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BIG-THINK REGIONALISM: A CRITICAL SURVEY

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ABSTRACT

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Economic thinking on regionalism has traditionally focused on the Vinerian question: Would a nation gain from joining a trade bloc? Since 1991, "Big Think Regionalism" considers the broader question of regionalism's impact on the world trading system focusing on two questions: Does spreading regionalism harm world welfare? and Does regionalism help or hinder multilateralism? This paper synthesises and critiques the theoretical literature in an attempt to identify the insights that are useful for thinking about regionalism's systemic impact in the new century.

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Big-Think Regionalism: a critical survey

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Graduate Institute, Geneva; June 2008, first draft: 28 February 2007¹

Abstract

Economic thinking on regionalism has traditionally focused on the Vinerian question: Would a nation gain from joining a trade bloc? Since 1991, “Big Think Regionalism” considers the broader question of regionalism’s impact on the world trading system focusing on two questions: Does spreading regionalism harm world welfare? and Does regionalism help or hinder multilateralism? This paper synthesises and critiques the theoretical literature in an attempt to identify the insights that are useful for thinking about regionalism’s systemic impact in the new century.

1. INTRODUCTION

Regionalism is sweeping the world trade system like wildfire while multilateral WTO talks proceed at a glacial pace – a correlation that leads many observers to fear that regionalism’s boon is multilateralism’s bane. This fear has pushed regionalism far up the global economic agenda and prompted a new wave of research on regionalism. But this is nothing new.

The profession’s best and brightest were focused on regionalism in the 1940s and 1950s – Jacob Viner, James Meade, Richard Lipsey, and Harry Johnson *inter alia*. Europe’s post-war architecture was among the world’s greatest problems and a free trade area was to be part of it, but economists were muddled over the issue.

The 1950s’ thinking straightened out the economics and established the intellectual paradigm that steered research on regionalism for decades.² The paradigm – what could be called Small-Think Regionalism – ignored systemic implications since the only large preferential arrangement – the EEC – was viewed as *sui generis*. The key question was: “Would a nation gain from joining a preferential trade arrangement?”

All this changed in the late 1980s when large-scale regionalism was re-ignited in North America. Regionalism swept the world trading system like wildfire while multilateral GATT talks proceeded at a glacial pace. In December 1990, GATT negotiations slipped into a 4-year coma causing many to fear that regionalism threatened multilateralism. As in the 1950s, regionalism was back at the top of the global economic agenda and attracting attention from the profession’s leading lights.

In 1991, Paul Krugman, Larry Summers and Jagdish Bhagwati laid out lines of analysis – what might be called Big-Think Regionalism – that continue to shape the profession’s thinking on regionalism even

¹ I would like to thank the follows scholars for comments and suggestions: Caroline Freund, Antoni Estevadeordal, Kati Suominen, Nuno Limao, Richard Pomfret, Alan Winters, Patrick Low and all the economists in the WTO Research Department, and the IADB’s Trade and Integration Sector. The paper was prepared for the IDB-WTO joint research project on regionalism.

² Particularly, Viner (1950), Meade (1955a,b), Lipsey (1957), Johnson (1957, 1958a, b) and Cordon (1957).

today.³ Big-Think Regionalism focuses on the systemic implications. It comprises two principle lines of inquiry:

1. Does spreading regionalism harm world welfare?

Krugman (1991a) provided a line-sketch model that crystallised the profession's thinking around a simple comparative static exercise: "Will an exogenous variation in the number of regional trade blocs raise or lower world welfare?" He admitted, however, that this exercise missed much.

"In a fundamental sense, the issue of the desirability of free trade areas is a question of political economy rather than of economics proper. ... The real objection is ... the fear that regional deals will undermine the delicate balance of interests that supports the GATT." (Krugman 1991b, p. 23)

This led to the second line of inquiry:

2. Does regionalism help or hinder multilateralism?

Krugman (1991b, 1993) sketches a bargaining model where regionalism can help or hinder multilateralism, but it was Jagdish Bhagwati's bon mot that organised profession's thinking: do trade blocs "more readily serve as building blocks of, rather than stumbling blocks to, GATT-wide free trade." Bhagwati (1991 p. 77). Specifically, the second line of inquiry crystallised around the question of whether an exogenous variation in regional trade blocs made multilateral tariff cooperation more or less likely.

The two main lines of inquiry embraced the notion that one could reasonably view changes in the number of blocs as exogenous. A third line of inquiry extended the issue by endogenising regionalism's spread. The focus was on cause and extent of spreading regionalism; it turned on positive political economy question of which trade blocs would actually emerge (Baldwin 1993, 1995, Grossman and Helpman 1995, Yi 1996, Freund 2000a, b, Aghion, Antras and Helpman 2004).

Summers (1991) contribution was to stake out one extreme of the debate on both lines of inquiry. He argued that "plausible" regional arrangements were natural trade blocs and thus would raise world welfare. He also asserted that reasonable regional arrangements were as likely to accelerate the general liberalization process as to slow it down. Hence his famous assertion that all the 'isms are good: unilateralism, bilateralism, plurilateralism and multilateralism. Summers rejected the notation that regionalism and multilateralism were enemies as Krugman, Bhagwati and many suspected; regionalism and multilateralism were the two legs on which the world was walking towards global free trade. In retrospect, Summers was closer to the mark since the Uruguay Round finished in 1994, securing enormous advances in the breath and depth of multilateralism despite, or even because of, spreading regionalism.

Plan of the paper. The goal of this paper is to summarise and evaluate the Big-Think regionalism literature. My focus is almost exclusively on theoretical work due to length limits. Before turning to the literature, Section 2 presents the elemental economic effects that concern Big-Think Regionalism in a way that helps to fix ideas and terms. Section 3 considers the stumbling/building block issue and Section 4 looks at the "Is bilateralism bad" literature. The third line of inquiry is covered in Section 5. A summary and concluding remarks are in Section 6.

³ See particularly, Krugman (1991a,b), Bhagwati (1991 Chapter 5), Summers (1991), but also Krugman (1993) and Bhagwati (1993).

2. BASIC ECONOMIC EFFECTS

Before launching into a review of Big-Think Regionalism, it proves useful to conduct a quick review the basic economics of preferential trade liberalization as far as the political economy interaction between regionalism and multilateralism is concerned. There is nothing new in this review and it ignores many elements at that important economically – e.g. scale effects, growth effects and location effects. It is necessary since the literature is marked by a conceptual ‘spaghetti bowl’ – a tangle of conflicting, overlapping and competing terminologies for basic effects. My sole aim here is to establish a common set of labels and notation for the key concepts underpinning thinking in the Big-Think Regionalism literature.

There are only three core effects. All have been known at least since 1950. To avoid creating yet another set of terms, I label them according to their intellectual fathers.

2.1. Smith’s certitude, Haberler’s spillover and Viner’s ambiguity

The theory of preferential trade did not begin in 1950 with Jacob Viner.⁴ Early contributions include Smith (1776), Taussig (1892), and Torrens (1844). Adam Smith’s contribution highlights one of the most robust findings in the field – what might be called ‘Smith’s certitude’:

When a nation “exempt[s] the good of one country from duties to which it subjects those of all other ... the merchants and manufacturers of the country whose commerce is so favoured must necessarily derive great advantage.” (Smith, 1776 as quoted in Pomfret 1997).

Much later Gottfried Haberler asserted that all members of a preferential trade agreement (RTA) must gain while third nations must lose.⁵ The first part of the assertion is wrong, but what might be called ‘Haberler’s spillover’ – the part about third nations losing – turns out to be almost as robust as Smith’s certitude. Haberler’s spillover and Smith’s certitude are the linchpins of the Big-Think regionalism discussion.

The only basic element added in the post-war period came with Jacob Viner’s famous 1950 book *The Customs Union Issue*. Viner’s key finding is that discriminatory tariff liberalization has ambiguous welfare effects (‘Viner’s ambiguity’).⁶ Viner’s ambiguity is quite general but one is hard pressed to see this from the analysis in his book. An RTA is nothing more than a special case of non-uniform commodity taxation, but Viner did not have the benefit of modern economic tools for tax analysis. Rather, he conducted the analysis using the enduring but imprecise concepts of ‘trade diversion’ and ‘trade creation’.

⁴ See the excellent survey, Pomfret 1997 Chapter 8.1, on pre-Vinerian contributions, also Pomfret (1986) and O’Brien (1976),

⁵ His discussion runs over several pages but here he asserts it fairly directly: “There is no difference in kind, but only one of degree, between the grant of lower preferential duties upon imports from certain country and a general reduction in tariffs. A partial reduction is better than none at all (although, of course, a general reduction would be still better, from an economic standpoint).” (Haberler 1936 p. 384).

Haberler’s spillover was certainly understood by scholars before Haberler (e.g. Bismarck used this aspect of customs union to force/cajole many German-speaking states to join his unified Germany), but I assign it to Haberler since Haberler’s 1936 book shows that mainstream trade economists were confused about the theory of the second best. This illustrates why Viner’s 1950 book was viewed as such a landmark.

⁶ Viner’s consideration of other effects of customs union formation (its impact on the terms of trade, economies of scale, cartels, administrative efficiency, the pressure to harmonize excise taxes, and the necessity to go beyond tariff removals in order to remove trade barriers) made much less lasting impact on the literature, but remains a fascinating and highly accessible read.

"The analysis will be directed towards finding answers to the following questions: in so far as the establishment of the customs union results in change in the national locus of production of goods purchased, is the net change one of diversion of purchase to lower or higher money-cost sources of supply, abstracting from duty-elements in money costs ... If the customs union is a movement in the direction of free trade, it must be predominately a movement in the direction of goods being supplied from lower money-cost sources than before. If the customs union has the effect of diverting purchases to higher money-cost sources, it is then a device for making tariff protection more effective. None of these questions can be answered a priori, and the correct answers will depend on just how the customs union operates in practice." (Viner 1950 p.44).⁷

'Trade diversion' and 'trade creation' are misleading since they suggest trade volumes are the key even though his words clearly indicate that cost/price changes are what matter. Moreover they fail to cover all the effects generated by discriminatory tariff liberalisation – even in a simple Walrasian setting. Given these shortcomings and the decades-long debate on ‘what did Viner really mean’ (a debate in which Viner himself participated without notable effect), it is curious that the terms have enjoyed such enduring success.⁸

The generality of Viner’s ambiguity is glaringly obvious to readers schooled in the theory of the second best (preferential liberalisation induces new distortions while removing others) but Viner’s book was a landmark. The theory-of-the-second-best was unknown in 1950 and many of Viner’s contemporaries – Haberler, for example – were muddled over the key differences between general and preferential liberalisation.

2.1.1. Kemp-Wan logic

A fourth elemental effect in the regionalism literature concerns the interaction between preferential and multilateral tariff cutting. It is not really a basic economic effect but rather a specific combination of effects motivated the fact that the most important regional liberalisation over the last 60 years (Europe and North America) has been accompanied by multilateral liberalisation. When thinking about this teaming of multilateral and regionalism liberalisation, the guiding light is the Kemp-Wan logic.

Meade (1955) introduced analysis that produced one of the few general statements that can be made about RTAs – the Kemp-Wan theorem.⁹ Kemp-Wan (1976) demonstrate that RTAs could be designed to be Pareto improving for every member of the RTA and the world at large. The logic is elegant. Assume two nations sign a RTA and alter their external tariffs to freeze their external trade flows; the external trade flows can then be treated as part of the bloc’s endowment. Removal of all intra-RTA barriers thus shifts

⁷ Viner (1950) is worth reading in the original. His but informal reasoning is full of insights and it anticipates much of the economic and political economy theory as well as the political economy debates that have surrounded economic integration in the subsequent six decades. The key passages are reproduced verbatim in Box 2.

⁸ The basic problem was the profession found the simple trade creation/diversion paradigm to be effective in communicating the crucial welfare-ambiguity result but the words did not fully capture all the basic economic effects. Arvind Panagariya, for example, suggests that the terms persist since they are “highly effective tools of focusing policy makers’ attention on the ambiguous welfare effects of RTAs.” (Panagariya 1999).

⁹ Meade identified the basic result in 1955 when he argued that were it not for external trade considerations (the PTA's trade with non-members), duty-free internal trade would be optimal: "if all trade barriers take the form of fixed and unchanged quantitative restrictions, then a customs union must increase economic welfare" (Meade 1955b p. 98). As often happened in ‘customs union theory’, the result was re-invented repeatedly (Vaneck 1965, Ohyama 1972, and Kemp and Wan 1976). The profession knows it as the Kemp-Wan theorem. Recently, Krishna and Panagariya (2000) follow-up Meade’s insight that the key is to freeze external tariff vectors to show that Kemp-Wan holds for FTAs as well as customs unions, if the FTA is free to choose all external tariffs.

the two-nation bloc from a second-best situation to a first-best situation (i.e. laissez-faire in goods and factors given tastes, technology and endowments). The first welfare theorem of Walrasian economics guarantees an increase in economic efficiency and lump-sum transfers within the RTA ensure welfare gains for all. Third nations' are unaffected since their trade vectors are unaffected. Dixit and Norman (1980) generalise the analysis, showing that the Kemp-Wan improvement can be obtained without lump sum transfers; intra-RTA commodity taxes and subsidies are sufficient.

Of course, real-world RTAs do not adjust external tariffs in a Kemp-Wan manner, nor do they have access to large lump-sum transfers. Nevertheless, the theorem is important from a policy perspective. It proves that RTAs are not necessarily bad for world welfare. Moreover, it helps us think about why the duo of multilateral and preferential tariff cutting – a duo that has been in operation since the 1950s – may have been critical to explaining why post-WWII regionalism has had a relatively benign impact on the world trade system to date. Certainly much more benign than the European regionalism between the wars.

2.2. Modern treatment of Viner's ambiguity

The first economists to apply modern economic analysis to Viner's question were Meade (1955a,b), Lipsey (1957) and Gehrels (1956-7). Modern tax analysis shows that the welfare impact of any tax change is captured by two terms in the Walrasian setting – one related to the change in consumption over the tax wedge, the other related to the level of consumption times the change in the actual price paid. James Meade's pioneering analysis applied this to import taxes (tariffs) where the two terms may be called the trade volume and trade price effects (the trade price effect is often called the terms-of-trade effect). For the nation imposing the tariff, the net welfare effects is related to the initial tariff wedges on bilateral trade, changes in bilateral imports, and the changes in bilateral border prices according to:

$$(1) \quad \text{Net Home welfare effect} = (\mathbf{p}-\mathbf{p}^*)d\mathbf{M} - (\mathbf{M})d\mathbf{p}^*$$

where \mathbf{p} and \mathbf{p}^* are the vectors of internal and border prices, \mathbf{M} is the vector of bilateral imports (exports are negative imports), and $d\mathbf{M}$ and $d\mathbf{p}^*$ are the vector of changes in bilateral trade volumes and border prices, respectively. See Box 3 a derivation of this expression in a simple linear case, and the appendix for a more general demonstration that allows for a variety of other effects (pro-competitive effects, scale effects, location and accumulation effects) in a more general economic setting.

Viner's special case: adding up created and diverted trade. An antiquated but enduring rule-of-thumb for evaluating RTAs turns on the volume of trade created and diverted. We can use Meadean analysis to show exactly what is being assumed away. Assuming tariffs are the only barriers (no export taxes or subsidies so $\mathbf{p}-\mathbf{p}^*$ equals the vector of bilateral tariffs, \mathbf{T}) and ignoring changes in all border prices (so $\mathbf{M}d\mathbf{p}^*$ is zero), the welfare effect boils down to \mathbf{T} times $d\mathbf{M}$. Further assuming that tariffs are identical on all imports, the net welfare effect is proportional to the sum of changes in imports. In words this says a RTA member gains if the RTA creates more trade than it diverts. A slightly more general test – one that allows for different bilateral tariffs – is to check the change in tariff revenue collected. Of course this test ignores Smith's certitude and Haberler's spillover, but it was the best economists could do in the 1950s and 1960s without computers.

Meade's primary, secondary and tertiary effects. Meade (1955b) described the trade volume and border price effects as the primary effects, but he listed two other categories of effects. Meade's secondary effects are the substitution and income effects of a tariff change on other markets. His tertiary effect concerns general equilibrium adjustments necessary to insure the balance of payment.

2.3. Illustration of basic economic effects

Smith's certitude, Haberler's spillover, Viner's ambiguity capture most of the basic economics of RTAs, and, together with and the Kemp-Wan logic, most of the political economy reasoning in the big-think regionalism literature.¹⁰ It is possible to deal with these mathematically, however to demonstrate the basic interactions among the elemental effects, and to facilitate the exposition of the logic of the big-think regionalism literature in the sequel, it is useful to have an amenable and flexible analytic framework, especially one that lends itself to graphical analysis.

The simplest framework that meets these requirements is a Walrasian 3-nation model (Home, Partner and RoW) with 3-goods (goods 1, 2 and 3); each nation exports two goods and imports the other good (Figure 1). Since each nation has two sources of imports, tariff discrimination can be a real issue in all markets. To rule out Meade's secondary effects, tastes are assumed to be identical across nations and additively separable in all goods.¹¹ For simplicity's sake, the three nations are symmetric in terms of size and the MFN tariff they initially impose.¹²

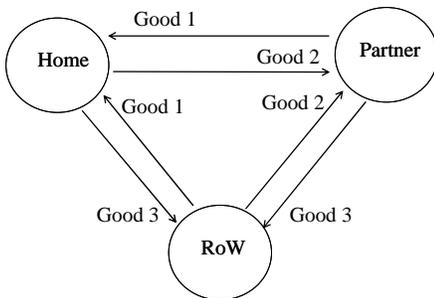


Figure 1: The RTA diagram's trade pattern

The two trading equilibrium (regionalism versus multilateral free trade) in a typical market (good 1) can be worked out with the help of the 'RTA Diagram' (Figure 2). The analyses for imports of goods 2 (into Partner) and 3 (into RoW) are isomorphic due to the strong symmetry.

