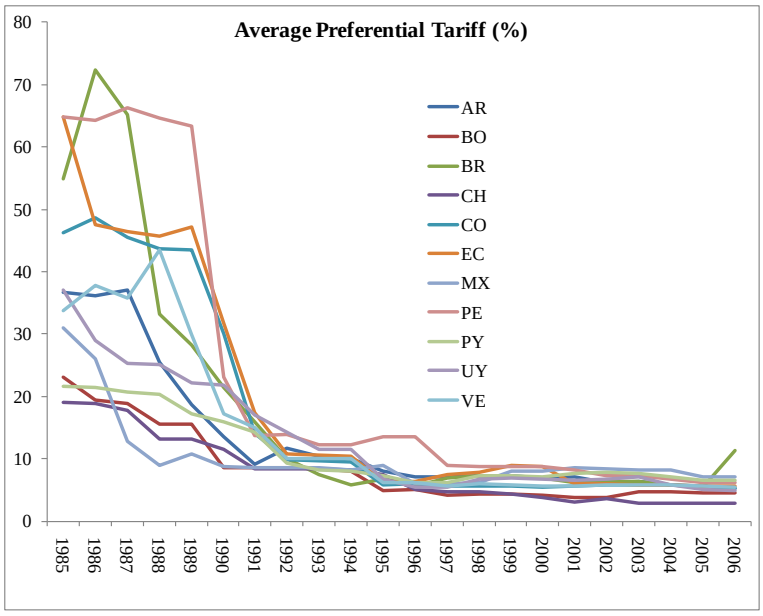
Source: Historical Statistics of the United States, Colonial Times to 1970, www.census.gov

The first approach was motivated by the Latin American experience where regional tariff cutting was accompanied by unilateral MFN tariff cutting. As Figure 7 shows, the time path of reciprocal tariff cutting in the many Latin American RTAs bears a striking resemblance to the time path of Latin American MFN unilateralism shown in Figure 2. The question that structures this literature is: What is the impact of an RTA on a nation's unilaterally optimal MFN tariff? Intuitively, the answer turns on whether preferential tariffs are "political" complements or substitutes for MFN tariffs.

The easiest way to organise the various mechanisms in this literature is to start from Meade's formula for the welfare impact of any trade policy change in a Walrasian economy, namely TdM minus Mdp* where T is the specific tariff vector, M is the bilateral import matrix, and p* is the border price vector (see Baldwin and Venables 1995). A nation choosing its bilateral tariffs optimally would view this as a first order condition and set it to zero to find its optimal tariff. Solving the first order condition, the optimal bilateral tariff vector is

$T_{od} = M_{od}(\frac{dp^*}{dM_{od}})$, where the destination nation 'd' imposes the tariff T_{od} on goods from origin nation 'o'.

Figure 7: Average preferential tariffs in Latin America, 1985 – 2006.



Source: Inter American Development Bank.

In general, anything can happen to T_{od} when the nation signs a free trade agreement since the direct and cross-good income and substitution effects of the FTA-induced price changes could raise or lower the right-hand side. This ambiguity has been resolved by several mechanisms in the literature. The first mechanism turns on the general principle that taxes become more distortionary when the cross-product variance of rates increases. As bilateral tariff cutting increases the variance of tariffs across suppliers, it increases inefficiency and creates an efficiency-based argument for reducing tariffs on third-nation imports, i.e. for unilateralism. Ornelas (2005a) makes the point very cleanly in a Brander-Krugman model of two-way trade with three nations.

As second mechanism turns on the M_{od} term. RTA-induced price changes typically reduce trade with third nations (trade diversion). If the slope of the import supply curve from third nations is not increasing too fast, the reduction in M_{od} will bring down the optimal T_{od} for third nations, i.e. induce unilateralism. Richardson (1993) presents a related argument that focuses on tariff revenue losses. Ornelas (2005b, c) make a similar argument that links MFN unilateralism to the exogenous implementation of an RTA. As preferential tariff cutting typically undermines the import competing industry to some extent, it also undermines political demand for tariffs on third-nation imports. This induces the government to re-optimise external tariffs in a downward direction. Other contributions in this line include Estevadeordal et al. (2008), Calvo-Pardo et al. (2009).

The big advantage to using this line of argument to understand the massive unilateralism of the 1980s and 1990s is that it fits the timing. The big drawback, however, is logical. These models do not answer the 'liberalisation paradox' but rather pushes it back one step. They do not explain why preferential tariff cutting became politically optimal when previously it was not.

Conconi and Perroni (2010), a paper that was still in draft form when this article went to press, relies on a Krishna-Mitra-like mechanism to explain why unilateralism might be contagious. That is, foreign liberalisation shifts resources out of the import-competing sector in equilibrium and this makes it easier for the home government to sustain unilateral free trade. Specifically, Conconi and Perroni (2010) work with the asymmetric lobbying set-up of Baldwin and Robert-Nicoud (2002) where entry eliminates quasi-rents and thus all incentives to lobby whenever tariffs are constant over time. To this they add a credibility problem whereby the government has an incentive to raise the tariff by surprise as a means of temporarily creating quasi-rents in the import-competing sector. As the size of the temporary quasi-rents increases with the pre-surprise size of the import-competing sector, and this size is reduced by foreign tariff liberalisation (due to the Krishna-Mitra-like resources shift), foreign unilateral tariff liberalisation tends to make it easier for the home government to stick to a path of free trade. In this sense, unilateral liberalisation is contagious. However, foreign liberalisation also reduces the difference between the free-trade and the opportunistic-tariffs paths. Thus foreign liberalisation has an ambiguous impact on the sustainability of free trade.

More specifically, the authors' assumptions generate a standard time-inconsistency problem; the small-country government would like to commit to permanent free trade, but faces a temptation to announce such a policy and then renege. If the free-trade path is credible, free entry implies that there are no rents to lobby for (as per the Baldwin-Robert-Nicoud result) and thus no lobbying.[10] This is why credible free trade is politically optimal (recall that the PFS objective function reverts to the social welfare function without lobbying). If the free trade path it is not credible, lobbying occurs on the margin so – even though there are no quasi-rent in equilibrium (free entry eliminates them) – the outcome is a positive, time-invariant level of protection. As this is inferior to the free trade path, the government faces a

[10] See discussion of asymmetric lobbying in Grossman and Helpman (1996), and Baldwin (1993) for the original presentation of the idea.

classic a repeated prisoner's dilemma game. As noted above in the discussion of Coates-Ludema paper, the 'cooperative' outcome (free trade in this application) is sustained if and only if the one-shot value of deviating is not too much higher than the non-cooperative outcome (permanent protection in this application).[11] In symbols, free trade can be unilaterally sustained when W^c exceeds $(1-\delta)W^d+\delta W^n$. As foreign liberalisation reduces W^d but raises W^n, the net effect on free-trade sustainability is unclear.

There are three problems in using this political economy logic to understand real world unilateralism. First, the authors do not explore the class of parameterisations leading to the real-world outcome (i.e. nations embrace unilateral free trade) and they note that standard parameterisations (e.g. linear demand) leads to the rather un-useful result that foreign liberalisation has no impact on domestic liberalisation. Second, the paper does not confront the 'liberalisation paradox' directly, i.e. why nations that previously found it optimal to protect unilaterally now find it optimal to liberalise unilaterally. Third, even if the first two were fixed, the deep fundamentals of the Conconi-Perroni mechanism would be those of Krishna-Mitra and thus subject to the timing problem that rich nations liberalised a decade before developing nations.

A final line of argumentation in the economics literature – one that is often viewed as explaining unilateralism in Africa and India – is the 'conditionality approach'. This focuses on that fact that the IMF typically used their leverage during crisis-linked interventions to force nations to unilaterally cut tariffs. . The conditionality attached to extending loans frequently requires nations to reduce trade barriers (Stone 2004, Borgatti 2006).

In the International Relations literature, the rise of democracy is often painted as a key driver. For example, Milner and Kubota (2005) argue that democratisation of the political system reduces the ability of governments to use trade barriers as a strategy for building political support.

Discussion in the final section suggests how the new arguments in this paper could be combined with elements of the existing literature to provide an account of real world unilateralism.

[11] Note that the zero-detection delay problem does not appear here as the basic periodicity is linked to the election cycle which is typically many years.

3. POLITICAL ECONOMY OF UNILATERAL TRADE LIBERALIZATION

The three questions raised by the liberalisation paradox are: why protection was politically optimal to start with, what shock changed the economic and/or political setting, and how the shock produces the policy reversal. For most forms of trade liberalisation the first question is the easiest – typically some form of "Olson's Asymmetry" explains why economically inefficient protection is chosen (Olson 1965); when protection's winners are organised while its losers are not, politically motivated governments choose too much protection. When it comes to the unilateral liberalisation of parts and components, however, the first question is the hard part.

As it turns out, using the standard parameterisation of Olson's Asymmetry (Grossman and Helpman 1994), protection on parts and components should not happen – assuming that both final goods makers and parts makers are politically organised. The point is demonstrated explicitly below, but the basic result has been widely known since Cadot, de Melo and Olarreaga (2004). Tariffs that raise intermediate input prices shift profits from downstream to upstream firms; this is zero sum if there are no imports and no substitution, but less than zero sum if imports are positive. Profit-linked lobby contributions are thus maximised by setting intermediate tariffs to zero.

In the next section, we introduce two modifications to the PFS approach that explains why protection of parts and components could be politically optimal in the first place. Before turning to the models, we introduce notation and fix ideas by demonstrating that the equilibrium tariff on parts is indeed zero in the simple PFS approach.

3.1. PFS with a domestic supply chain

To illustrate the basic issues as simply as possible, we work with the standard assumptions of the simplified PFS model and add a stylized supply chain.[12] Specifically, we assume a small-open, Ricardo-Viner economy with three sectors, the numeraire good A, the parts sector Y, and the final goods sector Z (Y and Z are chosen as mnemonics – Y comes before Z just as the production for upstream Y comes before the production downstream Z). There are three productive factors (labour and the Y and Z sector-specific capital). Perfect competition and

[12] The simplifications of the PFS model we exploit are explained in Baldwin and Robert-Nicoud (2006).

constant returns is assumed for all sectors; A and Y are made from primary factors while Z is made from Y and primary factors.

The per-capita indirect utility function is:

$$e + \sum_{i=1}^{n} s_i[p_i] \tag{1}$$

where n is the number of non-numeraire sectors, the s_i is the sub-indirect utility functions for each non-numeraire sector, and 'e' is expenditure. Expenditure equals the sum of labour and capital income.

The government's objective function Ω is a weighted sum of social welfare W, and lobbying contributions, C:

$$\Omega = aW + \Sigma_{j \in \Lambda} C_i[p_i] \tag{2}$$

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. Each lobby's contribution schedule is assumed to be 'truthful' – specifically it is sector operating profits minus a constant that is determined in equilibrium (this assumes that lobbyists ignore price effects beyond their own sector).

We introduce the supply chain by assuming that each final good requires one part as an input in addition to labour.[13] We have two nations, Home and Foreign, that compete in both parts (Y) and final goods (Z); but we start by taking Home to be "small", i.e. it takes border prices as parametric. We assume that Home would be an importer of both parts and final goods under free trade, so protection of both sectors is a real issue. The Home nation has a comparative advantage in the numeraire (untaxed) good. This and the small open economy assumption pins down the Home wage rate; it must be such that the domestic price of the numeraire good exactly matches the exogenously given world price. Choosing units of the numeraire good, this result allows us to normalise the Home wage to unity (thus wage does not appear explicitly in cost or profit functions).

[13] For analysis of more complex supply relationships, see Cadot, de Melo and Olarreaga (2004).

3.1.1. Free trade in final goods and parts

We open the analysis by considering the outcome when all Home tariffs are zero. The left panel shows the supply and demand diagram in the parts market; S_Y is the supply curve and D_Y is the demand curve. Demand for Y is derived demand, i.e. it is based on the output of the domestic final sector given that each unit of final good Z requires one unit of Y.

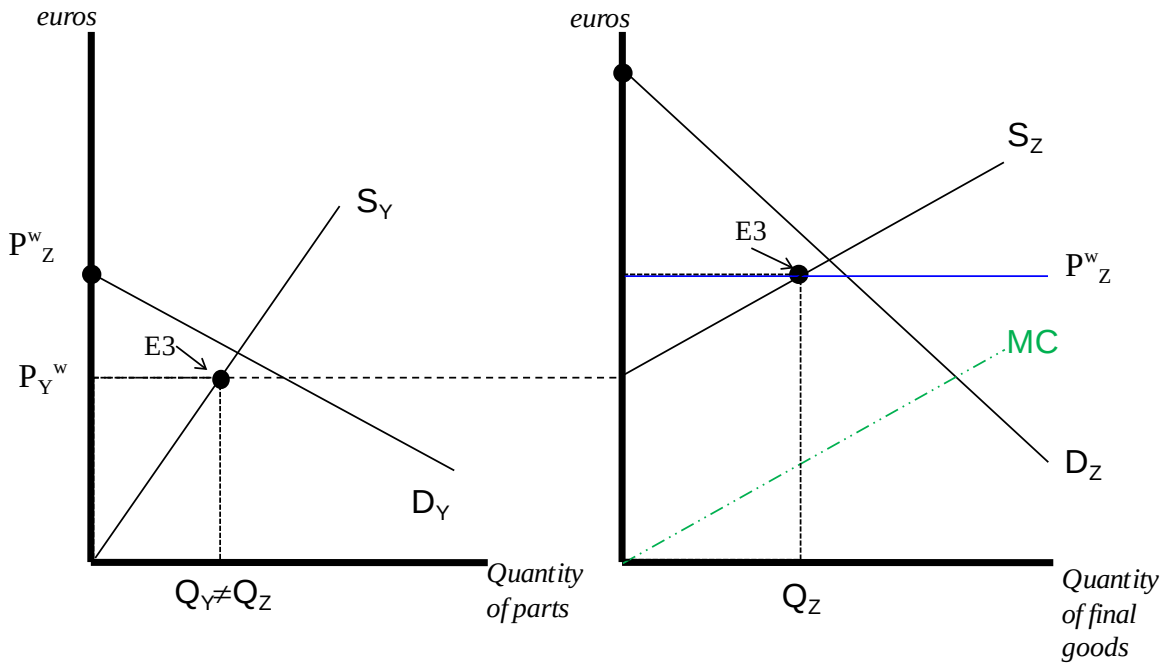


Figure 8: Trade in parts and final goods

The right panel shows the market for the final good, Z; the demand curve for Z depends upon consumer optimization in the usual fashion; however the supply curve is linked to the price of parts, Y. Final-goods technology is such that there is a rising marginal cost of turning parts into final goods. This marginal cost curve is shown as MC in the right panel. The supply curve for Z – i.e. the full marginal cost curve – is MC plus the price of Y. That is why the Z supply curve, S_Z, starts at P_Y where P_Y is the equilibrium price of parts and rises in line with MC (recall we assume one part is required per final good).

With free trade, the price in the Y market is set by the world price P^w_Y and so the Home output of Y, Q_Y, is not tied to Q_Z.

The diagram shows the fundamental tension within the domestic supply chain. Any tariff on the upstream Y good would help Y producers but harm Z producers by even more. Moreover,

as domestic Y production is independent of Z production, upstream Y producers have no interest in supporting downstream Z-sector production on the margin. In other words, there is no correlation of interest among sectors in the domestic supply chain.

3.1.2. Supply chains and tariffs: PFS approach

The politically optimal tariffs solve the government's two first order condition (i.e. for the Y and Z sectors). Taking account of the non-negativity constraint on tariffs, the government's first order conditions are:

$$0 \geq a\left(Nr_Z'[p_Z] + Ns_Z'[p_Z] + \frac{d\pi_Z[p_Y, p_Z]}{dp_Z} \right) + \frac{d\pi_Z[p_Y, p_Z]}{dp_Z}$$

$$0 \geq a\left(Nr_Y'[p_Y] + Ns_Y'[p_Y] + \frac{d\pi_y[p_y]}{dp_Y} + \frac{d\pi_Z[p_Y, p_Z]}{dp_Y} \right) + \frac{d\pi_Y[p_Y]}{dp_Y} + \frac{d\pi_Z[p_Y, p_Z]}{dp_Y}$$

Note that, for notational convenience, the choice is with respect to the domestic price rather than the tariff directly; the equilibrium tariff is backed out of the optimal domestic price using the exogenous world price. Here N is the mass of citizens, and r_i and s_i are the per capita tariff revenue and consumer surplus functions, and π_i is sector-i operating profit, i.e. the Ricardian surplus that is the reward to the sector specific capital.