The diagram shows the export supply curves (marked XS with the appropriate superscript indicate the origin nation) for Home's two potential suppliers (two leftmost panels). The horizontal sum of the XS curves is shown in the rightmost panel (as MS_{FT}) along with Home's import demand curve, MD. Under global free trade, the domestic and border price is P^{FT} as shown in all nations for all goods. Assuming all nations impose a specific tariff T on an MFN basis, the internal price in Home is driven up to P while the border price is driven down to $P-T$ for both suppliers. Home imports drops with the reduction divided equally among the two suppliers.

From MFN tariffs to FTA. If an FTA or customs union is formed between Home and Partner, the total import supply curve becomes the kinked MS_{FTA} curve. The resulting internal price fall to P' but there are now two border prices. The FTA raises the price facing Partner exporters from $P-T$ to P' while it lowers the RoW border price from $P-T$ to $P'-T$. Partner exports expand while RoW exports contract. Identical

¹⁰ Of course when considering the full economic impact, one must consider scale economies, pro-competitive effects, variety effects, location effects and growth effects. (Baldwin and Venables 1995). Most of these, however, are not critical in the 'big think' regionalism literature.

¹¹ The reader can mentally insert a 4th untaxed good that enters the utility function linearly to formally eliminate Meade's tertiary effects.

¹² The RTA diagram can be thought of as a modification of the Blackhurst (1972) diagram.

things happen in the market for good 2, but here Home is the exporter and Partner the importer. Nothing happens in the market for good 3 (where RoW is the importer) since RoW maintains its MFN tariff and the strong separability assumptions rule out Meade's secondary and tertiary effects.

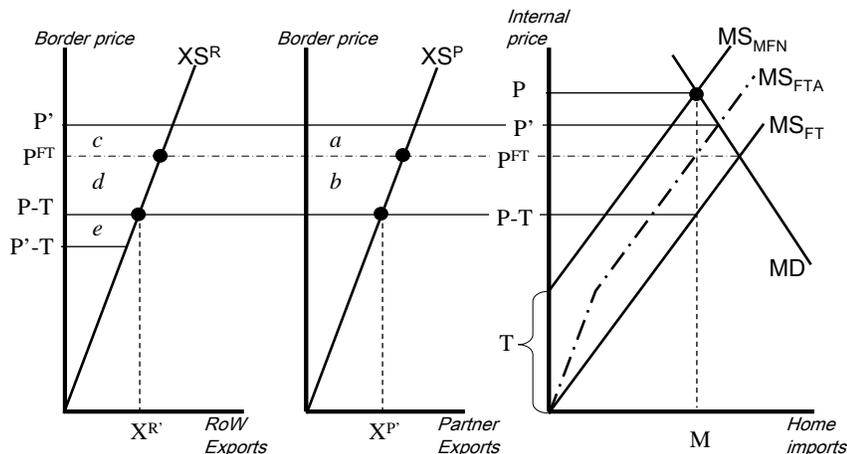


Figure 2: The RTA (Preferential Trade Arrangement) Diagram

Source: Baldwin and Wyplosz (2003 chapter 5).

We see Smith's certitude and Haberler's spillover immediately in Figure 2. Smith's certitude shows up as Partner gains (the areas a+b) that result from the higher exports and higher border price. Since the FTA is reciprocal and nations are symmetric, Home gains the same from a higher border price and greater exports to Partner in good 2. Haberler's spillover shows up as the RoW lose (the area 'e') from the drop in the border price it faces (from P-T to P'-T) and the reduction of its exports to Home.

The preference rent. A critical observation, as far as the regionalism-multilateralism debate is concerned, touches on a decomposition of Smith's certitude, namely how FTA exporters gain from two distinct features of their improved market access. First, the removal of the intra-FTA tariff boosts their market access directly. Second, FTA-based exporters benefit from the reduction in RoW exports induced by the tariff discrimination. The second part of the gain – area 'a' in Figure 2 – could be called the 'preference rent' since if the tariff cutting were multilateral instead of preferential, FTA partners would gain only 'b', not a+b. This preference rent 'a' is vulnerable to so-called preference erosion and as such, it plays a leading role in the stumbling bloc logic.

On the import side (Figure 3), Home gains a trade-volume effect (equal to area A) from expanding its imports, i.e. replacing high cost domestic production with lower cost imports. Home also gains from a border-price effect, i.e. the terms-of-trade improvement against RoW (area B) while losing from the terms-of-trade loss against Partner (area C_1+C_2). Home's terms-of-trade gain on the export side partly offset the terms-of-trade loss on the import side ($D_1=C_1$), so Home's net welfare change is $A+B+D_2-C_2$.¹³

¹³ Area C_2 might be called the 'trade diversion' effect, while D_2 and A might be called the 'trade creation' effect but as usual the trade creation/diversion dichotomy is incomplete; here it leaves out the third nation terms of trade gain, B.

As drawn it looks like Home and Partner gain, but this depends upon elasticities and the initial MFN tariff; in general Viner's ambiguity holds in this framework.¹⁴

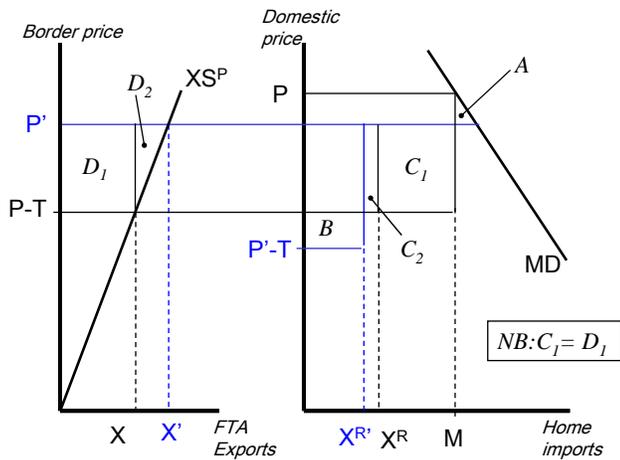


Figure 3: Ambiguous net welfare effects

The net welfare impact on RoW is unambiguously negative (Haberler's spillover). RoW experiences no change on the import side, but twice loses area 'e' (rightmost panel in Figure 2) – once on its exports of good 1 to Home and once on its exports of good 2 to Partner. The 'Haberler spillover' is an externality as far as the global trade system is concerned and as such it plays a central role in the big-think regionalism literature.

2.4. Influential diagrams that ignore some of the 3 elemental effect

Up to 1990s, the literature's main points were presented using diagrammatic analysis – two diagrams were particularly pivotal. The fact that these diagrams ignored some of the three basic effects distorted the direction of the literature and with it academic trade economists' perceptions of RTAs. Since these older, incomplete diagrams occasionally enter today's regionalism debate, it is worth presenting them briefly and highlighting their shortcomings. The first is the Johnson diagram that is still used in most undergraduate textbooks.

2.4.1. The Johnson (1960) diagram and the JCM proposition

Meade's analysis was not integrated into mainstream trade theory in part because it was marginal and trade economists were interested in studying the discrete liberalisation implied by RTAs. Viner provided no diagrams so "Customs union theory", as it was known at the time, was a distinctly wordy subject until Johnson (1960) introduced his famous diagram that illustrated Viner's ambiguity with in a manner that was immediately transparent to all economists.

¹⁴ As we shall see in the mathematical version of these diagrams, the FTA lowers welfare when the MFN tariff is sufficiently high. See Box 4.

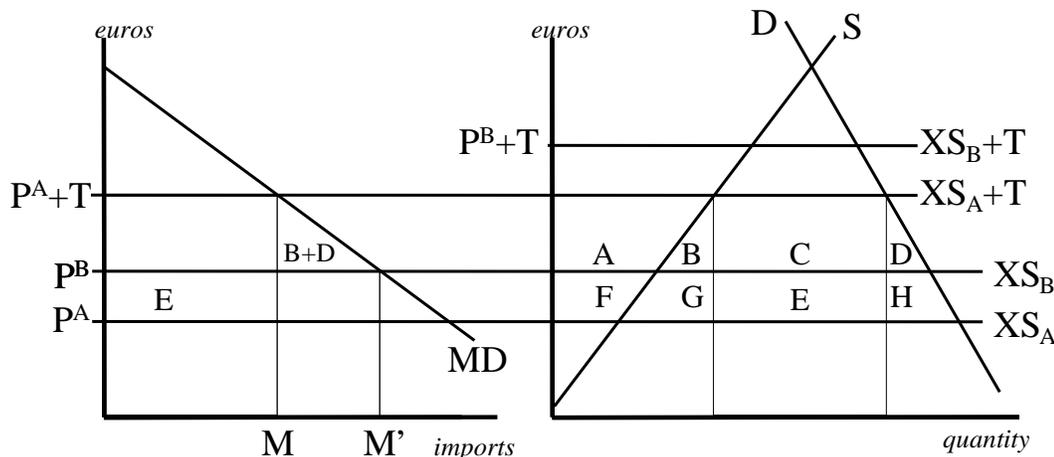


Figure 4: The Johnson diagram (small Home and Partner nations)

Source: Johnson (1960a) for right panel; left panel is a trivial transcription in import-price space.

Note: The right panel is the standard open-economy supply and demand diagram in price-quantity space for an infinitely small nation (Home). The left panel transcribes the analysis into a more compact diagram into price-import space.

In the diagram, Home imports can come from partner nation A or B. Home's demand is an infinitely small share of world demand, so it faces perfectly elastic export supply curves from both sources (labelled XS_A and XS_B). We start with the Home imposing an MFN specific tariff of T , so all imports come from the low-cost supplier, nation A. The domestic price is P^A+T while the border price is P^A .

Home can form a customs union with nation A or B so we consider both. The customs union with B would remove the tariff only on imports from B (the high cost supplier) and this produces supply-switching. Home switches from importing everything from A to importing everything from B. Home's domestic price falls from P^A+T to P^B . Assuming a utilitarian metric, the net welfare effects are $(B+D)$ minus E which may be negative or positive depending upon elasticities and the height of the initial tariff; this is Viner's ambiguity.¹⁵

The customs union with nation B was called "purely trade diverting", yet if the initial tariff is high and the P^B-P^A border-price gap was small, it can be welfare improving for Home. This result – a welfare-improving but purely trade diverting customs union – seemed to contradict Viner's reasoning and it produced the first of what was to be a long series of ivory-tower debates over terminology; this one pitted Meade (1955b) against Johnson (1960a) and Corden (1965).¹⁶

¹⁵ The left panel translated the effects into Meade's two-part framework: $B+D$ is the trade volume effect (related to the change in the volume of imports) and E is the trade price effect (related to the change in the border price).

¹⁶ The 1950s, 1960s and 1970s saw a rather extended and fruitless discussion of what Viner really meant. It featured contributions from the greatest trade economists of the time including Meade (1955), Johnson (1960a), Corden (1965), Bhagwati (1971, 1973), Kirman (1973) and Johnson (1974). Viner himself participated in the exchange without fully clarifying matters (Viner 1965). See Kowalczyk (1992) and Pomfret (1986) for summaries of the 'what Viner really meant' literature.

The quandary was thickened by the fact that the deep economics of taxation in a Walrasian world really does only need two effects, as Meade (1955) demonstrated, but only one of the two deals with trade volumes. One reaction to this cognitive dissonance was to expand the terminology (e.g. external trade creation, gross trade creation, etc. as in Balasaa 1967) another was to stretch the meaning of the terms to cover the trade price effects (which is possible since bilateral border prices and imports are related by the export supply curves).

If Home chooses to form a customs union with A, the ambiguity disappears. Such a customs union is unambiguously welfare improving since its positive effects are identical to MFN free trade (both before and after all imports would come from A). Home's domestic price falls from P^{A+T} to P^A and the net welfare gain is $B+G+D+H$.¹⁷

Omitted elemental effects. Readers will immediately note that Smith's certitude and Haberler's spillover are missing. Third nations are entirely unaffected by the trade policy of an infinitely small nation like Home. In Johnson's diagram, the partner nations care no more about Home's trade policy than a perfectly competitive firm does about gaining or losing one atomistic buyer. This was an attractive feature in the Small-Think regionalism literature where national welfare was the pivotal issue, but it renders the diagram useless for the Big-Think regionalism debate. Quite simply, the diagram assumes that Home's decision to form an FTA has no systemic effects at all. Also missing from the diagram is an analysis the preferential access that Home's exports win in its partner's market.

For two decades, the Johnson-diagram dominated economic analyses of RTAs to such an extent that Smith's certitude and Haberler's spillover came to be largely forgotten by academic trade economists. This went so far that many mainstream trade theorists came to view RTAs as economically irrational – a view encapsulated in the Johnson-Cooper-Massell (JCM) proposition which states that a small nation should always prefer unilateral MFN liberalisation to any RTA. The point is easily illustrated in Figure 4; cutting T to zero on imports from A and B would always yield net welfare gains that are at least as high as any customs union.

From the modern perspective, Johnson's analysis seems impossibly simplistic and the disconnect between academic and real-world thinking is truly astounding. For instance, when Britain put in its first application for EU membership in 1961, better market access for British exporters was the key concern, but academic economists were working with the Johnson diagram that assumed this away. Moreover, the main RTA in existence at the time – the EEC – counted for a substantial fraction of world imports and the key nations – Britain, France and Germany – were far from atomistic. As Pomfret (1997) points out, a number of frameworks were developed at the time that would have allowed the necessary extension, including Johnson (1957, 1958a), Humprey and Ferguson (1960), and Blackhurst (1972), but Johnson diagram's hold on the literature was so firm that the early efforts were obliged to stick with his small-country fiction.¹⁸

2.4.2. The "Small FTA" diagram

An important analytic extension of the Johnson diagram came with the 'small PTA' analysis (Shibata 1967). It allows for Smith's certitude even though it continues to assume away Haberler's spillover. The diagram continues to be used even today (e.g. Grossman and Helpman 1995), so it is worth presenting it briefly.

The small FTA diagram looks somewhat different under various assumptions on the pattern of comparative advantage and the smallness of the two partners. The various combinations of assumptions

¹⁷ This contrast is the source of the rule of thumb that an FTA with your main trading partners is more likely to be welfare improving since you are giving preferences to the partners that have demonstrated themselves to be the low cost supplier by winning the largest market share in an even competition with other suppliers.

¹⁸ The early 1980s saw a number of widely read studies that sought to reverse the JCM proposition while staying in the small country framework. These efforts, e.g. Wonnacott and Wonnacott (1981) and Berglas (1983), strike the modern reader as awkward due to the small nation assumption and the intricate diagrammatic analysis.

yield a range of results and that have been covered by three decades of literature (see Panagariya 1999 for a comprehensive survey of papers using the small PTA diagram in recent decades). Here we study a fairly standard case and illustrate the diagram's properties by demonstrating two classic results in the regionalism literature.

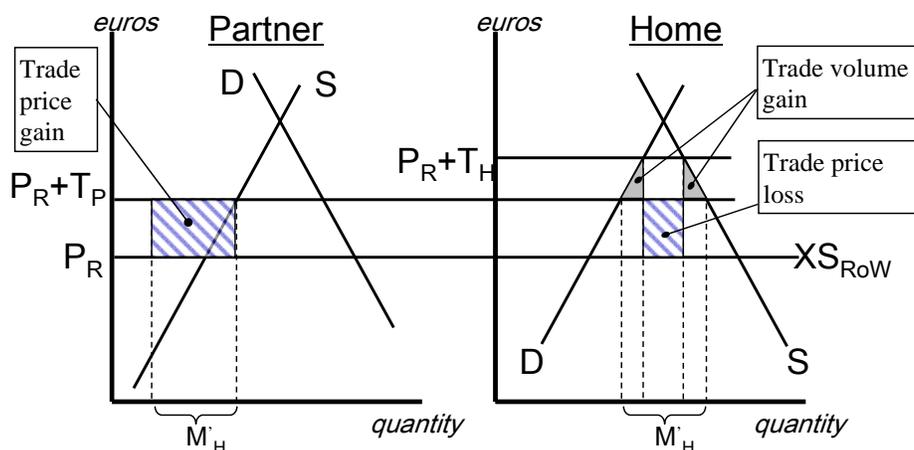


Figure 5: The small PTA diagram, a simple case

Source: Author's modification of a diagram in Pomfret (1997).

The diagram presumes that the two FTA partners, Home and Partner, import the same good from the rest of the world (RoW). Home and Partner are “small” with respect to RoW and so face a perfectly elastic RoW export supply curve, XS_{RoW} . This sets the initial border price to P_R in both nations. Home has a higher MFN tariff than Partner to start with – T_H as opposed to T_P – so the pre-FTA price is higher in Home.

When Home and Partner form their FTA, Partner-based firms initially see a higher price in Home and so begin exporting to Home. In equilibrium, all post-FTA Home imports, M'_H , are supplied by Partner firms. Partner's internal price remains at $P_R + T_P$, so its consumption and production are unchanged, which means that the new exports to Home are replaced – one for one – by new Partner imports from RoW. In the case illustrated in the diagram, Partner is large enough relative to Home to ensure that Home's entire demand can be satisfied by Partner producers at $P_R + T_P$. In terms of welfare, the FTA results in a positive trade volume effect for Home but a negative border price effect (Home pays $P_R + T_P$ for its imports instead of P_R). Partner expands its imports across the tariff wedge and this results in a positive trade volume effect equal to T_R times the expanded imports, i.e. M'_H .

Irrelevance of rules of origin. Although it seems an odd objective from today's perspective, Shabata's goal was to illustrate the irrelevance of rules of origin (ROOs). His point is that the ROOs only prevent blatant trade deflection. Because goods from Partner and RoW are fungible, the equilibrium is the same with and without rules of origin as long as Partner's supply is sufficient. If Partner's supply were not large enough to supply all of Home's imports at $P_R + T_P$, the FTA with ROOs would have somewhat higher prices than one without. The use of this exercise in the Big-Think regionalism literature comes in the form of ‘imported liberalisation/protection’ (Section 3.3.4), and Grossman and Helpman (1995).