By direct calculation and the envelope theorem:

$$Nr_i'[p_i] = M_i + t_i \frac{dM_i}{dp_i}; \quad Ns_i'[p_i] = -D_i; \quad \frac{d\pi_y}{dp_y} = Q_y; \quad \frac{d\pi_z}{dp_y} = -Q_z; \quad \frac{d\pi_z}{dp_z} = Q_z$$

where M_i, D_i, and Q_i are sector-i imports, demand, and domestic production respectively; dM_i/dp_i is the change in imports in response to a domestic price change. Using these relationships to simplify the first order conditions, we have:

$$0 \geq at_Z \frac{dM_Z}{dp_Z} + Q_Z; \qquad 0 \geq at_Y \frac{dM_Y}{dp_Y} - M_Y \tag{3}$$

The first expression says that the politically optimal t_Z is positive. That is, as the first term is negative (due to $dM_i/dp_i<0$) and the second term is positive (as $Q_z>0$), t_z must be positive for the sum to be zero. The second expression says that the equilibrium t_y is zero; both terms are negative for any positive value of t_y, so complimentary slackness tells us that the corner solution is the answer.

The intuition for these results is simple; Olson's asymmetry applies to final goods but not to parts. The whole logic of protection in the PFS approach is to transfer income from

unorganised interest groups to organised ones. This requires that some of the losers from protection are unorganised politically. Tariffs on parts are zero because both parts and final good producers are organised, so free trade in parts is best both for social welfare and the government. Tariffs on final goods are positive as the losers from $t_z>0$, i.e. consumers, are not organised politically.

4. UNBUNDLING AND UNILATERAL TRADE LIBERALIZATION: TWO MODELS

The Cadot, de Melo and Olarreaga (2004) tariff escalation result – which we illustrated in the previous section in a simple model – implies that some additional elements must be added to the standard lobbying model to account for the observation that so many developing nations protected both parts and final goods as part of their infant-industry trade policies. In this section, we sketch out two modifications that could account for the initial protection of parts and its subsequent removal induced by an unbundling-related shock.

4.1. Infant industries and price-lowering protection

The first model explains the initial protection by introducing a 'price lowering protection' mechanism. The mechanism is scale economies in a setting where import-substitution polices make economic sense.

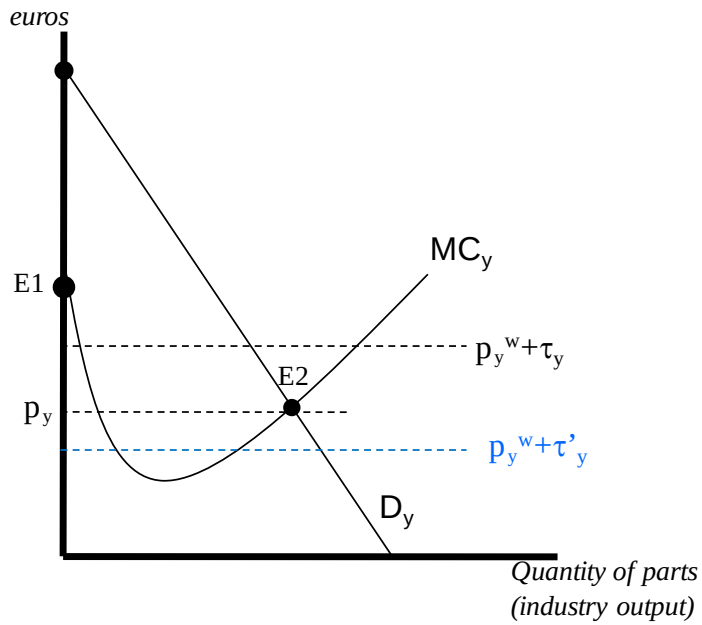


Figure 9: Multiple equilibrium in the parts market with external economies

This model embraces all the assumptions of the PFS model in Section 3.1 with one exception. Parts production is still marked by constant returns at the firm level but now we introduce

external economies at the industry level. The Y and Z sector technologies are reflected in the cost and profit functions $C_z[p_y,z]$, $C_y[y,Y]$, $\Pi_z[p_z,p_y]$, and $\Pi_y[p_y,Y]$ where lower-case y and z represent firm-level output while their upper-case correspondents represent industry-level output. As usual, profits are increasing in own price and decreasing in the price of inputs.

4.1.1. Parts protection and multiple political economy equilibriums

We start from the initial situation where tariffs are zero and domestic parts production is zero. We assume that the external economies are such that domestic parts production is uncompetitive in this situation. Specifically, marginal costs in Y evaluated at Y=0 exceed $p_y^w+\tau_y$, where p_y^w is the world price of y and τ_y is the frictional trade barrier. Here frictional trade barriers is meant to capture all manner of the difficulties involved in buying parts from distant suppliers, e.g. coordination costs, problems with unpredictable delivery delays, and shipping costs. The situation is shown in Figure 9 at point E1.

To consider the political economy around E1, we suppose that the Home Z industry takes this situation as given – more precisely, it believes that its actions can only move the equilibrium in the neighbourhood of E1. In this case, it will lobby for tariffs in its own sector but against tariffs on Y and – as we saw above – the result will be a positive Z tariff, but a zero Y tariff. This, however, is not the only conceivable outcome. The presence of external scale effects means that protection of domestic parts production may actually lower the domestic price of parts.

If the firm-level marginal cost of production in Y falls initially as industry output expands, it is possible that there is a second stable equilibrium, E2, where domestically produced parts are cheaper than imports. If the Z sector understands the presence of external economies, they would lobby for a prohibitive tariff in parts in order to shift the outcome from E1 to E2. This, of course, is just the sort of economic setting in which import-substitution policies make sense economically.

More formally, we characterise the government political economy choice under the two outcomes. In the standard PFS set up, the domestic price p_y varies smoothly with the tariff on y, specifically $p_y = p_y^w+\tau_y+t_y$. In the current situation, however, there is a discontinuity in the formula, $p_y = p_y^w+\tau_y+t_y$. When $p_y<p_y^w+\tau_y$, changes in t_y have no effect on p_y. This requires us to look directly at the government's tariff choice. Doing this, the government's first order condition for t_y is:

$$0 \geq a\left(Nr_Y'[p_Y] + Ns_Y'[p_Y] + \frac{d\pi_Y}{dp_Y} + \frac{d\pi_Z}{dp_Y} \right)\frac{dp_y}{dt_y} + \left(\frac{d\pi_Y}{dp_Y} + \frac{d\pi_Z}{dp_Y} \right)\frac{dp_y}{dt_y} \quad (4)$$

In the first situation, E1, $dp_y/dt_y=1$ and Z firms do not take account of external economies in the Y sector. Consequently, the politically optimal Y tariff is zero. In the E2 situation, $dp_y/dt_y=0$ as the government's choice of Y tariff has no impact on domestic Y prices (i.e. there are no imports). What this means is that the first order conditions could be satisfied at E1 with $t_y=0$, or at E1 with t_y being prohibitive.[14] To select the correct solution, the government has to evaluate its objective function at the two points. As Z sector profits rise as p_y falls –and this for level of p_z – it is clear that the government would prefer the situation at E2 with positive tariffs in Y.

Notice that even though the domestic price of y is lower at E2 than the trade-cost-laden price of imports, Home is not competitive in the world market as it too faces the frictional trade cost τ_y.

4.1.2. The second unbundling and unilateral liberalisation

As discussed in the introduction, reductions in the cost of organising complex activities at distance fostered the unbundling and geographic dispersion of manufacturing production. We parsimoniously capture these changes in the model by lowering the frictional trade costs for parts, i.e. τ_y.

Given the logic supporting the protectionist outcome E2, it is clear that small reductions in τ_y need not have any effect on the equilibrium t_y. However once τ_y falls to the point where parts could be bought more cheaply abroad than domestically, the correlation of Y and X sector interests disappears and we revert to the Section 3.1 logic where $t_y=0$ while $t_z>0$. For example it falls to τ'_y as shown in Figure 9, any tariff on Y will help Y-firms while harming Z-firms. As we saw in the initial analysis, this means that the political economy equilibrium reverts immediately to free trade in Y.

This is a story where the underlying shock that fosters international trade in parts also triggers a political economy response that results in a complete unilateral liberalisation of tariffs on

[14] The assumption that the government imposes a prohibitive tariff on parts is somewhat arbitrary. The idea is that in a more fully specified dynamic model, where development of the parts sector took time and the outcome was uncertain, a prohibitive tariff on Y gives the greatest incentive to private agents to move to E2.

parts. Notice that this story has the tariffs falling suddenly and for all sectors where the shipping and/or coordination costs of buying parts and components abroad falls.