Un-sustainability of the FTAs. Another application that found popularity in the academic literature but seems odd today is the proposition that FTAs will always breakdown. Using a diagram like Figure 5, Vousden (1990 p. 234) argues that Home would be tempted to lower its MFN tariff to just under that of Partner in order to recapture the tariff revenue and Partner would have an incentive to reply. The resulting

race-to-the-bottom tariff cutting was viewed as making FTAs ‘unsustainable.’ Vousden (1990) did not attract much attention until Richardson (1995) extended and popularised it. These two results (irrelevance of rules of origin and unsustainability of FTAs) are classic examples of how academic thinking on regionalism has often followed literature-driven paths that have little relevance to real-world policy concerns.

3. STUMBLING AND BUILDING BLOC LOGIC

From 1960 to the late 1980s, regionalism was a simple matter. It consisted of: 1) the EEC which encompassed a third of world trade in a highly effective customs union, and 2) a slew of RTAs among developing nations that covered a trivial fraction of world trade and in any case never operated effectively. Regionalism’s systemic implications were simply not an issue.

Regionalism got complicated in the late 1980s when Canada and Mexico changed their minds on regionalism (Krugman 1991b p.7).¹⁹ The US had long been interested in regional preferential trade, but Mexico and Canada resisted, fearing domination by their giant neighbour. Canada propose an FTA with the US in 1985 that entered into force in 1989. Mexico proposed an FTA with the US in 1990 and this evolved into NAFTA at Canada’s insistence (to safeguard its Auto Pact preferences). The US-Mexico initiative triggered a wave of Latin American requests for bilateral FTAs with the US and gave greater urgency to arrangements among Latin Americans most notably Mercosur.²⁰

The rise of North American regionalism coincided with two other major development in the world trade system. First, GATT negotiations were lurching from crisis to crisis in the late 1980s and then, as mentioned in the introduction, seemed to die with the acrimonious collapse of the Uruguay Round’s ‘final’ summit in December 1990. Second, European regionalism was reignited by the Single European Act and the collapse of the Soviet Union.

Many respected thinkers looked at this temporal correlation and saw causality. They feared that regionalism’s spread might kill the proverbial gold-laying goose – the GATT-centred world trade system. The fears are easy to understand. Two-thirds of world imports went to North America and Europe; 40% of this was intra-bloc trade and soon to be covered by discriminatory liberalisation schemes. Still more worrisome, North American and Europeans were the stalwarts of the GATT system. If regionalism

¹⁹ Bhagwati (1991 p.71) ascribes the shift to the US’s conversion to regionalism, but this contradicts the judgments of trade policy scholars who were engaged in the details of policy at the time (Smith 1988 p.41; Wonnacott 1987 p.17; Schott 1988 p.29; Hufbauer, Schott and Clark 1994 p.100; Whalley 1993). It also contradicts the facts. The US’s long-standing interest in regionalism is testified by a long string deals that were struck, or almost struck in 1854, 1874, and 1911. In March 1948, they concluded a secret draft protocol eliminating most tariffs and quotas bilaterally, but this was ultimately rejected by the Canadians. In 1958, US government procurement was preferentially liberalised in Canada’s favour. The US-Canada Auto Pact came into force in 1965. The 1974 Trade Act authorised the US President to negotiate an FTA with Canada, and the 1979 Trade Agreements Act required the President to study an FTA in North America.

Mexico and Canada, by contrast, had always resisted North American regionalism, fearing domination by their giant neighbour. Canada overcame its traditional resistance to propose an FTA in 1985 (it entered into force in 1989). Mexico overcame its traditional fears and proposed a bilateral FTA with the US in 1990. The US accepted immediately and the bilateral evolved into NAFTA at the insistence of Canada (whose main interest was safeguarding its Auto Pact preferences). The US-Mexico initiative triggered a wave of Latin American requests for bilateral FTAs with the US and gave greater urgency to arrangements among Latin Americans most notably Mercosur. See Baldwin (1997) or Serra et al. (1997) for an account of this domino effect.

²⁰ See Baldwin (1997) or Serra et al. (1997) for an account of this domino effect.

weakened their support of multilateralism, the goose was indeed in deep trouble. Spreading regionalism had become much more than a small-think “should I join?” question.

These fears promoted regionalism to a status on the world’s policy agenda that it had not enjoyed since the 1950s. This naturally attracted paradigm-setting efforts from the profession’s leading international economists.

3.1. Framing the new regionalism debate

Krugman (1991b) is clearest in rejecting the relevance of the 1950s small-think approach and delineating the outlines of a new line of inquiry – what I call Big-Think Regionalism:

“In a fundamental sense, the issue of the desirability of free trade areas is a question of political economy rather than of economics proper. While one could argue against the formation of free trade areas purely on the grounds that they might produce trade diversion ... [t]he real objection is a political judgment: fear that regional deals will undermine the delicate balance of interests that supports the GATT.” (Krugman 1991a, p.23)

The Krugman (1991b) framing of what he identified as the key issue – the impact of regionalism on support for the GATT system – did not catch on.²¹ His 1991 papers, however, did re-frame the 1950s national welfare question into a global-level question. Krugman (1991a) introduced a new approach by asking whether spreading regionalism raises or lowers world welfare. This spawned a decade-long literature and continues to influence research even today.

This “Is bilateralism bad?” literature – also known as the multilateralism versus regionalism literature – looks distinctly odd from today’s perspective. It tries to use simple theory to answer what is intrinsically a complicated empirical question. At the time, however, it was the best they could do. Economists had limited access to the necessary data and lacked the panel econometric techniques to exploit them. Moreover, spreading regionalism was at the time more of a threat than a reality, so there was little to test empirically. In my mind, this literature is now mainly of interest to historians of thought, but many participants in today’s regionalism debate cite it, so I review it in Section 3.5.

The focus of this section is on what I consider to be the central theoretical question: Does regionalism help or hinder multilateralism? Ultimately this also is an empirical question, but given the relative little experience the world has had the regionalism-multilateralism interface (only one MTN has been completed since 1991), convincing empirics is not yet feasible – although some tantalising results are beginning to emerge. Moreover, given the complexity of the inter-linkages, a clear theoretical understanding is necessary condition for well-structured empirical work.

²¹ He argued that the multilateral process had run aground with the December 1990 failure and was unlikely to get afloat anytime soon as the system was plagued by deep-seated problems. “[W]hile some kind of face-saving document will probably be produced, in reality the Uruguay Round has clearly failed either to significantly liberalize trade or to generate good will that would help sustain further rounds of negotiation.” Regionalism, however, was not one of those deep-seated problems. “But while the move to free trade areas has surely done the multilateral process some harm, it is almost surely more a symptom than a cause of the decline of the GATT. ... [T]he problems of the GATT are so deep-seated that it is unlikely that a world without regional free trade agreements would do much better.” He closes his essay with a prediction that history falsified and *faute-de-mieux* view on regionalism. “The world may well be breaking up into three trading blocs; trade within those blocs will be quite free, while trade between the blocs will at best be no freer than it is now and may well be considerably less free. This is not what we might have hoped for. But the situation would not be better, and could easily have been worse, had the great free trade agreements of recent years never happened.”

3.1.1. Are regionalism and multilateralism friends or foes?

Bhagwati's book, *The World Trading System at Risk*, does not focus on regionalism. Indeed, his Part One, "The GATT Architecture under Threat" listed four main threats; regionalism was number four. Nevertheless, his writing helped establish Big-Think Regionalism as the new paradigm. In the lead paragraph to his chapter on regionalism he writes: "These regional alignments have led to fears of fragmentation of the world economic into trading blocs in antithesis to GATT-wide multilateral free trade. Does such regionalism truly constitute a threat to multilateralism?" Although he does not set out an analytic framework for answering the question, his writing influenced the intellectual paradigm for more than a decade.

Framing the issue three ways

Theory requires explicit questions. Asking whether regionalism and multilateralism are friends or foes is not sufficient. Pure logic identifies three mutually compatible ways that regionalism and multilateralism could interact:

- Regionalism could affect multilateralism,
- multilateralism could affect regionalism, and
- both multilateralism and regionalism could be driven by third factors.

The literature has looked at all of these, but the first has dominated since Krugman (1991b, 1993) presented a simple analytic framework for posing the question. His explicit question was: how does an exogenous variation in regionalism (specifically, the formation of a new RTA) affects nations' incentives to cut tariffs multilaterally?

Modelling choices and branches of the literature. Answering this question requires an economic model that links tariff choices to equilibrium outcomes and a political economy model that endogenises the MFN tariff choice (the RTA tariff levels are taken as exogenous in this literature). The choice of economic models is quite open, but the literature naturally gravitated to the simplest possible models that yielded the elemental economics effects – Smith's certitude and Haberler's spillover – that are pivotal to regionalism's systemic implications (Viner's ambiguity is more a Small-Think regionalism issue).

The choice of political economy modelling is facilitated by two key institutional features of the global trade system: the nature of RTA tariff cutting and MFN tariff cutting. Specifically:

- Real-world RTAs involve bargaining on very few tariff lines; they cut tariffs to zero on most goods.²²

This institutional fact made modelling of the preferential liberalisation easy – most authors assumed that forming an RTA meant zero tariffs on all good traded among members.

- Real-world multilateral tariff-cutting talks also involve bargaining on very few tariff lines.

Since the 1963 Kennedy Round began, multilateral tariff 'bargaining' was simple: GATT members pre-agreed tariff-cutting rules with exceptions for specific products (the usual 'sensitive' products such as clothing, footwear, etc.). This real-world feature is easily understood. Nations' tariff schedules typically list about ten thousand individual lines and at least a dozen nations participate actively in MTN tariff-cutting negotiations. (The number has increased greatly in the on-going Doha Round, but only the richest

²² RTAs involving a developed WTO member must respect this; those involving only developing nations do not, but de facto they have as the chapter in this volume "Market access provisions in regional trade agreements" shows.

OECD nations participated substantially in the Kennedy, Tokyo and Uruguay Round tariff cuts.) If each of the dozen nations bargained for one minute over each of its tariff lines with each of the other nations, the talks would take 25 years of 24/7 discussion. Trade diplomats avoid this by agreeing the basic tariff cutting before the talks start – i.e. it is set in the agenda. Specifically, the Kennedy and Tokyo Rounds used formulas that cut tariffs by about one-third with some sensitive industrial goods excluded (Winters 1991 p. 171). The Uruguay Round agreed, at its 1988 Ministerial Midterm Review in Montreal, to cut tariffs by at least as much as in the Tokyo Round, i.e. by about one-third and again sensitive products were predictably excluded (Croome 1995, p.183).

This institutional fact made modelling of the multilateral liberalisation easy (or at least should have). Many authors modelled multilateralism as saying yes-or-no to an exogenously defined MFN tariff cut. One branch of the literature however adopted the alternative tack of twisting reality to the theory. These authors ignored the institutional features of MTNs in order to use game theory's simple bargaining models – models that had been developed to deal with much simpler bargaining situations. While I do not believe that such models provide useful insights to the key Big-Think regionalism questions, they are often referred to in the academic literature, so I review them in Section 3.4.

While most of the literature has followed Krugman's lead in asking how exogenous variations in regionalism affect multilateralism, two other branches consider how 1) RTAs can affect MTNs (competitive liberalisation), and 2) How RTAs and MTNs are driven by deeper forces (Summers' notion that all the 'isms are good). I review thinking on these in Section 3.5.

With this structuring of the literature out of the way, I turn to review what I consider the most relevant theory on the Big-Think Regionalism literature.

3.2. Stumbling bloc logic

In its cleanest form, the stumbling bloc logic asserts that if the stumbling bloc RTAs were forbidden, global free trade would be obtained, but since they are allowed global free trade becomes impossible. Weaker forms are put forth in the help-or-hinder literature – for example RTAs may slow the achievement of global free trade – but clarity has led the profession to focus on the strong form.

In my opinion, only three distinct stumbling-blocs logic are relevant to real-world policy analysis: 1) the preference-erosion/exploitation stumbling bloc, 2) the goodies-bag stumbling bloc, and 3) the cherry-picking stumbling bloc, although I am sure many more shall be illuminated in coming years. For simplicity's sake, these stumbling-blocs logics are demonstrated under the naïve but transparent assumption that national governments choose tariffs to maximise national welfare.

3.2.1. Preference-erosion/exploitation stumbling bloc

The logic of the preference-erosion/exploitation stumbling bloc is dead easy and quite general. Starting from a world where all nations have MFN tariffs, the question is: Can some group of nations raise their collective welfare above the free trade level by forming a trade bloc and thus exploiting other nations? If the answer is “yes,” then that bloc is a stumbling bloc on the road to multilateral free trade because the bloc members would veto global free trade as undermining their exploitation of third nations.

In the Walrasian setting, and in many other trade models, the answer is almost always “yes”, but the answer may depend upon the level of MFN tariffs when the bloc is formed. Given Smith's certitude and Haberler's spillover, some combination of nations is bound to be able to better exploit third nations by acting as a bloc. This is almost trivially true if the bloc can violate its WTO tariff-bindings by raising

external tariffs. After all, the bloc as a whole has more buying power than its constituents do individually, so the bloc can better exploit foreigners. Less obviously, but equally true, stumbling blocs can be found even when external tariffs are maintained (as has been the case for all of the major post-war RTAs).

The preference-erosion/exploitation stumbling bloc logic can be illustrated more concretely with the RTA diagram.

An Walrasian illustration

Start by noting that MFN free trade would be approved by all governments in the simple model laid out above (Figure 2 and Box 4). The first welfare theorem tells us that global free trade is efficiency enhancing (a move to the first best) and symmetry ensures that each nation would get an equal slice of the gains. This conclusion, however, can be reversed when we start from the situation where Home-Partner have formed an FTA. Taking the FTA as the base case, a move to global free trade eliminates the preference margin Home exporters enjoyed in Partner and this would lead to a terms-of-trade loss of area C_1' and a trade-volume loss of C_2' (see Figure 6). On the import side, global free trade would win Home an additional trade volume gain of area A' , a terms-of-trade improvement with respect to Partner exporters of area C_1' , and a terms-of-trade loss on imports from RoW, area B' . Global free trade would also improve Home exporters' market access to RoW and this would boost Home welfare by area D' . Overall, the net welfare change of moving from the FTA to global free trade is $-C_2' - B' + D' + A'$; the sign of this is ambiguous. As Box 4 shows, however, it is always negative when the initial MFN tariff is low enough.

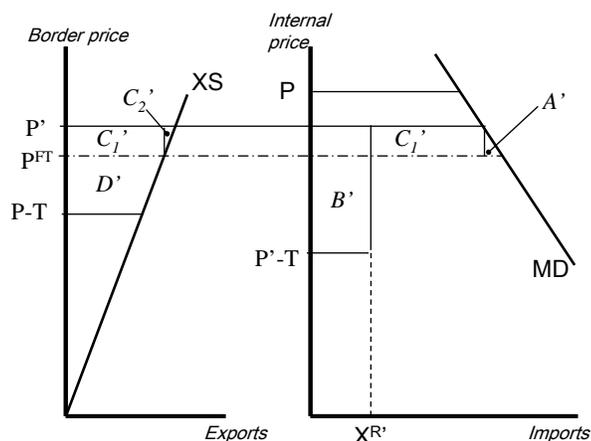


Figure 6: Net welfare effects, FTA to global free trade

Working out magnitudes in the diagrams for the whole range of possible T 's is tedious, so we lighten the analysis by introducing the equations behind the diagrams (see Box 4). Solving for equilibrium prices under the FTA and global free trade situations and plugging these into the welfare functions, we can plot the welfare of a typical FTA nation (Home) against the MFN tariff. The results are shown in Figure 7.

For initial MFN tariff levels that are sufficiently low, we see that Home's welfare is higher with the FTA than it is with global free – and this despite the fact that Home would have agreed to global free trade starting from the initial situation without the FTA. (The line marked MFN is everywhere below the line marked global free trade, but the dashed FTA line is above the global free trade line for sufficiently low tariffs.)

Intuitively, the FTA allows Home to exploit RoW both on the import side (by pushing down the price it pays RoW good-1 exporters) and on the export side (by raising the price in Partner at the expense of RoW

good-2 exports). The move to global free trade undoes these two forms of exploitation, but in exchange it provides better access to the RoW market and more liberalisation in Home's import market. When the initial T is low, the market-access and home-liberalisation gains are modest so the net is negative. In other words, the basic logic of the stumbling bloc result turns on the way that an FTA allows the FTA partners to exploit excluded nations.

The Walrasian model presented here is very special, but the heart-and-soul of this stumbling-bloc effect – the exploitation of excluded nations – is quite a general result; one that is surely an important consideration in the real world.

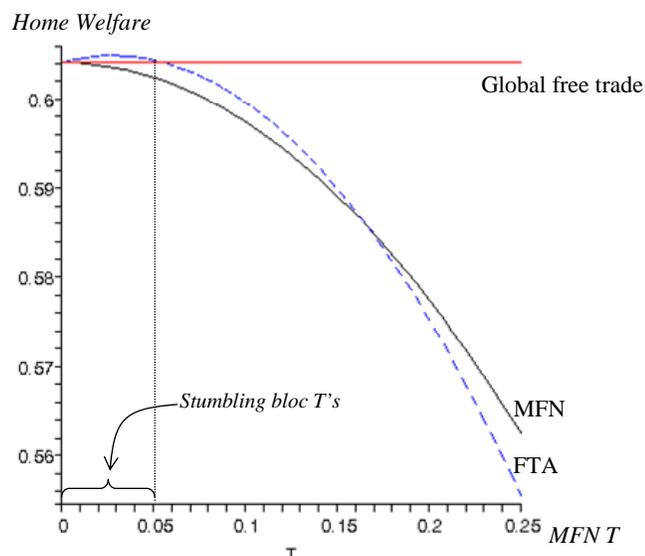


Figure 7: Stumbling bloc FTAs

Notes: Home welfare is plotted against the MFN tariff for 3 trade regimes; MFN = all nations impose same MFN tariff T on all goods, FTA = Home and Partner form an FTA, and global free trade which is the MFN regime with $T=0$. The parameters chosen are $a=1$, $b=1/2$; the qualitative results are unaltered for other choices of parameters. Note that $T=1/4$ is the prohibitive tariff with $a=1$, $b=1/2$. In ad valorem terms, the Viner crossing occurs at a tariff of about 27% of the free trade price, while the ad-valorem tariff threshold for a stumbling bloc occurs at about 9%; the prohibitive tariff is about 42% for these parameter values.