4.2. The 'development state' and offshoring industrialisation

The PFS model – with its profit-based lobbying – is not the only reasonable model of government choices when it comes to trade policy. Many developing nation governments seem largely interested in fostering industrialisation per se. A common label for this is the "development state" – a term introduced by the political scientist Chalmers Johnson (Johnson 1982). The second of model linking unbundling to unilateral liberalisation embraces a modified version of the PFS model that has strong 'development state' features. We assume that – as in the PFS model – the government chooses trade policy to maximise a modified social welfare function. However the modification involved industrial value added rather than industrial operating profits. Specifically:

$$\Omega^d = aW + \Sigma_{j\in I} V_i[p_i] \tag{5}$$

where V_i is the value added in *i* at world prices, and i is the set of industrial sectors.[15]

To streamline the analysis we work with the economy as described in the previous model, so the objective function is $\Omega^d = aW + (p_z{}^w - p_y{}^w)S_z + p_y{}^w S_y$, where the S_i are the supply functions of Y and Z. Note that the supply of Z depends upon p_z-p_y while the supply of Y depends on p_y. Before studying the solution to the government's maximisation problem, note that a simple rearrangement of the objective function yields: $\Omega^d = aW + p_z{}^w S_z - p_y{}^w M_y$ since M_y=S_z-S_y. In this form, it is clear that the development state has a much greater intrinsic interest in limiting the import of parts than does the the PFS government.

Choosing tariffs via domestic prices, the government's first order conditions are:

$$0 \geq a\left(Nr_Z'[p_Z] + Ns_Z'[p_Z] + \frac{d\pi_Z}{dp_Z} \right) + (p_z{}^w - p_y{}^w)\frac{dS_Z}{dp_Z}$$

$$0 \geq a\left(Nr_Y'[p_Y] + Ns_Y'[p_Y] + \frac{d\pi_Y}{dp_Y} + \frac{d\pi_Z}{dp_Y} \right) + (p_z{}^w - p_y{}^w)\frac{dS_Z}{dp_y} + p_y{}^w \frac{dS_y}{dp_y}$$

[15] The specification of such government objective functions is necessarily somewhat arbitrary as it is not linked to individual optimization. The choice of using industry value added at world prices is directed by computational convenience, but the basic results would, I conjecture, go through with an objective function that define industry in terms of employment or industrial value added at domestic prices.

which, using the standard cancellations and the definition of M_y, can be written as:[16]

$$\begin{aligned} 0 &\geq at_z \frac{dM_z}{dp_z} + (p_z{}^w - p_y{}^w)\frac{dS_z}{dp_z}; \\ 0 &\geq at_Y \frac{dM_Y}{dp_Y} + p_z{}^w \frac{dS_z}{dp_y} - p_y{}^w \frac{dM_y}{dp_y} \end{aligned} \tag{6}$$

The tariff chosen in Z will be positive for the usual reasons (although likely to be lower than in the PFS model as the government cares about value added in Z rather than profits). The tariff in Y will be positive as long as $(p_z{}^w - p_y{}^w)\frac{dS_z}{dp_z} < p_y{}^w \frac{dS_y}{dp_y}$ is true. This says that the slope of the Y supply curve weighted by world prices exceeds the slope of the Z supply curve weighted by the Z sector value added at world prices. We presume that condition holds, so $t_y>0$ in the initial equilibrium.

If the government is a pure development state – i.e. it cares only about industrial value added in the sense that the parameter 'a' is zero – then both t_y and t_z will be chosen to be prohibitive. The point is easily seen. If a=0, then the derivatives of Ω^d with respect to the tariffs are everywhere positive, so raising the tariffs raises the objective function. The connection is broken, of course, when all imports cease as at that point tariffs have no further impact on domestic prices.

4.2.1. Pro-trade FDI and unilateral liberalisation

Starting from this situation of positive tariffs on parts and final goods, consider the impact of production unbundling on tariffs. Specifically, suppose exogenous changes occur (e.g. the ICT revolution) that allow the offshoring of Z production by Foreign multinational corporations. We assume this is Grossman-Rossi-Hansberg type offshoring where the multinational brings superior technology with it and so the host-nation's comparative advantage is shifted. That is, they can now combine their superior Z-sector technology with the Home's low-cost labour by building a factory in Home. In principle this could occur in both Z and Y, but in the spirit of international production unbundling, we focus on the case

[16] This relies on the fact that $dS_z/dp_y = -dS_z/dp_z$ – a result that stems from the input-output linkages assumed. My thanks to an anonymous referee for point this out.

where it occurs only in Z. This creates a situation where Home becomes part of a Foreign-firm's supply chain, importing parts to which it adds value and then exports.[17]

This exogenous change opens an alternative route to industrialisation. Instead of using barriers to reserve domestic sales for domestic Z-producers, the nation can join an international supply chain and produce Z for the wider world market.

If the domestic government does allow the offshoring production to be set up in Home, then the nation becomes an exporter of Z in the case we consider. This of course renders its Z tariffs useless. More interestingly, it also shifts the endogenous tariff decision in the parts sector in a pro-liberalisation direction.

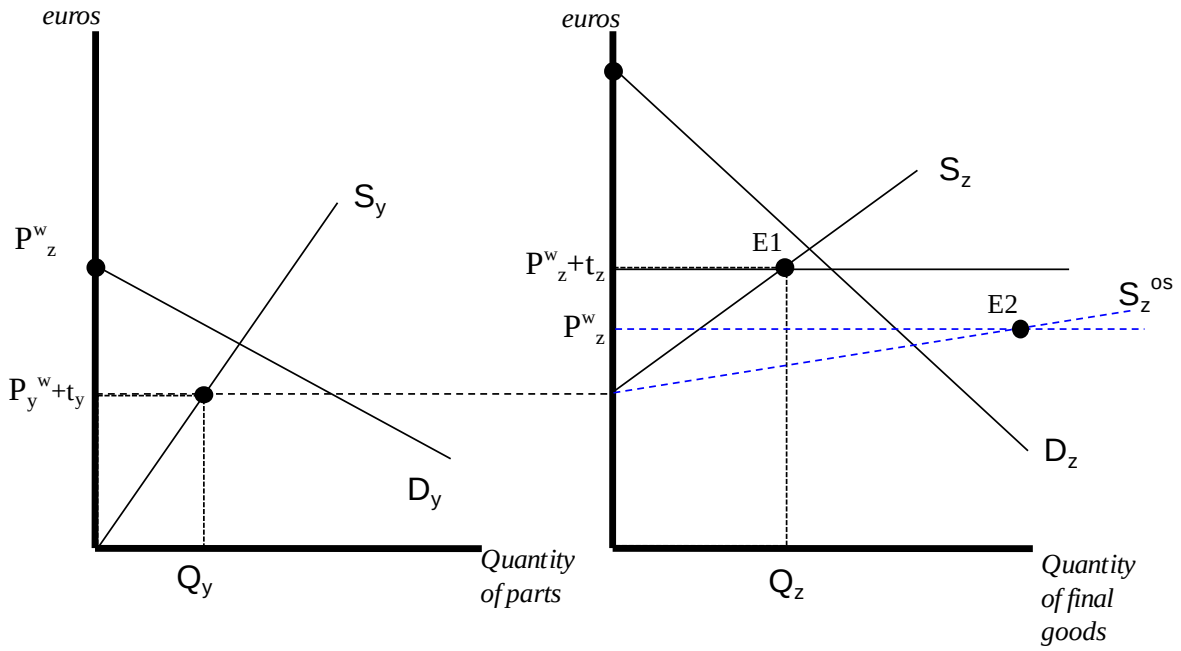


Figure 10: Offshoring and the development state's tariff choices

[17] Taking the Y and Z structure literally, this becomes what might be called the 'China' case, i.e. where Home is the assembly location for final goods that are then mostly sold onward to third nations. Alternatively, we can view Y and Z as any two adjacent links in a value added chain in which case it is more natural to view Y as parts and Z as components used in the manufacture of some final good not specified. Doing this formally would require some modifications to the reasoning as then Z would not be purchased by Home nation consumers, but the basic results would go through.

Recall that pre-offshoring, the government balanced the damage that a marginal Y tariff increase did against the value added it created in Y. The marginal damage consisted of the usual Harberger Triangles (captured by the negative term $at_y dM_y/dp_y$) plus the marginal reduction in Z sector output (captured by the negative term $p_z^w dS_z/dp_y$). After offshore production of Z is established and Home's supply curve rotates down to the point where it becomes an exporter, it is clear that the marginal damage to Z sector value added from any marginal rise is the Y tariff becomes greater.