The opposition of small developing nations to agricultural liberalisation in the DDA – especially those who benefit from the EU's unilateral preferences – is a classic example of the preference-erosion stumbling bloc. Had the EU not unilaterally granted these nations preferences, these nations would probably have been pushing for EU market opening in sugar and other goods.

Who did what when? The logic of the preference-erosion/exploitation stumbling bloc was demonstrated in a Walrasian setting by Reizman (1985), Kennan and Reizman (1990), and in a Brander-Krugman setting by Krishna (1998) and Freund (2000a, b).²³ The core algebra for the preference-erosion/exploitation stumbling bloc in the Brander-Krugman setting is laid out in Box 6 where the main Freund and Krishna results are also demonstrated.

²³ Also see Goto and Hamada (1995a, b), Nordstrom (1995) and section 3 of Bond and Syropoulos (1996a) for example of preference erosion/exploitation stumbling blocs.

3.2.2. Goodies-bag stumbling bloc

Another stumbling-bloc logic – one which follows closely the fundamental economic logic of the preference-erosion stumbling bloc – might be called the ‘goodies bag’ stumbling bloc.²⁴ In a nutshell, the rents corresponding to ‘Smith’s Certitude’ can be thought of as a ‘bag of goodies.’ These goodies can be used by one or both RTA parties to buy non-economic benefits from its partners. Since the size of non-economic benefits that can be ‘purchased’ is linked to the richness of the ‘goodies bag’, i.e. the margin of preferences, RTA members have an extra incentive to maintain high margins of preference by avoiding multilateral liberalisation. The goodies-bag logic, however, extends to a far greater range of issues than the tariffs that are the focus of the preference-erosion stumbling bloc. In the case of RTA between very large and very small nations – a case that is extremely common in the new century (e.g. US and Costa Rica or Japan and Singapore) – the large country’s interest in the RTA can hardly be the preferential market access.

The EU, for example, grants extensive preferences to its members’ former colonies, justifying these on the basis of international solidarity. In other words, the economic gains to the EU’s partners count as a plus inside the EU since they advance one of the EU’s non-economic objectives – fostering development. Similarly, but more explicitly, the US justifies many of its FTAs with small, poor nations on the basis of non-economic objectives (typically anti-drug and/or anti-terror policies).

The previous section illustrated how the desire to guard rents created by an RTA could make a nation reject global free trade when MFN free trade would have been embraced without the RTA. The goodies-bag stumbling bloc logic amplifies this mechanism by making both nations interested in each other’s export rents – the area corresponding to C_1 ’ in Figure 6, with the link coming through the pursuit of non-economic objective (non-economic in the narrow sense).

Who did what when? The theoretical notion was formalised by Limão (2006) and tested in Karacaovali and Limão (2005) for the EU, and Limão (2006) for the US. Both papers suggest that these trade powerhouses cut their MFN tariffs less for items where there granted important preference margins. In short, the goodies-bag did seem to act as a ‘slowing bloc’ even if it did not act as a stumbling bloc.

The evidence in Limão (2006) is widely misrepresented as showing that the US raised tariffs in the Uruguay Round for items on which it granted FTA preferences. Of course, this cannot be right since MTN market access talks only involve tariff bindings and the US did not violate any of its bindings in the Uruguay Round. Indeed, the data shows US tariffs decreasing for all but 12 of the thousands of tariff lines (defined at the HS-8 products level in the WTO’s database).²⁵ Formally, Limão estimates an econometric model of US tariff cuts in during the Uruguay Round. His famous stumbling bloc results is that he finds is that the US cut tariffs by less than his econometric model predicted they should have on items for which the US had granted FTA preferences before the Uruguay Round. In short, he shows that the US preferences acted as a ‘slowing block’ not a stumbling bloc.

²⁴ Here is an example of the terminology in the context of US unilateral concessions from The Hindu newspaper, 24 September 2001. Referring to the mood in Washington, the correspondent note: “... There is tremendous support and sympathy for Pakistan in the light of the decisions taken by its President, Gen. Pervez Musharraf, to support the U.S. wholeheartedly in its war against terrorism. As for Pakistan, the question is not merely the lifting of U.S. sanctions. Rather, it is in the larger “goodies bag” that most certainly is coming up. As it is, there is disappointment in the official Pakistan establishment here that Mr. Bush has not gone the whole hog.” <http://www.hinduonnet.com/2001/09/25/stories/03250007.htm>.

²⁵ As per a bilateral communication with the author.

3.2.3. Cherry-picking stumbling bloc

An entirely distinct mechanism is at work in the third type of stumbling bloc – the cherry-picking stumbling bloc. Moving to global free trade will typically involve some pluses and some minus from the national perspective. The question is: Can one find a group of nations whose integration would provide many of the pluses with few of the minuses? If the answer is “yes,” the trade bloc is likely to be a stumbling bloc. Starting from the bloc situation, a move to global free trade involves many minuses and fewer pluses for bloc members, so bloc members may veto global free trade even when they would have embraced it without the trade bloc.

Here is an example of a setting that could yield a cherry-picking stumbling bloc. Assume the trading environment is marked by Helpman-Krugman trade; there is both intra-industry trade in differentiated products and inter-industry trade in Walrasian sectors. In this world, trade liberalisation will produce gains from trade due to the Krugman variety effect. It will also produce gains from trade from comparative advantage effects, but the comparative advantage gains come bundled with politically difficult Stolper-Samuelson effects on domestic factor prices. Now suppose two large nations have quite similar factor endowments. If they form a trade bloc, they will win a large share of the variety gains that would come with global free trade, but will experience little of the Stolper-Samuelson pain. Taking the trade bloc as the base case, the bloc members may find a move to global free trade unattractive. It would entail a good deal of Stolper-Samuelson pain and only a modest amount of additional variety or comparative advantage gains. Depending upon parameters, especially the political power of Stolper-Samuelson sufferers, the gains may not be sufficient to make global free trade attractive to the bloc members.

Who did what when? Levy (1997) illustrates a cherry-picking stumbling bloc in a highly stylised setup, but his main result is surely more general than his model.

3.3. Building bloc logic

While many trade policy scholars – such as Paul Krugman (1991b) and Jagdish Bhagwati (1991) – worried that regionalism was a stumbling block to global free trade, others – such as Larry Summers (1991) and Fred Bergsten (1991) – viewed regionalism as a largely benign or even as a constructive force in the world trade system.

This sub-section consider the economic logic of the assertion that RTAs could foster multilateral liberalisation, i.e. how RTA may be building blocs on the road to global duty-free trade. There are four main logics in the literature. We start with the one that permeates the justifications used by nations which simultaneously pursue regional and multilateral liberalisation – the notion that preferential liberalisation creates a political-economy momentum that makes multilateral liberalisation easier (and vice versa).

3.3.1. Juggernaut building bloc logic

Liberalisation begets liberalisation according to the juggernaut building-bloc logic. The logic comes in two parts that are most easily explained in the context of multilateral liberalisation. When the GATT started in 1947, import duties were high worldwide since they had been set without international coordination during the Smoot-Hawley tariff wars. The tariffs balanced the supply and demand for protection in the ‘political market’ of each nation separately. The main demanders of import protection were import-competing firms and workers they employed. The governments were the supplier of

protection but concern for the general economic wellbeing of the nation meant that the supply of protection was not perfectly elastic.

Starting from this situation of uncoordinated tariff-setting, announcement of an MTN based on the principle of reciprocity alters the array of political forces inside every participating nation. The central point is reciprocity; it converts each nation's exporters from bystanders in the tariff debate to anti-protectionists. For exporters, lobbying against domestic tariffs becomes a means of lowering foreign tariffs. Because the MTN rearranges the political economy forces inside every nation, all governments find it politically optimal to choose tariff levels that are lower than the unilaterally optimal tariffs.²⁶ This is the first part of the juggernaut theory.²⁷ The logic is not new.

Informed observers have long known that the GATT's reciprocal MTNs was mostly about helping nations internalise a political economy externality inside their own polities, i.e. about making it easier for national politicians to put together a national coalition in support of freer trade. Writers such as Robert Baldwin (1970, 1985) and Mac Destler (1986) are explicit on this point, but historical accounts of the Cobden-Chevalier Treaties show that using external trade deal to re-align domestic political forces was very much in the minds of 19th Century thinkers (Irwin 1993 p.96). Even Krugman (1991b) writes: "[T]he process of multilateral negotiation ... sets each country's exporting interests as a counterweight to import-competing interests; as trade negotiators bargain for access to each others' markets, they move toward free trade despite their disregard for the gains from trade as economists understand them."

The second part of the juggernaut logic concerns the impact of the tariff cuts on openness. The tariff cuts make all nations' more open – export sectors expand with the foreign tariffs cuts, and import-competing sectors contract with domestic tariff cuts. Assuming political influence is linked to industry size, this economic re-landscaping strengthens pro-liberalisation forces and weakens anti-liberalisation forces in all nation – although of course such industrial restructuring takes years. In other words, the initial reciprocal tariff cuts start a liberalisation juggernaut rolling. Due to the economic re-landscaping that occurs during the phase-in of the initial tariff cuts, all governments find it that their politically optimal tariff in the next MTN is below the levels that they found politically optimal during the previous MTN. These fresh tariff cuts continue the re-landscaping and the juggernaut continues to roll forward. Thus once the liberalisation juggernaut starts rolling, it crushes all tariffs in its path.²⁸

²⁶ More formally, without MTNs governments maximize a politically weighted objective function that includes things affected by the nation's own tariffs – profits of import-competing sectors, consumer surplus and tariff revenue. During the MTN, a nation's tariff affects all these things, but foreign tariff levels are linked to domestic tariffs via reciprocity, the objective function now includes the impact of foreign tariffs on exporter's profits. Since this new impact is negative (higher domestic tariffs lower exporter's profits via reciprocity), announcement of the MTN leads the government to find it politically optimal to choose a tariff that is lower than the political optimal tariff before the MTN.

²⁷ The word 'juggernaut' – defined as "any massive inexorable force that advances crushing whatever is in the path" – stems from a British mispronunciation of the Hindu diety of the Puri shrine, Jagannath. A festival is held in Puri involving the 'chariot of Jagannath', an enormous and unwieldy construction that requires thousands of people to get it rolling. Once started, however, it rolls over anything in its path.

²⁸ The juggernaut logic is from Baldwin (1994 chapter 2.5) and is elaborated in Baldwin (2005, 2006) and formalised in part by Freund (2000b). The first part of the juggernaut mechanism – reciprocity's realignment of domestic special interests – has long been recognised in histories of trade liberalisation, e.g. Destler (1992 p.17) and Bergsten (1996) under the name "bicycle theory and export politics"; the point was also made by many others including Robert Baldwin (1984), and Hoekman, Bernard and Kostecki (2001). The basic idea dates much further back as Irwin (1996) points out. Even more recently, the first-half of the juggernaut logic has been studied formally by Grossman and Helpman (2001), and Bagwell and Staiger (2002). Juggernaut-like mechanisms were discussed independently by Hufbauer, Erb and Starr (1980), Hufbauer, Schott and Clark (1994, p.164), and Richardson (1993). Bergsten (1998) mentions an alternative source of political-economy momentum ("modest liberalization

To the extent that regionalism can start the juggernaut rolling, RTAs can be building blocs – hence the name juggernaut-building-bloc logic.²⁹ The precise mechanism is a simple extension of the juggernaut logic. RTAs re-landscape members’ economies – making export sectors larger and import-competing sectors smaller. Thus the RTA can alter the member governments’ stance in MFNs, making it politically optimal to cut MFN tariffs to levels that would not have been politically optimal without the RTA. Of course, if a RTA results in higher external tariffs (as in the case of the EU’s agriculture tariffs), then a RTA can start the juggernaut rolling backward.

The basic idea can be presented in a diagram, Figure 8. The two curves, FE and GFOC, show how the size of the import competing sector depends upon the tariff (free entry) and how that tariff depended upon the size of the import competing sector via politics. Here ‘n’ (the number of firms) measures the size of the import competing sector. The politically optimal tariff choice – taking as given the size of the import competing sector – is plotted as $GFOC_{unil}$ (solution to the government’s first order condition without MTN). The politically optimal tariff rises with n since the larger is the import competing sector, the higher is the political benefit from a marginal increase in the tariff. The free entry curve – FE –relates the equilibrium number of firms to the tariff. As the tariff rises, more firms find it optimal to enter the market. These two relationships assume that the government and firms are short-sighted and the government chooses T taking n as given while firms choose n taking T as given. Note that this only captures the size of anti-trade forces; the size of the pro-trade export sector is suppressed to avoid a three dimension diagram.

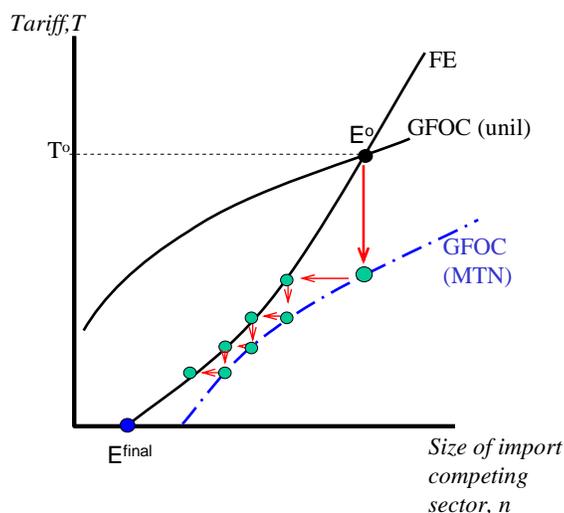


Figure 8: Juggernaut framework

Source: Baldwin (2006).

To see the two steps of the juggernaut effect, note that announcement of the MTN shifts of the GFOC curve to $GFOC_{MTN}$. This is lower since the government finds it politically optimal to set a lower tariff for

begets broader liberalization by demonstrating its payoff and familiarizing domestic politics with the issue”). Staiger (1996, section 5.4) uses a repeated game setting with workers moving slowing out of the import-competing sector to generate gradualism, but MTNs and GATT reciprocity play no role. Milner (1997) and Oye (1993), working independently in the International Political Economy context, discuss mechanism by which FTAs can create a pro-liberalisation political economy momentum. More recently, Hathaway, (1998) presents a similar logic in her positive-feedback model.

²⁹ But likewise, multilateral tariff cutting may lower tariffs to the level where PTAs become feasible, when previously they were not (this may have been the case with the Canada-US FTA).

true comparative advantage is revealed and workers now know whether they will win or lose from free trade. If the parameters are chosen carefully, the certainty resolution may mean that global free trade is politically feasible only after the FTA. Thus the FTA is a building bloc and since it operates by altering the political economy landscape it can be thought of as a momentum-generating mechanism.

The juggernaut logic exploits the fact that nations do have preferences over trade arrangements in the way that individual consumers have preferences over consumption bundles. The nature of the trade deal proposed can affect a nation's ranking over choices (unilateral versus reciprocal, for example). Moreover, nations' rankings over choices – unlike the rankings of a standard Walrasian consumer – are path-dependent since historical liberalisation can affect the current political strength of various pro- and anti-trade special interest groups. There are, however, a number of building-bloc logics that assume nations – like Walrasian consumers – have exogenous preferences over outcomes. The next section considers the easiest of these, assuming a representative consumer and assumes that the government acts to maximise this individual's wellbeing.

3.3.2. Kemp-Wan building bloc logic

The assertion that trade blocs may be building blocs in a static Walrasian world is as easy and as general as the assertion that they may be stumbling bloc. Starting from a world where all nations have MFN tariffs, the question is: Can some group of nations always raise their collective welfare by forming a trade bloc? If the answer is “yes” then a piecemeal enlarge of the bloc will raise bloc members' wellbeing monotonically. Bloc members attain the highest welfare when all nations are part of the bloc. In this world, the formation of a single bloc should trigger a domino effect that leads to worldwide free trade.

The Kemp-Wan theorem tells us that the answer to the question above is always “yes” in a Walrasian setting when nations have access to international lump-sum transfers (Kemp-Wan) or a complete set of commodity taxes and subsidies (Dixit-Norman). Kemp and Wan (1976) – which is probably the first formal contribution to the building/stumbling bloc discussion – makes exactly this point. See Aghion, Antras and Helpman for an elaboration of the Kemp-Wan argument that uses modern cooperative game theory concepts.³¹

While this Kemp-Wan building bloc logic is flawless, it falls down on the very real world problem that nations do not have access to massive lump-sum transfers. Indeed, assuming that such international transfers are a realistic possibility basically assumes away most the core difficulties facing the international trade system (and international relations more broadly). Without international transfers, the logic of preference-erosion stumbling blocs and cherry-picking stumbling blocs suggests that in many blocs, some bloc members would eventually veto some enlargements.

3.3.3. Veto-avoidance building bloc logic

The exploitation/preference-erosion stumbling bloc logic turned on the fact that bloc members could veto the move to global free trade. The veto-avoidance building bloc logic points out that although the bloc members could veto a multilateral trade liberalisation, they cannot veto further RTAs that may eventually eliminate all tariffs globally. The explosion in the number RTAs among small nations that has been witnessed in the new century may very well be due to a combination of the juggernaut effect and the veto-avoidance logic.

³¹ The key concepts are “coalition externalities” (Haberler's spillover) and “grand-coalition superadditivity” (global free trade is first best). The authors assume one nation is the undisputed agenda setter and that unlimited international transfers (transferable utility in game theory parlance) are possible.

We start by considering the development of an extremely common form of regionalism, namely hub-and-spoke FTAs – where one nation (e.g., US, EU or India) has a network of ‘radial’ bilateral FTAs with some of its trading partners while these trading partners do not have FTAs with each other. Simplicity dictates our continued use of the symmetric Figure 2 framework, so we arbitrarily bestow hub-status on Home.

Incentives for hub-and-spoke FTAs

Roughly, speaking, Home found the bilateral FTA with Partner attractive since the improved market access for Home exporters in Partner’s market more than outweighed the potential welfare losses from trade diversion in Home import market. This suggests that Home might also find a second bilateral FTA with RoW to be welfare enhancing, especially given all the separability that rules Meades secondary and tertiary effects.

As it turns out, in the RTA-diagram framework, Home always gains from signing a second FTA with RoW. Intuitively the point is that Home gains the same preferential market access as it did from the first FTA and it undoes the potentially harmful trade diversion by fully liberalising its import market. To see this in more detail, we re-interpret Figure 6. On the export side, Home’s second FTA wins it preferential access to RoW’s market without giving up its preferences in Partner; this has a net welfare value of areas $+D'+C_1'+C_2'$ in the left panel.³² On the import side, the second FTA brings the price in Home’s market for good 1 to the global free trade level, P^{FT} . The welfare impact of this is the positive trade volume effect area A’ plus the conflicting terms of trade effects, areas $-B'$ and $+C_1'$. The formulas in Box 5 show that the overall welfare change for Home is always positive.

Would RoW accept Home’s offer of a second FTA? As it turns out, RoW gains from such an FTA as long as T is not too high (see Box 5 for details). That is, the hub-and-spoke situation is better for RoW than the initially disadvantaged position when it was excluded from the Home-Partner FTA. On the export side, an FTA with Home would improve RoW’s market access a great deal (its export price would rise from the depressed level of $P'-T$ up to the free trade price P^{FT}) and the liberalisation on the import side would have the usual positive trade volume effect and conflicting terms-of-trade effects (identical to those experienced by Home in its first FTA). The threshold tariff for RoW to gain from the hub-and-spoke arrangement is calculated in Box 5.

Plainly Partner will be harmed by the formation of the hub-and-spoke system around Home. Its preferences in Home are eroded and it receives nothing in compensation. Partner would thus like to veto Home’s second FTA, but except in extraordinary circumstances, third nations cannot veto FTAs; the main exception is that of customs unions. Functioning customs unions, however, are quite rare in the modern world. Customs unions require supranational decision making capacity to keep all external tariffs in line despite changes in anti-dumping duties, special unilateral preferences to third nations (GSP, etc.) and tariff changes in multilateral trade talks. In fact, the groups of nations that manage such coordination fall into exactly two types: the EU and nations involved in super-hegemon relations (France and Monaco, Switzerland and Liechtenstein, and the South African Customs Union, etc). In fact, the real world is covered with hub-and-spoke trade arrangement, so we assume henceforth that Partner has no veto over Home’s FTA policy and the hub-and-spoke system gets set up.

³² Given the separability of the markets the second FTA with RoW would yield a price for good 3 equal to P' .

Incentives for spoke-spoke FTAs

The story, however, is not finished. As it turns out, the two spokes may find a spoke-spoke FTA to be advantageous and this would achieve in global duty-free trade (although trade would not necessarily be free due to the exclusion of various ‘sensitive sectors’, rules of origin and cumulation).

To see this, note that the hub-and-spoke FTA puts Home in an enviable position – giving it the benefits of free trade as far as its imports go and preferential market access for all of its exporters. In this sense, hub-and-spoke bilateralism might be thought of as another example of the exploitation/preference-erosion stumbling bloc logic; Home would veto WTO talks aimed at achieved global free trade. However, this simple world can reach global duty free trade without multilateral talks. An FTA between Partner and RoW would do the job. So would Partner and RoW be interested in an FTA?

Taking hub-and-spoke bilateralism as the point of departure, it is clear that the spokes – Partner and RoW in this example at hand – have a very different view of global free trade than does the hub. Taking Partner as an example, a move to global free trade would do nothing to erode Partner’s preferences in Home, since those were already eroded by Home’s second FTA. For Partner, the shift to the global-free-trade regime would involve a standard exchange of market access with RoW; Partner would see its export price to RoW rise from P^T to P^{FT} for good 3, and RoW would see a symmetric border price rise for its exports of good 2 to Partner (see Figure 2). The attendant liberalisation of the two nation’s import markets would have the usual conflicting trade volume and terms of trade effects, but overall the two nations could find the exchange to be welfare enhancing. In fact, Partner and RoW would always prefer global free trade to the hub-and-spoke situation, as the formulas in Box 5 confirm.

This is certainly not to be taken as a general result. It does, however, illustrate how regionalism could be a building bloc in a world where overall free trade would be in the interest of all nations, but achieving the goal is blocked by nations fearing erosion of their preferences. See Lloyd (2002) for a clear development of the veto-avoidance logic. This line of thinking is one strand in the widely discussed ‘competitive liberalisation’ logic of Bergsten (1996).

3.3.4. Related logics: induced liberalisation and protection

Before ending this review of the helps-or-hinders literature, it is useful to cover two economic mechanisms that link RTAs and MFN tariffs without formally making the connection with multilateral trade talks. Both mechanisms consider the impact of RTAs on nation’s MFN stance in the absence of a new MTN. 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.

RTAs and unilateral liberalisation: are RTA and MFN tariffs complements or substitutes?

The building-bloc logics examined above directly address the issue of whether RTAs help or hinder the attainment of global free trade. Here we look at a related, but logically distinct question: What is the impact of a RTA on the tariffs a nation would find unilaterally optimal to impose on third nations? Intuitively, the question is whether preferential tariffs are complements or substitutes for MFN tariffs.

The easiest way to organise the various mechanisms is to start from Meade’s formula for the welfare impact of any trade policy change in a Walrasian economy, namely TdM minus Mdp^* . 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. The optimal bilateral tariffs are:³³

³³ Divide both sides by p_{od}^* to get the optimal ad valorem tariff in terms of the import supply elasticity.

$$(2) \quad T_{od} = M_{od} \left(\frac{dp^*}{dM} \right)_{od}$$

where ‘o’ indicates the origin nation and ‘d’ the destination nation (i.e. the nation choosing the tariffs). In general, anything can happen to T_{od} when the nation signs a free trade agreement since – according to the Slutsky equation – the direct and cross-good income and substitution effects of the FTA-induced price changes could raise or lower the right-hand side of (2). Attempts to resolve the inherent ambiguity have led to several economic mechanisms being stressed in the literature.

Preferential and MFN tariffs as complements. If the RTA-induced price changes have little impact on the equilibrium slopes of the third-nation import supply curves, then T_{od} is likely to fall since RTAs typically reduce RTA member’s trade with third nations (Harberler’s spillover), i.e. M_{od} is likely to fall. For example, in the simple RTA-diagram model presented in 2.1, the import supply curves are linear so dp^*/dM does not change, but Harberler’s spillover lowers third-nation trade and so Home’s optimal tariff on RoW exports fall. Another mechanism that yields complementarity turns on the general principle that taxes become more distortionary when the cross-product variance of rates increases (the so-called uniform tax rate principle). This is a feature of many economic models, especially when administrative and enforcement considerations are taken into account. (This is why most nations impose fairly even indirect tax rates across products.) Since the RTA automatically makes the import tax structure more uneven, there is some presumption that the RTA makes the third nation tariffs more distortionary. In models where this is true, nations are likely to lower third-nation tariffs when it re-optimises its trade tax structure, i.e. RTAs encourage nations to lower applied MFN tariffs.

Preferential and MFN tariffs as substitutes. The most obvious mechanism that suggests the substitutes result (i.e. nations find it optimal to raise third-nation tariffs after having signed a RTA) concerns the market power of the new bloc. If the RTA allows RTA members to better coordinate their third-country tariffs, they are likely to raise external tariffs since they will have more purchasing power than before. This, of course, presumes three fairly unrealistic things: they can coordinate external tariffs, the governments share sufficiently similar objective functions, and their external tariffs are not subject to WTO bindings (or they are willing to violate their WTO commitments). Since most effective RTAs are among developed nations whose tariffs are almost universally bound at near-zero levels (apart from a few low-volume items) and such nations rarely violate their WTO bindings, this mechanism is probably of little real world relevance except in a few commodities (agriculture before the Uruguay Round), and a few low-trade-volume RTAs among developing nations.

Who did what when? Contributions to the literature that have looked at the complementarity-versus-substitutes effects include, inter alia, Reizman (1985), Kennan and Reizman (1990), Krugman (1991, 1993), Bond and Syropoulos (1996a), and Ornelas (2005, 2008).

Imported MFN liberalisation and protection

A closely related line of reasoning considers the automatic impact of FTAs on the external protection of FTA members, when members impose different tariffs on third nations. Under some circumstances, the FTA effectively lowers the higher MFN tariff (imported MFN liberalisation); in other circumstances, the FTA effectively raises the lower MFN tariff (imported MFN protection).

A good example of imported MFN liberalisation can be found in North-South FTAs. The concept can be explained intuitively with reference to Mexico’s experience. Mexico signed FTAs with the US and Canada in 1994 (NAFTA) which phased in tariff cuts over 10 to 15 years. Mexican MFN tariffs were (and still are) much higher than US and Canadian MFN tariffs, but as NAFTA brought Mexican prices down to

the US internal level, domestic prices in Mexico came to resemble those that Mexico would have observed if it had lowered its MFN tariffs to US levels. To put it differently, the high Mexican MFN tariffs became irrelevant since the same goods could be purchased from the US duty-free and the US internal price was linked to the world price via its low MFN tariff (leaving aside the small sectors still protected by high US MFN tariffs, such as clothing, textiles and footwear). In this sense, Mexico ended up ‘importing’ the US’s low MFN tariffs.³⁴

The argument can be made more precise with Figure 10. The two left panels show import demand of the US (leftmost) and Mexico (middle); the right panel shows the world market for the good under consideration. The US total supply curve is shown in Mexico’s panel for reasons that will become clear. The US initially imposes a zero tariff on imports from the rest of the world while Mexico imposes a tariff of T_{MX} on imports from both the US and RoW. When Mexico eliminates duties on US imports, US-made goods can enter Mexico duty-free. Since the Mexican internal price is initially above the US internal price, US firms sell to the Mexican market and in doing so drive down Mexico’s internal price to the US internal price – which of course is just the world price. US production entirely displaces Mexican imports from the rest of the world and the Mexican MFN tariff becomes irrelevant.

The feasibility of this outcome is established by noting that the US supply at P^0 is more than sufficient to cover the entire Mexican import demand (point 2 is to the right of point 1). Note that there would be a secondary effect on world prices as the US expands its imports. In the diagram the new world price would be at the intersection of the dotted MD curve and the $X_{S_{RoW}}$ curve. For simplicity’s sake, this second order impact is not shown in the two leftmost panels.

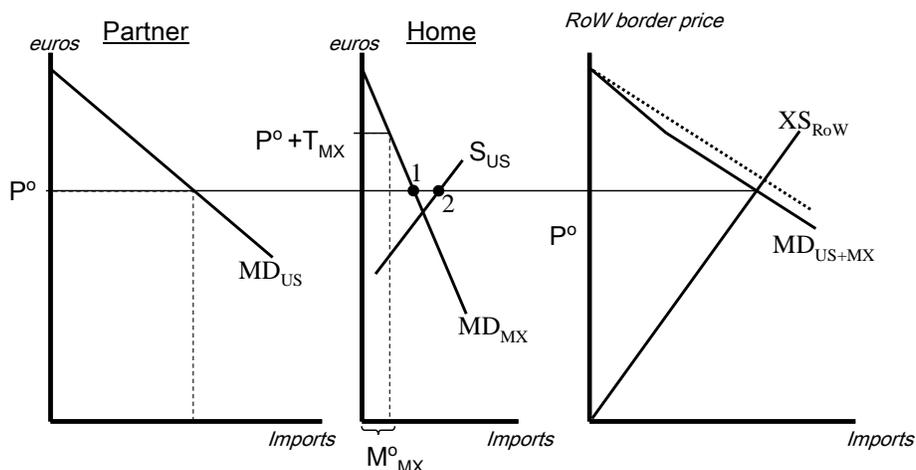


Figure 10: Imported MFN liberalisation

If one combines this imported MFN liberalisation with the juggernaut logic, the FTA can eliminate all the firms in Mexico that would have otherwise opposed MFN liberalisation. That is, Mexican industry has no interest in lobbying for the maintenance of high Mexican MFN tariffs since those tariffs provide no

³⁴ Extension of this analysis led to the ‘unsustainability of the FTAs’ proposition. Vousden (1990 p. 234) argues that Home would be tempted to lower its MFN tariff to just under that of Partner in order to recapture the tariff revenue and Partner would have an incentive to reply, with the resulting race-to-the-bottom tariff making FTAs ‘unsustainable’. Richardson (1995) extended and popularised the result. The main results in Shibata (1967), Vousden (1990) and Richardson (1995) – the irrelevance of rules of origin and unsustainability of FTAs – are of little relevance to real-world policy concerns (rules of origin are at the heart of many current policy debates and FTAs, not customs unions, are by far the most prevalent form of PTAs).

protection to Mexican industry. In the case at hand, the Mexican government signed a vast array of FTAs to exchange its now-politically-unless MFN tariffs against preferential access for its exporters.

Since developed nations (the North) tend to have much lower MFN tariffs on most manufactured goods than developing nations (the South), the mechanism suggests that an important implication of North-South FTAs for the world trading system is the way they lower the Southern nation's resistance to further liberalisation. Given that most of the South does not participate in MTN tariff-cutting exercise on the basis of reciprocity, the North-South FTAs are one of the few ways of triggering juggernaut effects in developing nations.

Rules of origin and imported MFN protection. The opposite result – a RTA importing MFN protection to a nation with low MFN tariffs – can occur when highly restrictive rules of origin are imposed. The argument can be illustrated with reference to NAFTA. Since the US's first foray into regionalism – the 1965 US-Canada Auto Pact – US and Canadian rules of origin on autos have been highly restrictive. One of Canada's motives in pushing for the tri-lateralisation of the US-Mexico free trade agreement was to extend its restrictive rules of origin to Mexico and thereby avoid the undermining of the Auto Pact. The rules of origin forced Mexican-based car producers to import parts and components from the US or Canada instead of from third nations. As before, NAFTA equalised US and Mexican internal prices, but this meant that the Mexican prices were linked to the world prices via the higher MFN tariffs in the US and Canada. In this way, 'imported MFN protection' occurred. NAFTA with its rules of origin had effects that mimicked a rise in the Mexican MFN tariffs to the US and Canadian levels. The imported-MFN-protection reasoning is most often associated with Krueger (1993), although it has played a role in the literature discussed in footnote 34.

Although the distortionary impact of rules of origin is limited by the level of the MFN tariff, the all-or-nothing feature of rules of origin for final goods can lead to large 'effective rates of protection.' For example, if a \$20,000 NAFTA-origin car pays zero tariff while the same non-NAFTA car would pay 5%, a rule of origin that stipulates that a particular component must be made inside NAFTA could make it economic to pay up to \$1000 more for the local versus imported component. While the distortion in the final good market is limited to 5%, the distortion in the component market can be much larger (this is the traditional effective rate of protection logic).

Who did what when? Shabata (1967), Vousden (1990), Richardson (1993, 1994, 1995), and Grossman and Helpman (1995) are all important contributors to or users of this line of analysis.

3.4. **Bargaining-model stumbling/building bloc logic**

The stumbling/building bloc mechanisms discussed above resonant strongly with real-world considerations, in my judgement, since they took advantage of the simple institutions features of real-world tariff cutting in RTAs and MTNs (see Section 3.1). This, however, is not how the Big-Think Regionalism started thinking about the issue (Krugman 1991b, 1993).

As Krugman (1993 p.58) puts it: "In this realm of foggy discussion it is natural for economists to grab hold of any analytic tool they can find, even if they are ill-adapted to the work at hand." I do not believe that the literature that followed up this lead by Krugman has contribution to policy insights since it is built on foundations of sand. Nevertheless, a large literature has developed around it and many academic participants in the Big-Think Regionalism debate refer to the literature's insights, so I will review the basic logic here.

When Krugman wondered how regionalism would affect the GATT, the tool he grabbed for was simple bargaining game theory with two nations that are considering setting tariffs cooperatively (under GATT), or non-cooperatively (Nash tariffs). As Figure 11 shows, both nations prefer the cooperating outcome. He notes: “Trade bargaining ... is characterised by a Prisoners’ Dilemma. This Dilemma arises in part from a terms of trade effect of conventional optimal tariff analysis, but also (and presumably in practice mostly) from the effect of each country’s tariff on the other country’s producer interests.” Krugman (1993, p. 72). He goes on to invoke all the usual theorems of repeated games to think about the building/stumbling bloc issue and concludes: “Trade liberalisation must be supported by the belief of countries that if they cheat they will lose from the subsequent collapse of the cooperative outcome.”³⁵ The crux of his analysis is to examine the impact that an exogenously formed RTA has on the costs and benefits of cheating.

Terms of trade approach in a nutshell. Much of Krugman’s reasoning is informal, so it is worth spelling it out explicitly. The whole analysis turns on three equilibrium welfare levels:

- W^{GATT} is the level of a nation’s welfare with global cooperation (GATT tariffs),
- W^{Nash} is national welfare under non-cooperative tariffs, and
- W^{cheat} that reflects the nation’s welfare when its government ‘cheats’, i.e. chooses a tariff to maximise its own welfare when the foreign government embraces its GATT tariffs.

There are two logical steps in the approach. The first step consists of the obvious point that tariffs are worse than a zero-sum game from the global perspective so some form of cooperation could be Pareto improving, but nations have an incentive to cheat. Formally, this is a prisoners’ dilemma and it arises when $W^{cheat} > W^{GATT} > W^{Nash}$. The second step involves a dynamic game that models when cooperation is sustained. As Krugman notes, cooperation is self-enforcing when the gains from cheating are more than offset by the losses from the (infinite) punishment. Taking δ as the discount factor, the present value of cooperating forever in symbols is $W^{GATT} / (1-\delta)$. If cooperation is to be sustained, this must exceed the one-period gain from cheating W^{cheat} plus the present value of the infinite sequence of the Nash outcomes that kick next period after the foreigners realise cheating has occurred, $\delta W^{Nash} / (1-\delta)$. Clearing the $(1-\delta)$ terms, the condition for self-sustaining global free trade is:

$$W^{GATT} > (1-\delta)W^{cheat} + \delta W^{Nash}$$

In words, each nation compares the value of welfare under cooperation to a weighted average of the cheating outcome and the Nash outcome. So far this is a trivial re-labelling of an undergraduate lecture on repeated games.