For example Figure 10 shows the situation where the tariff on parts has not been modified after the offshoring of Z production from Foreign to Home has occurred. The question is whether this situation is an equilibrium or whether the Home government would find a lower t_y to be politically optimal after the offshoring. What is clear from the diagram is that any change in Z sector technology that allows the nation to become an exporter will involve a flatter supply curve in the Z sector. In other words, Z production becomes more sensitive to the price of parts and thus the marginal damage from raising t_y is higher at any level of t_y. By inspection of the first order conditions, this tells us that the Home government will find it optimal to lower the Y tariff after the offshoring.

In short, output of the offshored Z factory is more sensitive to parts prices than was the old Home Z industry, and this raises the marginal cost of maintaining the same level of t_y. In this way, the new offshoring factors induce a reduction in domestic tariffs on parts.

4.2.2. Race to the bottom unilateralism

The analysis hereto has presumed that Foreign multinationals have no choice in the location of offshored factory. They are either placed in the other nation or stay at home. This affords the Home government a free hand in setting its parts tariffs (presuming that the offshoring factories remained profitable).

If we expand the model and allow multiple 'home' nations, it is clear that the multinational would be in a position to bargain over each nation's tariff on parts. As every reduction in the parts tariff raises its profitability, it would prefer to locate in a nation with a zero parts tariff. The game is quite analogous to that played by internationally mobile capital and nations that wish to attract it. In the public finance literature, such situations are labelled "race to the bottom" as there is a tendency for governments to lower taxes on mobile factors to zero. Applying the same logic to the model at hand, we see that there will be a tendency for 'home'

nations to set their tariffs to zero as a means of attracting offshored factories. Baldwin (2006b) calls this "race to the bottom" unilateralism.

5. EXTENSIONS OF THE BASIC MODELS

The two models introduced above lay out basic explanations for why production unbundling was associated with unilateral liberalisation. Both fundamentally turn on the reduction in frictional barriers to international commerce. The first focuses on the frictional barriers (including coordination costs) of trade in parts and components. The second focuses on frictional barriers to investment in offshore parts and components production.

In the first model, the trigger of unilateral liberalisation is the lower of frictional barriers to organising production in spatially separated facilities. That is, as the cost of coordinating complex activities at distance falls sufficiently, imported parts switch from being more expensive than local parts to less expensive. This returns the setting that the standard PFS situation where free trade in parts is the political equilibrium. In the second, the trigger is the lowering of frictional barriers to what Kojima (1977) called "pro-trade FDI". Here the shock is assumed to affect more than the cost of moving goods across space and coordinating the production process in which they are involved. Here the shock also concerns the economic feasibility of offshoring production from high-wage-high-technology nations to low-wage-low-technology nations while still using the high-wage nation's technology.

In this section, we consider a number of extensions and combinations of the two fundamental political economy mechanisms.

5.1. Fragmentation and unilateral liberalisation

The first extension concerns a pure 'fragmentation' mechanism of the type emphases by Deardorff (1989a, b), Venables (1999), Kohler (2004a), Rodriguez-Clare (2007), Markusen (2006), Antràs et al. (2006), and most recently Grossman and Rossi-Hansberg (2006, 2008). In these models, a sector is initially considered as a single good from the point of view of trade – and presumably – from the political economy perspective. An exogenous change then makes it possible to separate the production stages into two or more segments with trade potentially occurring in the sub-product corresponding to the segments.

In the simplest political economy setting of Section 3.1, such production unbundling will be associated with pressures to reduce the tariff on the upstream parts. To see this, note that the

pre-unbundling situation would be like Z and Y being merged into one inseparable production process. According to the standard Olson's Asymmetry logic, the government would find it politically optimal to protection the combination as the losers of protection are not organised while the winners are. Fragmentation would then shift the situation to the one modelled in Section 3.1 where we saw that the political optimal tariff on the upstream segment, sector Y, is zero. This may help account for the observation that fragmentation is often correlated with unilateral trade liberalisation.

Note that if this occurred, we should observe a densification of the tariff schedule as part of the unilateral liberalisation. That is, as the unbundling occurs, we should see nations defining their tariff lines more narrowly. In the example at hand, the single tariff line applied to the combined Y, Z sector would turn into two tariff lines as part of the effort to protection Z and liberalise Y.

5.2. Firm-specific parts and components: Export processing

In the simple models explored in Sections 3 and 4, Y and Z were homogenous goods in the spirit of the Walrasian models employed. When it comes to manufacturing, however, this is not the only reasonable assumption. For example, seats produced for a particular Toyota sedan do not fit into a local made sedan, say Malaysia's Proton. As it turns out, we can use a combination of the models to study this sort of situation.

To be concrete, consider a three segment supply chain where parts (X) are used in making components (Y) which are used in making final goods (Z). Initially, coordination costs are such that all production segments are bundled in all nations, and we have some production in both Home and Foreign. Furthermore, suppose that Home has poor technology, but compensates for this with low wages.

The shock we focus on is an exogenous change that makes offshoring feasible. Given the wage differences, the advanced nation, Foreign, finds is economically advantageous to offshoring the production components to Home as this allows the Foreign firm to combine its advanced technology with low cost labour. However given the firm-specificity of parts, the offshored component factory that is established in Foreign must import all the parts it needs. Moreover, since the components are useless to Home producers of Z, all the output of the offshored industry is exported. This is outward processing trade.

What happens to tariffs in reaction to the offshored factory? The imported parts pose no threat to the local parts producers so a tariff would bring no political benefits (apart from the tariff revenue) and raising the tariff would actually harm the production of offshored components. If the local government cares a lot about industrial jobs and not very much about tariff revenue, the politically optimal tariff on Foreign parts is zero. This is true whether the local government is interested in promoting local industrial employment, value added or profits.

However, what if it is not possible to define the tariff schedule finely enough to distinguish parts destined for the Foreign and domestic component manufacturing? Here the analysis of the role of friction barriers helps sort things out. The specificity of parts can be modelled as a large frictional 'barrier' to using Foreign parts in domestic component-making. The analysis in Section 4.1.1 showed that domestic intermediate goods suppliers can be competitive locally even when their fundamental costs are higher. In Figure 9 for example, tariffs are necessary to shift the equilibrium from E1 to E2, but once the economy is at E2, the tariff can be removed. The frictional barrier separating domestic and Foreign parts is sufficient protection to keep the domestic parts competitive in the domestic economy. If we interpret the frictional costs as a measure of parts-specificity, we can see that it is possible that a zero parts tariff could be politically optimal – even if it is not possible to distinguish between domestic and Foreign parts in the tariff schedule. In this situation, the arrival of the offshored components factory could provide the spark necessary to lower the parts tariff.

The basic point is that if the economy starts at E2, removal of the tariff has no impact on domestic production and prices as long as the product-specificity-linked frictional barriers imply that local parts are cheaper for the local Z producers than imported parts. Tariffs on components are irrelevant to the offshored production of components as they are all exported, so whatever tariff was optimal previously continues to be after the offshoring.

5.3. Switch in government type

Many accounts of unilateral tariff liberalisation in the international relations literature stress the importance of ideas. As the political scientist Razeen Sally puts it: "… practical observation teaches us that the prevailing climate of ideas, interacting with interests and events, can entrench or sway this-or-that set of policies. A policy consensus on import-substitution, state planning and foreign aid was strongly embedded in developing-country

governments and international organisations up to the 1970s. … This set of ideas was overturned by what came to be called the Washington Consensus, which reflected sea-changes in political ideology and in development economics." (Sally 2008).

It is easy to capture such effects by combining our formal models. If a government starts with a 'development state' objective function as in Section 4.2 but switches to a PFS objective function as in Section 3.1, it will find it politically optimal to remove tariffs that it previously found optimal to impose. Less radically, the government could start with a development state objective function and raise the weight it places on social welfare, i.e. the 'a' parameter.

6. DUAL TRADE DEVELOPMENT AND THE DEATH OF IMPORT SUBSTITUTION

The final stylised fact that we wish to address is the fact that import substitution seems to have disappeared as a viable development strategy at approximately the same time as the second unbundling got going in manufacturing. Here we present the outlines of model that suggests the two are related. We consider a model in which production unbundling per se renders import substitution policies ineffective. This is relevant to unilateral liberalisation since developing countries rather rapid turnaround on the merits of industrial tariffs is very much associated with a switch in industrialisation strategy.

For example, countries in East Asia have long followed a dual-track industrialisation strategy. On one hand, they pursued import substitution in an effort to create industries via import protection. On the other hand, they encouraged export platforms that employed their workers to produce goods for exports – often employed direct or indirectly by multinationals. As the 1980s and 1990s proceeded, the classic import substitution track failed increasingly while the export-oriented track increasingly succeeded.