The contribution of this approach comes in considering how an RTA changes the three levels, W^{cheat} , W^{FT} and W^{Nash} . Krugman (1993) asks whether the formation of a trade bloc among nations make them more or less able/or willing to cooperation. His answer is: It can cut either way.

Krugman’s core insight – an insight that has been followed up in a dozen articles since – is that RTAs typical reduces the RTA members’ trade with the rest of the world and so reduces both cost and benefit of cheating. Since these work in opposite directions, some bargain-approach papers find that RTAs are building blocks (make cooperation more likely) while other find they are stumbling blocs.

³⁵ This is not a new point. It is very clear in the discussion of Johnson (1953), but probably dates much further back. Indeed, the notion that a *quid pro quo* would be mutually advantageous was probably well understood by trade diplomats as far back as Roman times.

Who did what when? This approach came to be known as the terms-of-trade approach after Kyle Bagwell and Bob Staiger and students formally modelled the issues, starting with Bagwell and Staiger (1993a, b). For examples of this sort application to the regionalism questions see Bond and Syropoulos (1996b), Campa and Sorenson (1996), Bond, Syropoulos and Winters (1996), Bagwell and Staiger (1996), Conconi and Perroni (2000), Conconi (2000), Yi (1996), and Ornelas (2005, 2008).

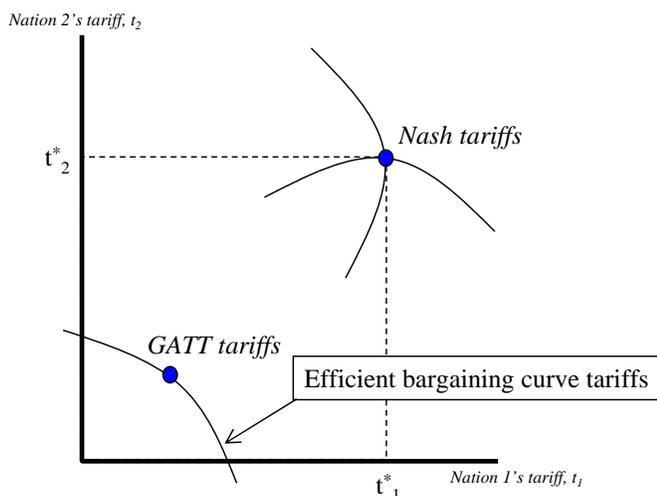


Figure 11: An economic theory of the GATT

Source: Adapted from Krugman (1991b).

3.4.1. Critique of the self-enforcing approach to tariff liberalisation

The approach set out by Krugman seems entirely natural to readers schooled in game theory that was developed to explain strategic interactions among private agents. This sort of model resonates strongly when thinking about how OPEC sustains its cartel, or chemical companies agree to fix the price of vitamin C. When it comes to Big-Think Regionalism, however, it is vitiated by two factually incorrect assumptions: 1) that the cheating period is long enough to make it tempting, and 2) that punishment can be usefully modelled as consisting only of tariff changes.

First, real world tariffs are part of nation's tax code and are thus entirely transparent – at least in the advanced industrialised nations that account for more than 80% of world trade. The domestic laws of the US, EU and Japan, for example, require their governments to publicly announce the tariff schedule. Consequently, tariff cheating is detected by foreigners at exactly the same time the change is implemented (if not before). See Box 1 for a real world example of a surprise tariff cut being detected immediately.

This means that the cheating periods is zero, i.e. δ is unity, so the sustainability condition becomes $W^{GATT} > W^{Nash}$. In other words, as in three stumbling-bloc logics discussed above, nations cooperating if and only if it is individually in their own interest to do so. The whole “self-enforcing” module is irrelevant. This is a lethal problem for the approach since its only contribution was to examine how an RTA affected the costs and benefits of cheating for one period.

The second critical flaw is even more damaging to the relevance of its insights. When Krugman set out the basic approach, he took the repeated Prisoners' Dilemma model straight off the shelf – including its assumption that the punishment can only come in the form of a change in the variable of interest. That is, he assumed that nations can only punish via tariffs. This restriction of the strategy space makes perfect

sense in the analysis of collusion among firms. It does not make sense when it comes to the cooperation in the global trade system.

In the real world, cooperation in the GATT/WTO system is supported by the threat of a breakdown in cooperation far broader than tariffs. The system's members can and do use a wide range of 'carrots and sticks' to induce trade cooperation: foreign development aid, military aid, political support in the international arena, participation in NATO, US troops stationed in Germany and Japan, etc. Moreover if international trade cooperation did breakdown, the costs would far exceed lost markets for exporters. It would halt or seriously hinder international cooperation on many pressing issues – climate change, international terrorism, money laundering, organised crime, humanitarian crisis and control of illegal drugs, to mention just a few. Formally, we would include this in the repeated game by giving the players the ability to impose large costs (unrelated to tariffs) on any player that deviated from cooperation.

In summary, the basic idea that trade cooperation should be modelled explicitly is not useless. Trade cooperation is almost surely dependent upon nations' perceptions of costs and benefits of deviating. Unfortunately, the terms-of-trade approach is focusing on the trees and missing the forest. Its insights as to whether an RTA makes cheating on a tariff more or less attractive misses the point altogether since the main carrots and sticks supporting cooperation have nothing to do with tariffs. This means that RTAs do not have a first order impact on the underpinnings of international trade cooperation – at least not via its impact on the cost and benefit of deviating from cooperation.

The mainstream stumbling/building bloc ideas discussed in Sections 3.2 and 3.3 ignore the sustainability issue. They just assumed that nations would keep their word if they did agree to go to free trade. This strikes me as a fairly reasonable assumption even though threats are explicitly or implicitly part of all forms of cooperation. There is little to gain from explicitly modelling the threats since the most important forms of retaliation are entirely outside the model.

3.5. Other links from RTAs to MTNs

There are a number of points made in the literature that do not fit neatly into the stumbling/building block framework as I have delineated it. One line of reasoning views nation's MFN tariffs, or yes-no stance on multilateral cooperation, as depending upon the strength of various domestic special interest groups. The Big-Think Regionalism question here is whether an RTA weakens or strengthens the pro-trade or anti-trade interest groups. At one end, Winters (1993) argues that regionalism (especially the EU on agriculture) strengthened the hand of protectionists since it worsened Olsen's Asymmetry (i.e. winners from protection are few in number and easy to organise, while the losers are disperse, numerous and difficult to organise politically). He calls this the 'restaurant bill' problem. Just as diners at a table where the bill will be split equally tend to order too much, the EU tended to grant too much protection to farmers. At that other end, De Melo et al (1993), Richardson (1994) and Panagariya and Findlay (1996) argue that an RTA tends to dilute the influence of special interest groups via various mechanisms.

Another important line of thinking asserts that the formation of RTAs creates forces that induce nations to begin and/or finish multilateral trade talks. For example, Lawrence (1991), Sapir (1993), WTO (1995) all argue that the threat of regionalism was a critical element in inducing GATT members to initiative the Uruguay Round and to accept the final Uruguay Round agreement. Windham (1986) makes the same argument for the Tokyo Round. Bergsten (1996) dubs this 'competitive liberalisation' and asserts that regionalism fosters multilateralism and vice versa.

A somewhat related line of thinking, which has not been formalised, is that RTAs are a testing grounds for the GATT/WTO (Lawrence 1996, Bergsten 1996). The prime example here is the EU which dealt with deeper-than-tariff-cutting liberalisation for decades before the issues arrived on the GATT agenda in the Tokyo and Uruguay Rounds. See Ludema (1996) for a partial formalisation of the idea.

Another line of thinking suggests that RTAs can provide commitments that boost the credibility of a nation's policy reforms (Fernandez and Portes 1998). This was explicitly mentioned by Mexico in its requires to the US for an FTA.

4. MULTILATERALISM AND REGIONALISM

The analytic contributions discussed above help frame our thinking on whether regionalism is like to help or hinder multilateral trade liberalisation. The bulk of the theoretical literature over the past two decades, however, has been concerned with an analytically distinct question: Would more regionalism be good or bad for world welfare?

The question of whether RTAs raise or lower welfare is empirical, so one might wonder why so many theoretical articles were published on the topic. The answer lies history-of-thought. When leading thinkers such as Larry Summers, Paul Krugman and Jagdish Bhagwati set the intellectual 'terms of reference' for the regionalism literature in the early 1990s, the EU was the only effective regional arrangement. Since it was widely viewed as unrepresentative, the analysis was conducted by speculating on two scenarios – what the world would look like with and without more regionalism. The comparison of these two speculated scenarios was taken as providing insight on whether spreading regionalism would raise or lower world welfare.

From the perspective of the new century, this literature looks distinctly dated. The world has seen a great deal of regionalism develop and it does not look anything like speculated scenarios of the theoretic models from the 1990s. Since my goal is to review the main theoretical literature, even that which no longer very useful, I cover is-bilateralism-bad papers extracting the literature's main insights without focusing too much on who-did-what-when issues.

4.1. Is Bilateralism Bad?

This literature was kicked off by Paul Krugman's 1991 article entitle "Is bilateralism bad?" (Krugman 1991a). In typical Krugman style, it laid out a seductively simple model, asked it a seductively simple question, and found an answer that was provocative and seductively simple – world welfare would be lowest with three symmetric blocs.³⁶ This provocation produced an impressive string of contributions from authors who felt that Krugman's speculated scenarios model left out critical elements of reality.

To understand the basic logic behind the 3-is-worst result, it is important to note that the simplicity of Krugman's model rules out most of the standard effects. On the production side, he assumes each nation produces a single good, so no production distortions are possible. Since nations and blocs are all symmetric, no nation gains on net from taxing imports. While a tariff tends to lower the cost of imports via the usual terms of trade effect, foreign tariffs exactly offset this since they are the same size and applied to the same amount of trade (each bloc's imports equal its exports). In short, all welfare effects are channelled through the consumer distortion.

³⁶ Note that the exercise was anticipated by Riezman (1985) and Kennan and Riezman (1990), but these did not catch on.

More regionalism with fixed tariffs. To fix ideas, we first hold the tariff constant while varying the size of the symmetric blocs. At one extreme is the case of only 1 bloc in which case there is no tariff and thus no consumer distortion; welfare is maximised. At the other extreme there are zero blocs in the sense that all goods – including domestically produced goods – are taxed at the same rate. Since no production distortion is possible and there is no net terms-of-trade effect, this extreme also attains the first best outcome. After all, consumer distortion is driven by distorted relative prices. Moving away from either extreme lowers welfare. This is the key intuition for the U-shaped relationship between the number of blocs and welfare.³⁷ The fact that the minimum is at 3 is not a result that is robust to parameter changes in Krugman’s own model and it was shown repeatedly to be fall down in less simplified models.

Digging slightly deeper into the intuition, consider what happens when moving from 1 bloc (global free trade) and to 2 and then 3 blocs. When the world forms into two blocs, the price of imported goods rises. Since consumers do not see the true price their nation pays for goods, this leads to socially inefficient expenditure switching; local-good expenditure shares rise and imported-good shares fall. When the world reconfigures into three blocs, two things happen to the consumer distortion. Some goods that were previously untaxed become taxed; this increases the distortion. The distortion between a typical domestic good and a typical imported good, however, falls since more varieties are now taxed. The tension between these two effects is what generates the U-shaped relationship.

Impact of regionalism on tariffs. Krugman assumes the blocs are customs unions and that they set the tariff at the naïve optimal tariff level, i.e. the Nash tariff that is equal to the inverse of the bloc’s import elasticity. Since the bloc gets more market power as it enlarges, Krugman has tariffs rising as the number of blocs declines, although not very much according to his numerical simulations.

4.1.1. Extensions and modifications

A sequence of papers considered more complicated models, with the two main complications being the introduction of national comparative advantages and trade costs.

When authors introduced comparative advantage, it is easy to make the 3-is-worst result go away, but the U-shaped relation remains in all the models that do not allow for production distortions. Bond and Syropoulos (1996a), for example, find that the worst number of blocs may be two, three or more.³⁸

More interestingly, considerations of comparative advantage can reverse Krugman’s result that bigger blocs would like to charge higher tariffs. The intuition can be had by linking the optimal tariff to market power and market power to comparative advantage. When nations produce entirely distinct goods, as in Krugman’s model, grouping nations into, say, two trade bloc does nothing to make the blocs’ production

³⁷ Krugman’s deviation is circuitous. The easiest way to see the U-shape is to note that the producer price must adjust so each nation sells its one unit of output. Using the standard CES demand functions, with the price of goods made inside the bloc denoted as ‘ p ’ and the consumer price of exported units equal to $p\tau$, where τ is the tariff factor, i.e. one plus the ad valorem tariff, the market clearing condition for each nation’s one-unit production is $1 = E(sp^{-\sigma} / P^{1-\sigma} + (1-s)\tau^{-\sigma} p^{-\sigma} / P^{1-\sigma})$ where E is expenditure of a typical nation (normalized to unity), the CES price index is $P^{1-\sigma} = (s + \tau^{1-\sigma}(1-s))p^{1-\sigma}$ and ‘ s ’ is the share of nations inside a typical bloc. Solve for p yields we get $p = (s + (1-s)\tau^{-\sigma}) / (s + (1-s)\tau^{1-\sigma})$. Substituting this into the CES price index, i.e. $P^{1-\sigma} = (s + \tau^{1-\sigma}(1-s))p^{1-\sigma}$, we get $P = (s + (1-s)\tau^{1-\sigma})^{\sigma/(1-\sigma)} (s + (1-s)\tau^{-\sigma})$. Since welfare is inversely proportional to P , we see that welfare is U-shaped in the share of nations that are inside a typical bloc. Note that welfare is unity when s equals zero or unity.

³⁸ Srinivasan (1993) and Deardorff and Stern (1994) provide other examples.

structures more similar and thus market power is merely a matter of size. When nations' production structures differ in a richer way, formations of blocs can make the blocs' output mix more similar and this will reduce each bloc's market power. For example if there four nations, two labour-poor and two labour-rich, the formation of two blocs with one of each type of nation would produce a world where blocs had equal factor endowments. In a Heckscher-Ohlin world, such a shift would extinguish the market between of the two blocs and with it the incentive to charge a tariff. Of course that is not the only possibility but it shows that the monotonic link between bloc size and optional tariff can be broken. Sinclair and Vines (1995) undertake a more thorough study of the bloc-size-tariff issue, examining, for instance, the case of FTAs as well as customs unions. They make the intuitive point that increasing the size of an FTA does not have a first-order impact on each FTA member's market power and so the tendency for higher tariffs is absent.

The idea that trade costs (i.e. frictional trade barriers) would affect the comparison between regionalism and multilateralism is obvious and was pointed out by Krugman (1991a) in simple extension of his basic model. He assumes that there are continents as well as countries – where continents are defined as groups of nations that have low trade costs among themselves but high trade costs with other continents. If the inter-continental trade costs are high enough, continental free trade comes very close to approximating global first trade (since the remain tariffs fall on very little trade). In the extreme of infinite inter-continental trade cost, the first-best outcome can be obtained with continental trade blocs.

The basic point that 'natural trade blocs' can liberalise most the world's trade had strong resonance with the real-world pattern of RTAs. It also attracted a large number of papers that elaborated on Krugman's basic insight by considering more general sets of trade costs.³⁹

Altogether the Is-Bilateralism-Bad literature is best thought of as a string of parables from which we might glean some insight into real world events. The two main insight, however, are not particular difficult to grasp. The first is that spreading regionalism might or might not harm global welfare. The second is that regional free trade comes closer to mimicking global free trade, the more regionalised is the world trade pattern (due to transport costs or comparative advantage).

5. ENDOGENOUS BLOC FORMATION

In the early 1990s, regional liberalization seemed to be the easy route to integration and trade economists. A central issue in the Big-Think Regionalism literature was therefore why were countries eager to open markets regionally but reluctant to do so multilaterally.

From the new century perspective this question looks odd. In both North America and Europe, regionalism ran into severe political problems (NAFTA, failure to renew fast-track, Maastricht, Nice and Constitutional Treaty rejection, Turkish Enlargement, etc.) while the Uruguay Round passed without much discussion once the final compromises had been completed. For example, NAFTA and the Uruguay Round went into effect in the same year. Moreover, the multilateral trade system continues to enjoy a high-level of background support in all major trading nations. Yet the slowness of the Doha Round, teamed with booming regionalism world wide, has brought discussion of the causes of regionalism back to the forefront of trade policy discussions.

³⁹ See Frankel, Stein and Wei (1995, 1996), Frankel (1996), Nitsch (1996a, b), Schiff (2001), and Spillembergo and Stein (1995).

Paul Krugman, Jagdish Bhagwati and other intellectual leaders of Big-Think Regionalism put forth many accounts of the causes of regionalism.⁴⁰ The main explanations were 1) that members were frustrated with the GATT's slow progress, especially since the issues had become so much more complex than tariffs and the number of members had grown, 2) that regionalism negotiations were easier, 3) the US conversion from devoted multilateralist to ardent regionalist removed one of the key restraints on regionalism, and 4) the US's aggressive unilateralism scarred Western Hemisphere nations into seeking a 'safe harbour' against the US policies and/or a breakdown in the GATT system.

In a 1993 paper, I proposed a very different explanation with the domino theory of regionalism (Baldwin, 1993, 1995, 1997). The theory views a nation's decision to join an RTA as endogenous and notes that Haberler's spillover provides a *de novo* political economy force that might make nations change their minds after some of their trade partners form or deepen a preferential trade agreement.

This section reviews the domino theory, its intellectual antecedents and subsequent contributions to the theory of endogenous bloc formation.