The model presented here shows how the offshoring-track renders the import-substitution track less viable. The basic story is that the widespread offshoring of labour-intensive tasks lowers the marginal cost for Foreign final goods and this makes it harder for the developing country to compete in the final good market.

6.1. The model

The basic model is that of Chapter 2.5 in Baldwin et al (2003), which is itself based on the 'footloose capital' model of Rogers and Martin (1995). There are two regions, two sectors, and two productive factors. The regions are symmetric in terms of tastes, but may differ in

terms of technology and openness to trade. The two sectors are referred to as industry and agriculture. Industry is marked by increasing returns, monopolistic competition and iceberg trade costs. The agricultural sector is assumed to produce a homogeneous good under Walrasian conditions (constant returns and perfect competition) and its output is traded costlessly. Assuming that both nations produce some A in equilibrium, this will equalise prices and thus indirectly connect wages in the two nations. That is, $w^*a_A^*=p_A= wa_A$, where the w and w* are northern and southern wages (southern variables are indicated with an asterisk), and a_A^* and a_A are the respective unit labour input coefficients. With this, we see that the high technology nation (south) will have a higher wage measured in units of the numeraire, viz. $w^*/w= a_A/a_A^* >1$.

The productive factors are physical capital K and labour L, with K being international mobile while labour is immobile. As capital owners are immobile across regions, physical capital moves but all of its reward is repatriated to its country of origin. Worldwide supplies of capital and labour are fixed, with the world's endowment denoted as L^w and K^w.

Because physical capital can be separated from its owners, the region in which capital's income is spent may differ from the region in which it is employed. We must therefore distinguish the share of world capital <u>owned</u> by northern residents (we denote this as $s_K \equiv K/K^w$) from the share of world capital <u>employed</u> in the north. Because each industrial variety requires one unit of capital, the share of the world capital stock employed in a region exactly equals the region's share of world industry. Consequently, we can use north's industry share, i.e. $s_n \equiv n/(n+n^*)$, to represent the share of capital employed in the north and the share of all varieties made in the north.

The cost function of a typical industrial firm in the FC model is non-homothetic; that is to say, the factor intensity of the fixed cost differs from the factor intensity of the variable cost. To keep things simple, we make the extreme assumption that the fixed cost involves *only* capital and the variable cost *only* involves labour. More specifically, the cost function is: $\pi + w_L a_m x$ where π and w_L are the rewards to capital and labour, a_m is the variable unit input requirement, and x is firm-level output.

The representative consumer in each region has preferences given by:

$$V = \frac{E}{P}; \qquad P \equiv p_A^{1-\mu}(\Delta)^{-a}; \quad \Delta \equiv \int_{i=0}^{n^w} p_i^{1-\sigma} di, \quad a \equiv \frac{\mu}{\sigma - 1} \tag{7}$$

where , n^w is the mass (roughly speaking, the number) of industrial varieties available worldwide, μ is the expenditure share on industrial varieties, and σ is the constant elasticity of substitution between any two varieties. Also, E is northern expenditure, P is perfect price index, p_A is the price of A, p_i is the consumer price of industrial variety i (the variety subscript is dropped where clarity permits).

The last assumption concerns factor migration. Physical capital moves in search of the highest *nominal* reward (i.e. measured in terms of the numeraire) rather than the higher real reward (i.e. deflated by a price index) since its income is spent in the owner's region regardless of where the capital is employed.[18] Inter-regional factor flows are governed by the *ad hoc* "migration" equation $\dot{s}_n = (\pi - \pi^*)(1 - s_n)s_n$.

6.1.1. The 'Peripherality Point'

The location of industry this economic geography model depends upon relative market sizes and on the degree of domestic and foreign openness (see Baldwin et al, 2003,Chapter 2.5). Here we add a third concern, namely comparative advantage. A convenient way to study the interaction of all these forces is to calculate the 'peripherality point', i.e. the smallest market size that permits the small/poor nation to attract at least some industry.

To be concrete we consider the north to be the small (poor) nation that is struggling to promote industrial development when all industry is initially located in the large (rich) south.[19] To add an important real world element to the equation, we allow for technology differences by assuming that the ratio of labour input coefficients differs in the two nations. In particular we assume that the north's ratio a_M/a_A differs from the south's a_M^*/a_A^*, where the a_i's are sectoral unit labour requirements using our standard notation.

With this modification, the rewards to capital are:[20]

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[18] Nominal versus real here means the reward in terms of the numeraire rather than reward in terms of the consumption bundle $C_A^{1-\mu}C_m^{\mu}$

[19] In New Economic Geography models, real incomes depend upon industrial location and openness. If both countries are equally open, then, as usual, the small country will have less industry and thus a higher price index. In other words, the small country will also be the poor country.

[20] Details of the calculation of the peripherality point can be found in Chapter 11.4 of Baldwin et al (2003).

$$\pi = b(\frac{s_E}{\Delta} + \frac{\phi^*(1-s_E)}{\Delta^*})\chi; \quad \pi^* = b(\frac{\phi s_E}{\Delta} + \frac{1-s_E}{\Delta^*}); \qquad \chi \equiv (\frac{a_M}{a_M{}^*} \tag{8}$$

where

$$\Delta = \chi s_n + \phi(1-s_n), \quad \Delta^* = \phi^* \chi s_n + 1 - s_n$$

and χ (a mnemonic for comparative advantage) measures comparative advantage with $\chi>1$ indicating a comparative advantage for the north in industry; s_E is the share of world expenditure in the north, and ϕ is the free-ness of trade, i.e. it equals $\tau^{1-\sigma}$ where τ is the iceberg trade cost. Note that s_E, is exogenous as L is immobile and K's income is repatriated. Solving the location condition $\pi=\pi^*$ for the spatial division of industry, s_n, allowing for differences in size, openness, and comparative advantage, we have:

$$s_n = \frac{((1-s_E)\phi\phi^* + s_E)\chi - \phi}{(\chi-\phi)(1-\chi\phi^*)} \tag{9}$$

where, as usual, this is only valid for economically relevant shares; if the right-hand side exceeds unity or is less than zero, then s_n is one or zero as appropriate.

Although our expressions are general, we will be particular interested in the case where $\chi>1$, i.e. where the small/poor/un-industrialised nation actually has a fundamental comparative advantage in industry. The interest lies in the fact that in a neoclassical model, the small north would always have some industry regardless of trade costs. In an economic geography model, by contrast, market access considerations can allow a pattern of specialisation that contradicts comparative advantage. Furthermore, since wages are equalised yet north has a lower labour input coefficient in industry, the unit cost of industrial production is lower in the north.

To find the peripherality point, we view s_E as a parameter and search for the s_E where s_n is just equal to zero, i.e. where the core-in-the-south is just barely sustained. Solving $s_n=0$, we get the critical market size of the rich/northern market to be:

$$s_E{}^P = \frac{\phi}{1-\phi\phi^*}(\frac{1}{\chi} - \phi^*) \tag{10}$$

where $s_E{}^P$ is the peripherality point, i.e. the size of the small northern market that implies it has no industry. Since is increasing in s_E, we know that north will be without industry (i.e. will be the periphery) for any market size that is less than $s_E{}^P$.

A particularly salient feature of the peripherality point is that even if the north has a native comparative advantage in industry ($\chi>1$) – so that the unit labour cost of producing in north is below that of the big south – industry can still be fully concentrated in the south. In other words, this is an example of agglomeration producing a trade pattern that contradicts the pattern predicted by comparative advantage.

The expression for s_E^P conveniently organises the various forces that foster industrial underdevelopment. By inspection, s_E^P is decreasing in χ and in ϕ^*, and increasing in ϕ. This means that the greater is the north's comparative advantage in manufacturing, the smaller its market must be to sustain peripherality. Moreover protection of the big market (the south in this case) makes location in the small north less advantageous, so higher big-market protection ($d\phi^*<0$) allows northern peripherality at a higher northern market size.

6.2. Dual track interaction: export promotion extinguishes import substitution

To relate this to the matter at hand, it suffices to note that χ would – in a more complete and more complex model with intermediate inputs – depend upon the cost of producing those intermediate inputs. If we start from a world where all production is spatially bundled – i.e. both nations must produce all their own intermediate inputs – the expression for the peripherality point is exact. Now suppose that exogenous changes such as the ICT revolution make it feasible to geographically separate the manufacture of some intermediate inputs and the higher-technology southern firms can bring their superior technology with them if they set up factories in the low-wage north. For the south this would look like the offshoring of industrial jobs; for the north it would look like part of their export-oriented development strategy.

The result will be that southern firms will now see the cost of their intermediate inputs fall, while the costs facing northern firms are unchanged. In terms of the model, this will raise χ, i.e. it will exaggerate the native Ricardian comparative advantage enjoyed by south. Given the formula for the equilibrium peripherality point, we see that the offshoring of parts production to the north has worsened prospects for the north's downstream industry. Indeed if the shift in χ is large enough, the poor north may see its "infant industry" (the downstream industry) completely wiped out. This, of course, is the result we were trying to illustrate.

6.2.1. Discussion

While the model used to illustrate this point is rather special – and indeed not fully worked out here – my conjecture is that the basic economic logic is quite robust. Developing nations who participate in the global supply chains of advanced nation manufactures of, say, automobiles, are indirectly making it harder for their final automobile makers to survive.

7. CONCLUDING REMARKS

Unilateral tariff liberalisation by developing nations is a curiously universal phenomenon. There has been, however, very little theoretical work to shape our thinking on why this is occurring. This paper is an attempt to redress this lacuna by introducing three novel mechanisms that could account for unilateral tariff liberalisation by developing nations that previously embraced import substitution policies. The particular emphasis is on the role of production unbundling as a trigger of this unilateralism.

One mechanism focuses on the way that reduced frictional barriers to trade in parts and components can undermine the correlation of interests between developing country parts producers and their downstream customers. A second mechanism focuses on the way that Kojima's pro-trade FDI – a critical component of production unbundling – raise the marginal political economy cost of maintain high upstream barriers. The third mechanism works via a more general equilibrium channel. The idea is that developing country's participation in the supply chains of advanced-nation industries tends to undermine the developing country's competitiveness in final good production. The eroded final-good competitiveness raises the marginal cost of final good protection, so the developing nation government may find it politically optimal to marginally lower final good tariffs.

These economic logics most naturally fit the unilateralism seen in East Asia, Mexico, and Central Europe. Unilateral tariff liberalisation, however, is an almost universal phenomenon. The autonomous tariff cutting has also occurred in agriculture goods, and a broad range of nations as Table 2 shows. All developing nations ranked among the 50 largest importers in the world in 2009 are listed. The first pair of columns shows the bound tariffs – i.e. the tariff ceilings they have agreed to as WTO members. The high bound rates typically reflect the import substitution tariffs of the 1960s and 1970s which were not negotiated down as developing nations did not play reciprocally in the GATT rounds.[21] The fact that the applied rates (i.e. the tariffs actually charged in 2009) are generally far below the bound rates is a good indication of the extent of unilateral tariff cutting.

[21] Following the logic of the Haberler Report discussed in the introduction, the GATT granted 'special and differential' treatment to developing nations that allowed them to free ride on the MFN clause during multilateral trade negotiations. As a consequence, they did not lower their bound rates.

Accounting for this broad set of facts surely requires a combination of mechanisms. The novel mechanisms highlighted in this paper, for example, cannot explain tariff cutting in agriculture and developing nation not particularly involved in manufacturing. The basic Krishna-Mtira story, which suggests that unilateralism is contagious, probably comes in to play. Also important in several cases in Africa and in the Indian case was the conditionality imposed by the IMF. It would also seem important to consider Ornelas's approach that focuses on the why that selective cutting tariffs raises the variance of the tariff structure and with this, the inefficiency of the status quo tariff structure. This in turn could produce new political pressures to even out the tariff structure by lower tariffs not directly affected by liberalisation mechanism discussed in this paper.

Table 2: Leading developing importers: Applied and bound tariffs, 2009

	Agricultural goods		Non-agricultural goods	
	Bound	MFN applied	Bound	MFN applied
Hong Kong	0	0	0	0
Iran	n.a.	28.9	n.a.	25.6
Russia	n.a.	14.2	n.a.	10.2
Ukraine	11.1	13	5	4.4
China	15.8	15.6	9.1	8.7
Chinese Taipei	17.8	16.9	4.8	4.5
Vietnam	18.5	24.2	10.4	15.7
Saudi Arabia	20.7	7.1	10.5	4.9
UAE	25.4	7.1	13.1	4.7
Singapore	29.1	0.2	6.3	0
Argentina	32.5	10.3	31.8	11.9
Philippines	34.7	9.7	23.4	5.7
Brazil	35.5	10.2	30.8	14.1
Thailand	42.7	25.2	25.6	8.2
Mexico	44.2	22.9	34.9	11.1
Indonesia	47.1	8.5	35.6	6.7
Venezuela	55.7	16.8	33.6	12.8
Korea	59.3	49	10.2	6.6
Turkey	60.1	42.2	16.9	4.8
Malaysia	83.4	14.7	14.9	8
Egypt	96.1	66.4	27.7	9.6
India	114.2	32.2	34.7	10.1

Source: WTO Tariff Profiles, 2009 (on line database); Russia and Iran were not WTO members in 2009 and so have no bound rates.

This pastiche of mechanisms is a long way from a clear and convincing account of the political economy driving the massive, unilateral, and near-universal tariff liberalisation that has swept the developing world since the late 1980s. Plainly more theoretical work is need and more empirical work is needed to guide it.

REFERENCES

Amador, João and Sónia Cabral (2008). “Vertical specialization across the world: A relative measure”, Bank of Portugal Working paper, No. 10-2008.

Ando, Mitsuyo and Fukunari 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, NBER-East Asia Seminar on Economics, Volume 14, pages 177-216.

Ariu, Andrea and Giordano Mion (2010). “Trade in Services: IT and Task Content”, pdf, http://personal.lse.ac.uk/mion/cadrea.htm.

Bagwell, Kyle and Robert W. Staiger. 1990. “A Theory of Managed Trade,” American Economic Review 80(4): 779-795.

Baldwin, Richard (1993). “Asymmetric Lobbying Effects: Why Governments Pick Losers”, unpublished manuscript, September 1993. http://www.graduateinstitute.ch/ctei/baldwin_articles.html

Baldwin, Richard (1994). Towards and integrated Europe, CEPR, London.

Baldwin, Richard (2006a). “Globalization: The Great Unbundling(s)”, Chapter 1 in Globalisation challenges for Europe, Secretariat of the Economic Council, Finnish Prime Minister’s Office, Helsinki, 2006, pp 5-47.

Baldwin, Richard (2006b). “Managing the Noodle Bowl: The fragility of East Asian Regionalism,” CEPR DP 5561, March. Eventually published in Singapore Economic Review, vol. 53, issue 03, April pp 449-478. 2008.

Baldwin, Richard and Anthony Venables (1995). "Regional economic integration," Handbook of International Economics, in: G. M. Grossman & K. Rogoff (ed.), Handbook of International Economics, edition 1, volume 3, chapter 31, pages 1597-1644 Elsevier.

Baldwin, Richard and Anthony Venables (2010). “Relocating the value chain: off-shoring and agglomeration in the global economy”, manuscript.

Baldwin, Richard and Frederic Robert-Nicoud (2002). "Entry and Asymmetric Lobbying: Why Governments Pick Losers," NBER Working Papers 8756, eventually published in Journal of the European Economic Association, vol. 5(5), pages 1064-1093, 2007.

Baldwin, Richard and Frédéric Robert-Nicoud (2008). "A Simple Model of the Juggernaut Effect of Trade Liberalisation", CEP Discussion Papers DP0845, LSE.

Baldwin, Richard and Robert Baldwin (1996). "Alternative Approaches to the Political Economy of Endogenous Trade Liberalization", European Economic Review 40, 1996, 775-782.

Baldwin, Richard and Robert-Nicoud, Frédéric (2006). "Protection for Sale Made Easy," CEPR Discussion Papers 5452.

Baldwin, Robert (1980). "The Economics of the GATT" in Issues in International Economics, edited by Peter Oppenheimer. Stocksfield, England and Boston: Oriel.

Blackhurst, Richard (1979). "Reciprocity in trade negotiations under flexible exchange rates", in John Martin and Alasdair Smith (eds) Trade and payments adjustments under flexible exchange rates, London: Macmillan, 1979.

Borgatti, Lisa (2006). "A New Tariff Database for Selected Least Developed Countries", HEI Working Paper No: 12/2006.

Cadot, Olivier, de Melo, Jaime and Olarreaga, Marcelo (2003). "The protectionist bias of duty drawbacks: evidence from Mercosur," Journal of International Economics, Elsevier, vol. 59(1), pages 161-182, January.

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.

Campa and Goldberge (1997). "The Evolving External Orientation of Manufacturing Industries: Evidence from Four Countries", Economic Policy Review, Vol. 3, no. 2: 53-81.