5.1. Domino theory

All the contributions in this area require two basic elements – a model of the economy that connects tariff choices to economic outcomes and a political economy model that connects economic fundamental to policy choices. The economic model is not very important as long as Haberler's spillover arises, i.e. as long as the preferential policies of a nation's partners can create export discrimination. The political economy model only requires that exporters tend to support membership in an RTA and import-competitors tend to oppose it. The logic proceeds in two steps. First is the immediate impact of an idiosyncratic deepening of integration in an RTA.

Given an initial political equilibrium where the nation in question has chosen to be outside the RTA, the idiosyncratic deepening or widening of the RTA generates new political economy forces. Specifically, non-member exporters now have a greater stake in membership – they face more discrimination if their nation stays out and greater market access if it joins. Anti-membership forces may also be strengthened in non-member nations, but if the industrial output of export sectors is systematically larger than the output of import-competing sectors (as is usually the case since the export sector produces for both domestic and foreign consumers) and sectors' political power is linked to their size, the shock raises the pro-membership forces more than the anti-membership forces. For outsiders that were previously close to indifferent to membership (politically), these changes shift the domestic political economy equilibrium to the pro-joiners camp.

The second stage starts, if one non-member actually does decide to join. The PTA enlargement implies that discrimination facing the remaining non-members expands and this again heightens the pro-membership political economy forces in outsiders, potentially producing a membership application from an outsider that previously found it politically optimal to stay out. The cycle repeats itself until a new political equilibrium membership in the PTA obtains.

If the world was marked by perfect information and synchronized periodicity in political decision-making, PTA membership bids would be perfectly coordinated and bloc enlargement would happen in a step-like

⁴⁰ See Krugman (1991a, b, 1993), Bhagwati (1991, 1993), Anderson and Blackhurst (1993), Whalley (1996), Lawrence (1996), Bergsten (1996), Panagariya (1996), *inter alia*.

fashion. Uncertainty, imperfect information and mis-matches of decision timings suggest that the new political economy equilibrium may be reached only gradually. During the transition it might look like regionalism was spreading like wildfire.

5.2. The supply side

The domino theory ignores the ‘supply side’ membership – i.e. thinking about whether the incumbents would allow the applicants to join. This was not omission but rather a strategic choice reflecting a judgement that most ‘applications’ to join or form RTAs were driven by economics for the *demandeurs* (often small nations) and by politics for the *répondeurs*. The issue of the economic impact on the *répondeurs* was thus ignored for parsimony’s sake. Given the rather promiscuous approach that nations are taking in the new century to RTAs, the assumption seems to me as continuing to be relevant.

Much of the subsequent literature on endogenising the membership of regional trade arrangements has focused on putting the supply side into a model with domino-like features. These studies follow the lead of Riezman (1985) in using cooperative game theory to model this “club formation” issue.⁴¹

Yi (1996) was one of the first to formalise the domino logic using cooperative game theory with and without considering the supply constraint. In his model, the domino effect leads to global free trade, if membership is open (i.e. the supply side is ignored), but not if the joiners require the assent of the incumbents and the incumbents care only about how tariffs affect their national welfare. Haveman (1992), Syropoulos (1999), Abrego, Riezman and Whalley (2003), and Melatos and Woodland (2007) consider a number of extensions including asymmetric nations.

Aghion, Antras and Helpman (2004) is perhaps the most complete study of what happens when the supply side is fully incorporated. To make headway and reduce proliferation of cases, they allow for transferable utility among nations and assume there is a single nation proposing various configurations. While these assumptions are rather strong and rather at odds with the main outlines of international trade relations in today’s world, they do allow the authors to engage the powerful tools of game theory that was developed for simpler problems. Their main conclusion is that almost anything could happen, but one possibility is that – as Yi (1996) found – the domino effect could lead to every nation joining a single RTA.

Asymmetric lobbying. The political economy forces driving the domino effect are strengthened by the peculiar tendency of special interest groups to fight harder to avoid losses than to secure gains. Joining allows excluded firms to avoid damages as well as to win new commercial opportunities, so trade diversion may play a particularly important role in generating new, pro-membership political economy activity. Many explanations for this ‘loser’s paradox’ are possible, but one simple economic interpretation that is relevant to the domino theory is based on unrecoverable investments, i.e. sunk costs. Entry into most industries and markets involves large unrecoverable investments in product development, training, brand name advertisement and production capacity. In such situations, established firms can earn positive profits without attracting new firms, but only in so far as these profits constitute a fair return on the entry investments, i.e. sunk costs create quasi-rents, not pure rents. Given that firms in an industry will have already incurred the sunk costs, deepening of an existing bloc, or formation of a new one will destroy quasi-rents, and thus generate strong, *de novo* political forces pushing the government to redress the new

⁴¹ Also see Kennan and Riezman (1990), Riezman (1999) and Kose and Riezman (2000).

discrimination. The most direct way would be to join the bloc, but other modalities are possible. Government of excluded nations may seek to restore quasi-rents by calling for a multilateral trade round, or forming a new trade bloc among excluded nations.⁴²

6. DIRECTIONS FOR FUTURE RESEARCH AND CONCLUDING REMARKS

In 2008, the Big-Think Regionalism review might seem like an intellectual indulgence from two distinct angles.

1. Regionalism is here to stay. Regionalism has been raging for two decades and it shows no signs of abating. Since the existing RTAs are not going to be disbanded and more will surely be signed, discussion of whether these RTAs help or hinder multilateral liberalisation is something of a luxury. The real-world issue facing policy makers is how to increase the likelihood that these RTAs help the world trade system and reduce the likelihood that they hurt it. While there may be some room for highly abstract reasoning on this issue, the devil is in the detail. Thinking up ways of making regionalism fit in better with multilateralism will require highly detailed knowledge of matters such as rules of origin, and RTAs' treatment of non-tariff barriers. The chapters in this book provide the most comprehensive effort to gather such information and should therefore provide an excellent springboard for future empirical and theoretical work.

2. Deep, multilateral integration. For the GATT's first 30 years, multilateralism meant shallow integration (mainly tariff cutting). Deep integration (liberalisation of tariffs and many behind-the-border measures) was the purview of regionalism.⁴³ This began to change with the 1979 Tokyo Round although it was not until the Uruguay Round's Single Undertaking that deep integration became an integral part of multilateralism. In 2008, the WTO is dealing with, or talking about dealing with a wide range of areas where liberalisation requires discipline of behind-the-border measures – trade in services, trade-related intellectual property rights, trade-related investment measures, multilateral investment disciplines more generally, technical barriers to trade, government procurement, competition policy, and trade facilitation. A critical issue now facing policy makers is whether the deep integration initiatives in RTAs are throwing up impediments to deep multilateral liberalisation. From this perspective, the exclusive focus on border measures in the help-or-hinder literature seems somewhat amiss.

But does it matter that the stumbling/building bloc theory deals almost exclusively with tariff liberalisation? Cannot one model deep-integration as the removal of barriers that – like tariffs – drive a wedge between internal and external prices? Answering these questions requires detailed knowledge of exactly what sort of deep integration is going on in the RTAs. The chapters in this book provide an excellent starting point. Importantly, the findings suggest that the deep integration the RTAs may indeed

⁴² See Baldwin and Robert-Nicoud (2002, 2005) for a formal treatment of the ideas and Baldwin (1993b) for an early formal model.

⁴³ Until the 1980s, regionalism principally referred to European PTAs that were implemented (EFTA and the EEC) and a handful of developing nation schemes that were never effectively implemented, the main exception being the ties between Australia and New Zealand. The EEC involved deep integration from its inception, but the trend accelerated with the 1986 Single European Act and its extension to EFTA via the European Economic Area (EEA) negotiations. The 'Down Under' pair embraced deep integration with their 1984 Closer Economic Relationship (CER).

be creating incompatibilities that will impede deep integration at the multilateral level – at least in some areas. Several of the chapters provide evidence that at least two ‘families’ of RTAs emerging as far as deep integration schemes are concerned – one based on the NAFTA model and another based on the EU model. For example, the chapter on technical barriers to trade (TBTs) suggests that one the EU family is fostering a convergence to the EU’s product standards and regulations, while the NAFTA family is fostering convergence to international norms. Although the EU and international norms are not always in conflict, it is easy to think of situations where this trend in RTAs will hinder rather than help multilateral TBT liberalisation.

6.1. Future research topics

One of the astounding contrasts that emerge from the detailed mapping of RTAs is the extent to which developing nations accept disciplines in RTAs that they resist at the WTO level. In areas across the board – intellectual property rights, tariff bindings, TBTs liberalisation, access commitments in services, investment agreements, government procurement, subsidy disciplines, trade facilitation, and competition policy – the RTAs reviewed in the chapters show that developing nations have accepted things that they refuse to even discuss at the multilateral level. Does this indicate that something is wrong with the WTO’s negotiating procedures? An important topic for future theoretical and empirical research is the identification of the determinants of deep integration in RTAs and the failure of such initiatives at the multilateral level.

A second topic of research concerns the deep difference between the political economy of shallow and deep integration. For example, while discrimination is relatively simple when it comes to tariffs, some behind-the-border measures do not lend themselves to preferences. For example, many TBTs and service trade restrictions are justified on ‘good governance’ grounds – protection of consumers, etc. – that do not logically admit preferences. If the restrictions are necessary to protection consumers from fraud from one nation, then it seems natural that they should be applied to imports from all partners. Moreover, many behind-the-border measures, especially in services, act to shield incumbent from competition from other domestic firms as well as foreign firms. In such a situation, any liberalisation with respect to foreigners is likely to bring on competition from domestic rivals as well. Such considerations suggest that the trade political economy models of tariff liberalisation need to be modified when thinking about behind-the-border measures.

Theoretical advances in the political economy of various forms of deep integration should be greatly assisted by the mappings contained in the chapters in this book. The near future should see many empirical studies trying to determine why some RTAs include various deep integration initiatives while others exclude them. The answers will surely involve some general considerations – for example, rich nations inevitably place greater trust in the legal and governance structures of other rich nations and such trust is necessary for many of the deeper forms of integration. Other answers, however, are likely to be highly specific to particular areas. For example, services trade liberalisation that goes beyond GATS may be systematically easier between nations that share similar legal and/or educational environments (as is often the case between former colonising nations and their former colonies).

A third topic – one that would involve a high level of abstraction – would be to think about the design a WTO negotiating framework that would result in successful deep integration in the same way that the GATT’s framework fostered successful tariff cutting.

6.2. **Concluding remarks**

The bulk of this paper presented a survey regarding the analytics of the "classic" debate on regionalism versus multilateralism. The intent of the paper, however, was to suggest that there is a need to move the literature's focus from the high theory of shallow integration to a more policy-relevant issue – the theory and empirics of deep integration in regional versus multilateral contexts. There is also a need to advance the profession's thinking on how the liberalisation in RTAs can be made to be more supportive of multilateral liberalisation, i.e. on how one can promote convergence/harmonization of RTAs. The vast datasets that are contained in the other chapters in this book provide a rich stimulus to future research that goes beyond effect.

Box 1: Nixon's tariff 'cheating'

A quite extreme example can be found in the surprise announcement of a 10% rise in all US tariffs on 15 August 1971. The announcement was made on national television by President Nixon, acting under that the emergency authority in the Trade Expansion Act (authority that was inserted to allow the US to instantly respond to changes in the international environment, including sudden tariff hikes by foreigners). The nightly news coverage of the announcement included interviews with European and Japanese policy makers discussing the policy change even before it was implemented the next morning. The only other legal option the US had was an act of Congress, which would have been equally public.

Interestingly, the 10% surcharge was to take immediate effect, but bureaucratic delays in US Customs and confusions over the exact coverage meant that implementation was not immediate. The reaction by foreigners, however, was immediate and the 'import surcharge' was formally removed after just four months. US tariff revenue as a percent of US imports was lower in 1971 than in 1970.⁴⁴

While this episode demonstrates that nations have and might use tariffs as a stick to get their way (in this case, the problems was the European and Japanese refusal to revalue their currencies despite the growing US trade deficit), it also clearly illustrates that there is no period in which the cheater could profit before the others work out what has been done.

Box 2: Viner Verbatim

The relevant passages from Viner's famous book The Customs Union Issue are relatively short and worth reading. (If nothing else, it gives students an idea of what economics was like before diagrams and maths became *de rigueur*.)

"The analysis will be directed towards finding answers to the following questions: in so far as the establishment of the customs union results in change in the national locus of production of goods purchased, is the net change one of diversion of purchase to lower or higher money-cost sources of supply, abstracting from duty-elements in money costs: (a) for each of the customs union country taken separately; (b) for the two combined; (c) for the outside world; (d) for the world as a whole? If the customs union is a movement in the direction of free trade, it must be predominately a movement in the direction of goods being supplied from lower money-cost sources than before. If the customs union has the effect of diverting purchases to higher money-cost sources, it is then a device for making tariff protection more effective. None of these questions can be answered a priori, and the correct answers will depend on just how the customs union operates in practice. All that a priori analysis can do, is to demonstrate, within limits, how the customs union must operate if it is to have specific types of consequence.

The removal of "nominal" duties, or duties which are ineffective as barriers to trade, can be disregarded, and attention can be confined to the consequences of the removal, as the result of customs union, of duties which previously operated effectively as a barrier, partial or complete, to import.

There will be commodities, however, which one of the members of the customs union will now newly import from the other but which it formerly did not import at all because the price of the protected Home product was lower than the price at any foreign source plus the duty. This shift in the locus of production as between the two countries is a shift from a high-cost to a lower-cost point, a shift which the free-trader can properly approve, as at least a step in the right direction, even if universal free trade would divert production to a source with still lower costs.

⁴⁴ See <http://www.state.gov/r/pa/ho/frus/nixon/iii/8698.htm>. You can watch Nixon announce it at <http://themessthatgreenspanmade.blogspot.com/2008/03/nixon-ends-gold-convertibility.html>.

There will be other commodities which one of the members of the customs union will now newly import for the other whereas before the customs union it imported them from a third country, because that was the cheapest possible source of supply even after payment of duty. The shift in the locus of production is now not as between the two member countries but as between a low-cost third country and the other, high-cost, member country. This is a shift of the type which the protectionist approves, but it is not one which the free-trader who understands the logic of his own doctrine can properly approve.

Simplified as this exposition is, it appears to cover most of the basic economic issues involved. The primary purpose of a customs union, and its major consequence for good or bad, is to shift sources of supply and the shift can be either to lower- or to higher-cost sources, depending upon the circumstances. ...

From the free-trade point of view, whether a particular customs union is a move in the right or in the wrong direction depends, therefore, so far as the argument has as yet been carried, on which of the two types of consequences ensue for that customs union.

Where the trade-creating force is predominant, one of the members at least must benefit, both may benefit, the two combined must have a net benefit, and the world at large benefits; but the outside world loses, in the short-run at least, and can gain in the long-run only as the results of the general diffusion of the increased prosperity of the customs union area. Where the trade-diverting effect is predominant, one at least of the member countries is bound to be injured, both may be injured, the combination will suffer a net injury, and there will be injury to the outside world and to the world at large. The question as to what presumptions can reasonably be hold to prevail with respect the relative importance in practice of the two types of effects will be examined subsequently." (Viner, 1950 pages 42-44).

There is quite a bit of discontent among modern academic economists with the trade-creation-trade-diversion terminology, e.g. Kowalczyk 1990.

Box 3: Walrasian net welfare effects: linear example

The appendix works through the general derivation of the modern analysis of a marginal tariff liberalisation. This box works through a linear example that makes the reasoning more transparent and directly connects it to the standard undergraduate analysis involving consumer surplus, producer surplus and tariff revenue. It also specifies the translation from marginal tax analysis into discrete tariff changes. We work in a 3 nation Walrasian setting with tariffs as the only distortion. We assume Home imports from both Partner and RoW nations and initially applies the same specific tariff T to imports from both sources. Assuming a linear demand function, $p=1-C$, where C is Home consumption and p is the Home's internal price, and a linear supply function, $p=b+Q$, where Q is Home production, the sum of consumer surplus, producer surplus and tariff revenue is:

$$W=(a-p)/2+(p-b)(Q/2)+(p-p^*)(C-Q)$$

where p^* is the common border price and the three terms are, respectively, consumer surplus, producer surplus and tariff revenue ($C-Q$ equals imports). After the tariff liberalisation, welfare can be written as $W'=(a-p')/2+p'(Q'/2)+(p'-p^*)(C'-Q')$, where the 'primes' indicate post-liberalisation quantities and prices. Subtracting the post-liberalisation welfare, W' , from the pre-liberalisation W and re-arranging:

$$W=(p'-p)(M'-M)/2 - (p^*-p^*)M$$

where $M=C-Q$ and $M'=C'-Q'$. Intuitively, the traditional focus on consumer surplus, producer surplus and tariff revenue is unnecessarily cumbersome since the incidence of the tariff can always be decomposed into a part that falls on domestic agents (consumers) and foreign agents (foreign exporters). That is, the incidence of the tariff on consumers is an internal transfer; only the incidence on foreigners (via change in the border price) matters for net welfare.

Box 4: The Walrasian RTA diagram model in maths

The three goods (1, 2 and 3) are produced according to rising marginal costs. For good 1, we assume Partner and RoW have comparative advantage, while Home does not. The assumed linear supply curves that yield this are:

$$(3) \quad p = b + X_1^H, \quad p = X_1^P, \quad p = X_1^R; \quad 0 < b$$

where the superscript indicates the producing nation and the subscript indicates the good. Demand for good 1 is identical in all nations and given by:

$$(4) \quad p_i^j = a - C_1^j, \quad j = H, P, R; \quad 0 < b < a$$

The supply and demand curves for good 2 and 3 are similar, but Partner has the comparative disadvantage in good 2 and RoW in good 3. The demand curves are identical for all goods.

As is well known, the utility function that generates this demand structure involves quasi-linear preferences (utility is separable and quadratic in consumption of each of the 3 goods). The model has a fourth untaxed good that is only introduced to formally eliminate Meade's tertiary effects (it is produced under constant returns using only labour and identical technology worldwide thus ensuring trade balance as long as parameters are such that all 3 nations produce some in all equilibriums, an assumption we maintain throughout).