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

Conconi, Paola and Carlo Perroni (2010). "Conditional versus Unconditional Trade Concessions for Developing Countries", pdf dated September.

Cooper, Richard (1971). "Tariff issues and the Third World", The World Today, Chatham House publication, September.

Dixit, A. (1987) ‘Strategic aspects of trade policy’, in T.F. Bewley (ed) Advances in economic theory: fifth world congress, New York: Cambridge University Press.

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

Ethier, W. (2002). "Unilateralism in a Multilateral World," Economic Journal, Royal Economic Society, vol. 112(479), pages 266-292.

Feenstra, Robert and Gordon Hanson (1997). "Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras," Journal of International Economics, Elsevier, vol. 42(3-4), pages 371-393, May.

Fugazza, Marco and Frédéric Robert-Nicoud (2010). "The Emulator Effect of the Uruguay Round on US Regionalism," CEP Discussion Papers dp0973.

Fujita, Masahisa, and Nobuaki Hamaguchi (2006). “The Coming Age of China-Plus-One: The Japanese Perspective on East Asian Production Networks”, background paper for Dancing with giants: India, China and the global economy, Alan Winters and Shahid Yusuf (eds), World Bank, 2006.

Garnaut, Ross (1991). Australia: A case study of unilateral trade liberalisation, in J. Bhagwati and H. Patrick, Aggressive Unilateralism: America's 301 Trade Policy and the World Trading System, University of Michigan Press.

Green, Edward and Robert Porter (1984), “Noncooperative Collusion under Imperfect Price Information,” Econometrica, 52, 87—100.

Grossman, G., and Helpman, E. (1996). “Rent Dissipation, Free Riding, and Trade Policy,” European Economic Review 40, 795-803.

Grossman, Gene M & Helpman, Elhanan, 1995. "Trade Wars and Trade Talks," Journal of Political Economy, University of Chicago Press, vol. 103(4), pages 675-708, August.

Grossman, Gene M. and Esteban Rossi-Hansberg (2008). "Trading Tasks: A Simple Theory of Offshoring," American Economic Review, American Economic Association, vol. 98(5), pages 1978-97.

Hillman, Arye and Peter Moser (1992). ‘Trade Liberalization as Politically Optimal Exchange of Market Access’ published in 1996 in The new transatlantic economy, Matthew B. Canzoneri, Wilfred Ethier, Vittorio Grilli (eds), Cambridge University Press.

Hummels, David (1999). "Toward a Geography of Trade Costs," GTAP Working Papers 1162, Center for Global Trade Analysis, Department of Agricultural Economics, Purdue University.

Inomata, Satoshi and Yoko Uchida (2009). “Asia Beyond the Crisis -Visions from International Input-Output Analyses”, Spot Survey, No.31, IDE-JETRO.

Ishii, Jun and Kei-Mu Yi (1997). "The growth of world trade," Research Paper 9718, Federal Reserve Bank of New York.

Johnson, Chalmers (1982). MITI and the Japanese Miracle. Stanford, CA: Stanford University Press.

Kimura, Fukunari, Yuya Takahashi, and Kazunobu Hayakawa (2007). “Fragmentation and parts and components trade: Comparison between East Asia and Europe”, The North American Journal of Economics and Finance, Volume 18, Issue 1, 1 Pages 23-40.

Kojima Kiyoshi (1975), “International Trade and Foreign Direct Investment: Substitutes or Complements,” Hitotsubashi Journal of Economics 16: 1-12. 23

Kojima Kiyoshi (1977a), “Transfer of Technology to Developing Countries—Japanese Type versus American Type,” Hitotsubashi Journal of Economics 17: 1-14.

Kojima Kiyoshi (1977b), Kaigai Chokusetsu Toshi Ron [Theory of Foreign Direct Investment], Tokyo: Diamond.

Kojima, Kiyoshi (1973), “A Macroeconomic Approach to Foreign Direct Investment,” Hitotsubashi Journal of Economics 14: 1-20.

Kojima, Kiyoshi (2003, 2005, 2006), Ganko-kei Keizai Hattenron [Flying-Geese-Style Economic Growth], vol. 1: Nihonkeizai, Aziakeizai, Sekai keizai [Japanese Economy, Asian Economy, World Economy]; vol. 2: Azia to Sekai no Shinchitsujo [Asia and World in a New Order]; and vol. 3: Kokusaikeizai to Kinyukiko [International Economy and Monetary System], Tokyo: Bunshindo.

Kojima, Kiyoshi and Terutomo Ozawa (1984), “Micro- and Macro-Economic Models of Direct Foreign Investment: Toward a Synthesis,” Hitotsubashi Journal of Economics 25 (1): 1-20.

Kojima, Kiyoshi and Terutomo Ozawa (1985), “Toward a Theory of Industrial Restructuring and Dynamic Comparative Advantage,” Hitotsubashi Journal of Economics 26 (2): 135-145.

Krishna, Pravin and Mitra, Devashish, 2008. "Reciprocated unilateralism in trade reforms with majority voting," Journal of Development Economics, Elsevier, vol. 85(1-2), pages 81-93. First circulated 2004 (NBER WP 10826).

Ludema, Rodney, Anna Maria Mayda, and Prachi Mishra (2010). “Protection for Free? The Political Economy of U.S. Tariff Suspensions”, June, EIIT Working Paper.

Martin, P. and C.A. Rogers (1995) Industrial location and public infrastructure, Journal of International Economics 39, 335-351.

Martin, Will and Francis Ng (2004). “A Note on Sources of Tariff Reductions in Developing Countries 1983-2003”, World Bank, 27 October, mimeo.

Milner, Helen V. & Kubota, Keiko, 2005. "Why the Move to Free Trade? Democracy and Trade Policy in the Developing Countries," International Organization, Cambridge University Press, vol. 59(01), pages 107-143, January.

Moser, Peter (1990). The political economy of the GATT, University of St.Gallen PhD thesis. St. Gallen.

Olivier Cadot & Jaime de Melo & Marcelo Olarreaga, 2004. "Lobbying, Counterlobbying, and the Structure of Tariff Protection in Poor and Rich Countries," World Bank Economic Review, Oxford University Press, vol. 18(3), pages 345-366.

Olson, Mancur (1965). The Logic of Collective Action: Public Goods and the Theory of Groups, Harvard University Press, 1st ed. 1965.

Ornelas, Emanuel (2005a). "Trade creating free trade areas and the undermining of multilateralism," European Economic Review, vol. 49(7), pages 1717-1735, October.

Ornelas, Emanuel (2005b). "Rent Destruction and the Political Viability of Free Trade Agreements," The Quarterly Journal of Economics, vol. 120(4), pages 1475-1506, November.

Richardson, Martin (1993). Endogenous protection and trade diversion. Journal of International Economics 34, 309–324.

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

Richter, J.H. (1959). “Trends in International Trade: Review Article”, The Quarterly Journal of Economics, Vol. 73, No. 4 (Nov., 1959), pp. 576-595.

Roesseler, Freider (1978). “The rationale for reciprocity in trade agreements under floating currencies”, Kyklos, Volume 31, Issue 2, pages 258–274, May.

Sally, Razeen (2008). “Globalisation and the Political Economy of Trade Liberalisation in the BRIICS” pdf draft, http://www.ecipe.org/people/razeen-sally.

Schott, Jeffrey (1996). The World Trading System: Challenges Ahead, Peterson Insitute of International Economics, Washington, DC.

Stone, Randall (2004). “The Political Economy of IMF Lending in Africa”, American Political Science Review Vol. 98, No. 4 November.

Venables, Anthony (1985). "Trade and Trade Policy with Imperfect Competition: The Case of Identical Products and Free Entry," Journal of International Economics 19, (August), pp. 1-20.

Venables, Anthony (1987). Trade and Trade Policy with Differentiated Products: A Chamberlinian-Ricardian Model. The Economic Journal, 97, pp.700-717.

Vezina, Pierre-Louis (2010). “Race-to-the-bottom tariff cutting” HEID Working Paper No: 12/2010

Yi, Kei-Mu (2003). "Can Vertical Specialization Explain the Growth of World Trade?," Journal of Political Economy, vol. 111(1), pages 52-102, February.

Young, Soogil (1996). “Political Economy of Trade Liberalization in East Asia", in]effrey I. Schott (ed.), The World Trading System: Challenges Ahead. Washington D.C.: Institute for International Economics.

Zeiler, T. W. (1997). “GATT Fifty Years Ago: U.S. Trade Policy and Imperial Tariff Preferences”, Business and Economic History, Volume 26, no..2 ,Winter.