We take labour as numeraire and choose units so that one unit of labour is needed to produce one unit of the fourth good. The supply curves are thus the marginal cost curves where marginal cost is, e.g. the wage 'w' times total output X for nations with a comparative advantage in the good in question. As usual, rising supply curves generate producer surplus which we take to be the reward to the implicit, scarce specific factor that is generating the diminishing returns.

As is well known, consumer surplus plus producer surplus plus tariff revenue is an exact measure of utility, assuming tariff revenue is returned lump sum to the workers/owners.

Box 5: The Walrasian RTA diagram model: equilibrium prices and welfare

The model described in Box 5 is a system of linear equations. The equilibrating variable is the internal price in the nation that imports the good (1, 2 or 3; the price of good 4 is always unity). Solving for typical good 1 when $T=0$, the equilibrium price for the typical good and the equilibrium welfare of a typical nation (Home) are:

$$(5) \quad p_1^{FT} = \frac{3a + b}{6}, \quad W_H^{FT} = \frac{9a^2 - 6ab + 5b^2}{12}$$

The equilibrium price is identical for goods 2 and 3; internal and border prices are equal.

When nations impose a symmetric MFN tariff T , we get the MFN equilibrium price, p_1^{MFN} , and when Home and Partner sign a bilateral FTA, we get the FTA equilibrium price p_1^{FTA} . Direct calculation shows these to be:

$$(6) \quad p_1^{MFN} = p_1^{FT} + \frac{2}{3}T; \quad p_1^{FTA} = p_1^{FT} + \frac{1}{3}T$$

The MFN price applies to all three goods, but the FTA price concerns only the liberalised goods (good 1 which Home imports from Partner and good 2 which Partner import from Home). Under the bilateral FTA,

the price of good 3 remains at the MFN level (additive separability and free trade in the 4th good eliminate all cross-good effects). The prohibitive MFN tariff is $T=1/2b$; we assume throughout that $T<1/2b$. The so-called optimal tariff (Nash tariff) is $T=1/8b$.

The welfare of a typical FTA partner, Home, under MFN tariffs and bilateral FTA are by the first two expressions in:

$$(7) \quad W_H^{MFN} = W_H^{FT} - \frac{2}{3}T, \quad W_H^{FTA} = W_H^{FT} + \frac{b}{9}T - T^2, \quad W_R^{FTA} = W_R^{FT} - \frac{5b}{9}T^2$$

The third expression gives the welfare of the excluded nation under the FTA.

The welfare levels of Home and RoW under the hub-and-spoke FTA arrangement are:

$$(8) \quad W_H^{H\&S} = W_H^{FT} + \frac{2b}{9}T + \frac{2}{9}T^2, \quad W_R^{H\&S} = W_R^{FT} - \frac{b}{9}T - \frac{7}{9}T^2$$

Comparing RoW welfare under free trade and H&S, we see the gain from moving to free trade is $=bT/9+7T^2/9>0$.

Box 6: Preferential liberalisation in the Brander-Krugman model

One set of stumbling/building bloc papers employ the Brander-Krugman model, i.e. Cournot oligopoly with segmented markets. As is well known, reciprocal dumping trade among all nations arise in this model for a wide range of parameters. This set up is useful since every nation sells to every other nation. Moreover, the Cournot oligopoly and market segmentation immediately give us Smith's certitude and Haberler's spillover. Interestingly, Viner's ambiguity does not arise in the simple symmetric version since the procompetitive effects of preferential liberalisation are always strong enough to outweigh any terms-of-trade losses for the integrating nations. One important drawback in this approach is the inability to distinguish between import-competing firms and export firms (they are the same firms).

On the demand side, the model is quite similar to the Walrasian model in Box 4. It has three nations (Home, Partner and RoW) and uses the same quasi-linear preferences with an untaxed numeraire to neutralise Meade's secondary and tertiary effects. The demand curves are identical to (4). Marginal costs are flat (set to zero without loss of generality, given the linear demands), there is one firm per nation, and firms play Cournot in all markets (assumed to be segmented).

Solving the Nash first order conditions, profits of a Home firm depend upon tariffs according to:

$$(9) \quad \pi_H = \frac{1}{16} \left((a + t_{PH} + t_{RH})^2 + (a + t_{RP} - 3t_{HP})^2 + (a + t_{PR} - 3t_{HR})^2 \right)$$

where the subscripts on the directional specific tariffs (the t 's) are "from, to" (e.g. t_{RP} is the tariff on the good shipped from RoW to Partner). The expressions for Partner and RoW profits are isomorphic. Equilibrium welfare of a typical nation – defined as the sum of consumer and producer surplus plus tariff revenue – depends upon the matrix of tariffs according to:

$$(10) \quad W_H = \frac{1}{32} \{ 15a^2 + t_{HP}(18t_{HP} - 12(a + t_{RP})) + t_{HR}(18t_{HR} - 12(a + t_{PR})) + t_{HR}(18t_{HR} - 12(a + t_{PR})) + t_{RP}(4a + 2t_{RP}) + t_{PR}(4a + 2t_{PR}) + t_{RH}(6a - 2t_{RH}) \}$$

Krishna (1998) uses profit at the government's objective function, while Freund (2000) uses welfare.

The value of Home profits under the three regimes – symmetric MFN tariffs ‘MFN’, FTA with Partner ‘FTA’, and hub-and-spoke FTA with Partner and RoW ‘HS’ – are:

$$(11) \quad \pi_H^{MFN} = \pi_H^{FT} + \frac{3t^2 - at}{4}, \quad \pi_H^{FTA} = \pi_H^{FT} + \frac{3t^2}{8}, \quad \pi_H^{HS} = \pi_H^{FT} + \frac{t^2 + 2at}{8}$$

where $\pi_H^{FT} = \frac{3a^2}{16}$. The corresponding expressions for Partner are the same for the MFN and FTA cases (by symmetry of nations), and RoW’s expression is also identical for the MFN case. The profits for the three remaining cases are:

$$(12) \quad \pi_P^{HS} = \pi_H^{FT} + \frac{5t^2 - 2at}{8}, \quad \pi_R^{FTA} = \pi_H^{FT} + \frac{11t^2 - 4at}{8}, \quad \pi_R^{HS} = \pi_H^{FT} + \frac{5t^2 - 2at}{8}$$

Appendix A: APPENDIX: DERIVATION OF THE WELFARE ORGANISING FRAMEWORK

Consider an economy with an infinitely lived representative agent with G sectors. Some sectors consist of differentiated products, and for these sectors we assume that all varieties produced in a single country are symmetric; the total number of varieties available in sector i is denoted as n_i , where $n_i=1$ for homogenous good sectors.

The consumer's intertemporally separable preferences are:

$$(13) \quad \int_{t=0}^{\infty} e^{-\rho t} V[p, n, E] dt$$

where $V[p,n,E]$ is the instantaneous indirect utility function (i.e., indirect utility function for a moment in time) where p and n are the vectors of consumer prices and the number of varieties in each sector, and E is total consumption expenditure.

Expenditure is home income less home savings, S , where income is the sum of home factor income, revenue from tariffs and other import barriers (assumed to be returned lump-sum to consumers) and pure profits, i.e.:

$$(14) \quad E = wL + rK + Tm + \Pi - S$$

where w and r , and L and K are the prices and stocks of home's labour force and capital stocks, m is the vector of sectoral trade (imports enter with a positive sign, exports with a negative sign), T is the vector of the specific-tariff equivalent of home-imposed DCR import barriers so Tm is trade rent term that includes tariff revenue (we ignore export taxes and subsidies), Π is pure profit and S is savings. Note that $T/p-p^*$, where p^* is the border price. The border price is what the country actually pays for imports and what it actually gets paid for exports. This price need not equal the world price in the case of frictional trade barriers, or quantitative restrictions where foreigners get the trade rents. The stock of labour L is assumed to be fixed, but the capital stock K is endogenous.

Pure profits are related to the vector of local prices, p , the vector of sectoral outputs, Q , and the vector of average costs, a , according to:

$$(15) \quad \Pi = (p - a)Q; \quad a_i[w, r, x_i] \equiv \frac{c_i[w, r, x_i]}{x_i}, \quad Q_i \equiv n_i x_i$$

where Q_i is a typical element of the sectoral output vector Q , a_i is a typical element in the vector of sectoral average costs a , defined as the total cost of a typical firm (recall that all domestic firms within a sector are assumed to be identical), $c_i[w, r, x_i]$, divided by typical firm output, x_i ; as usual, total cost is a function of w , r and firm output x .

Notice that pure profits are decomposed here. That is, Π is defined as if all goods in a particular sector were sold at the domestic (i.e. local) price, p . For perfect competition sectors and for sectors marked by Dixit-Stiglitz monopolistic competition, this does not matter since in both cases, firms charge the same producer price in all markets (perfectly competition firms never price discriminate across markets, and non-discrimination, i.e. mill pricing, is optimal under Dixit-Stiglitz competition). However, for oligopolistic sectors, producer prices can vary across markets. For such sectors, the profitability of such price discrimination shows up in the $(p - p^*)m$ term in the E definition. For example, suppose markets are segmented and there are costs to exporting, so a profit-maximising oligopolist would typically charge a lower producer price for exports (as in the Brander-Krugman reciprocal dumping model). Then the total profit of the firm would be $p^a q^a$ plus $p^b q^b$ minus $a[w, r, q^a + q^b](q^a + q^b)$, where the “a” indicates the producer price and quantity for local sales and “b” indicates the producer price and quantity for exports, but in notation of (15), the profit is $p^a(q^a + q^b) - a[w, r, q^a + q^b](q^a + q^b) + (p^b - p^a)q^b$ with the last term showing up in the trade rents term.

Calculations

Totally differentiating V and converting utils (which is the unit of measure in dV) into dollars by dividing through by the scalar V_E yields (the units of V_E are dollars per util):

$$(16) \quad \frac{dV}{V_E} = \left(\frac{V_p}{V_E}\right)dp + \frac{V_n}{V_E}dn + dE = -Cdp + \frac{V_n}{V_E}dn + dE$$

where V_p and V_n are vectors of partial derivatives. The second expression follows from the first using Roy's identity. To calculate dE , we totally differentiate the definition of E , (14), and use $T = p - p^*$ to get:

$$(17) \quad dE = Ldw + Kdr + rdK + (p - p^*)dm + mdp - mdp^* \\ + (p - a)dQ + Q(dp - da) - dS$$

Where $da = \{(c_w dw + c_r dr)/x\} + (c_r/x - c/x^2)dx$, and $\{\partial a/\partial x\} = \{(\partial c/\partial x)/x\} - \{c/x^2\}$, so:

$$(18) \quad Qda = \sum_i Q_i \frac{\partial c_i}{\partial w} \frac{dw}{x_i} + \sum_i Q_i \frac{\partial c_i}{\partial r} \frac{dr}{x_i} + \sum_i Q_i \frac{\partial a_i}{\partial x_i} dx_i \\ = Ldw + Kdr + \sum_i Q_i \frac{\partial a_i}{\partial x_i} dx_i$$

The second expression follows from the first by Shepard's lemma (e.g. $(\partial c_i/\partial w)$ equals the optimal labour demand for a typical firm and in equilibrium, the total demand for all firms in the economy must equal labour supply L).

Plugging (6) and (5) into (4) and using $-C \equiv -m - Q$ and defining $\partial a/\partial x = a_x$, the expression for home welfare changes simplifies to:

$$\begin{aligned}
(19) \quad dV/V_E &= (p - p^*)dm - mdp^* \\
&+ (p - a)dQ + Q(-a_x)dx + (V_n/V_E)dn \\
&+ rdK - dS
\end{aligned}$$

This expression is our organising framework.

Discussion

The first row shows effects that occur even when one ignores scale economies and imperfect competition; these are referred to NICNIR (no imperfect competition, no increasing returns), or Walrasian effects. As in the public finance literature, welfare effects in a Walrasian world stem from quantity changes times initial price wedges and price changes times net trades. We refer to the first as the trade volume effect and the second as the trade price effect (in certain special cases the border price effect is equivalent to terms of trade effects).

The second row shows the ICIR (imperfect competition and increasing returns) effects. That is, the effects that appear when we assume the economy is marked by scale economies and imperfect competition. The first effect is the production-rent effect (i.e. if there are pure profit in a sector, increase production in that sector tends to improve national welfare). In a common special case, it corresponds to the profit-shifting effect that is well known in the strategic trade policy literature. The second term is the scale effect ($-a_x$ is positive under scale economies – average cost falls as output increases. The third term includes two distinct effects, the well-known variety effect (i.e. an increase in the total number of varieties available tends to improve domestic welfare) and a location effect. The location effect concerns implications of whether a particular variety is produced locally or is imported. For example, when trade is costly, domestic welfare to be higher when a variety is produced domestically instead of abroad since this allows avoidance of the trade cost.

The third row constitutes the accumulation effects, i.e., the welfare implications of induced capital formation and the induced savings that is required. (Recall that with balanced trade and no trade in factors, savings must equal investment). Induced capital formation has two counteracting welfare effects. A higher capital stock raises income and thereby expenditure. This is reflected in the first term and it is the positive aspect of induced capital formation. However, induced capital formation means consumption must be foregone. This negative influence on the current flow of utility is captured by the second row-three term.

Accumulation effects concern the way in which trade policy can affect a nation's stock of productive resources. Typically, we focus only on the impact on a nation's human capital stock, physical capital stock and knowledge capital stock (i.e. level of technology), assuming away Malthusian effects. Since the accumulation of human, physical and knowledge growth is the source of all per capita output growth, many authors refer to accumulation effects as growth effects, or dynamic effects.

Interested readers can easily extend this framework to capture additional effects. Considerations, such as adjustment costs that drive a wedge between income and expenditure, enter as did dS . Factors that affect wealth - environmental damage or changes in the value of vintage capital - could be included by the full intertemporal indirect utility functions that include current wealth and/or putting environment variables - such as emissions - in the cost functions. Considerations of income distribution could be incorporated by using an indirect social welfare function that included a Gini coefficient. An X-inefficiency term could be

introduced into the cost functions. All sorts of price wedges could be inserted, and external economies could be introduced via the average cost function.

Box 7: Juggernaut effect maths

Using the basic Walrasian model from Box 4, we must add two elements: the political economy model of tariff choice, and free entry. Now the number of firms per nation and per industry can vary. The national supply curves, taking good 1 as an example, are:

$$(20) \quad p = b + X_1^H / n_H, \quad p = X_1^P / n_P, \quad p = X_1^R / n_R; \quad 0 < b$$

where the n_i 's are the number of symmetric firms in nation- i , and the prices refer to the prices actually faced by the various firms (with tariffs these will differ). The supply curves for goods 2 and 3 are isomorphic, except Partner has the comparative disadvantage in good 2 and RoW in good 3. Firm level operating profit is $(p-b)^2/2$ for Home firms and $(p)^2/2$ for Partner and RoW firms. Assuming entry costs are subject to congestion, the fixed entry cost in 'f' time n_i for nation- i , where $f > 0$ is a parameter, the free entry conditions under the MFN regime are:

$$(21) \quad \frac{(p-b)^2}{2} = n_H^2 f, \quad \frac{(p-T)^2}{2} = n_i^2 f; \quad i = P, R$$

and the free-entry costs under the FTA regime are similar.

The equilibrium prices under the MFN and FTA regimes are:

$$(22) \quad p_{MFN} = \frac{3a + T(2 + n_P + n_R) + bn_H}{3 + n_P + n_R + n_H}, \quad p_{FTA} = \frac{3a + T(1 + n_R) + bn_H}{3 + n_P + n_R + n_H}$$

Plugging (22) into the appropriate free-entry condition, we can solve for the FE-curve, i.e. the n 's as a function of the T . The MFN solutions are:

$$(23) \quad n_H^{MFN} = n_R^{MFN} - \frac{b-T}{f}, \quad n_P^{MFN} = n_R^{MFN}, \quad n_R^{MFN} = \frac{1}{3} + \frac{\sqrt{289 + 400T - 800T^2}}{6} - \frac{10T}{3}$$

where the last expression takes numerical values for a , b and f to reduce the clutter (there is an analytic solution but it is too cumbersome to be revealing); specifically this takes $a=1$, $b=1/4$ and $f=1/10$. For the FTA regime, the n 's as functions of the T 's are:

$$(24) \quad n_H^{FTA} = n_R^{FTA} - \frac{b-T}{f}, \quad n_P^{FTA} = n_R^{FTA} + \frac{T}{f}, \quad n_R^{FTA} = \frac{3}{4} + \frac{\sqrt{921 + 1200T - 3200T^2}}{12} - \frac{10T}{3}$$

Notice that since n_R is lower in the FTA than in the MFN regime (RoW firms face a lower border price under the FTA), the size of the Home import-competing sector is smaller with the FTA.

The political economy model of tariff choice is based on a politically realistic objective function where consumer surplus, the various producer surpluses (import-competing and exporting sectors' profit net of fixed costs) and tariff revenue are weighted by coefficients that are exogenously determined by the nation's political system. To keep things simple, we take the weight to be unity on everything except the import-competing sector's producer surplus, so the Home government's objective function is:

$$G = \alpha\pi_M + CS + TR + \pi_X$$

where the π 's are producer surplus in the import-competing sector (M) and export sectors (X) respectively, CS is consumer surplus and TR is tariff revenue. The first three terms always depend upon T, while the fourth term is a function of T only under reciprocity. Thus:

$$(25) \quad \begin{aligned} G_{unil} &= \alpha\pi_M [T; \bar{n}] + CS[T; \bar{n}] + TR[T; \bar{n}] + \pi_X [\bar{n}] \\ G_{MFN} &= \alpha\pi_M [T; \bar{n}] + CS[T; \bar{n}] + TR[T; \bar{n}] + \pi_X [T; \bar{n}] \end{aligned}$$

Here we impose a very simple version of reciprocity in MTN talks; the foreign tariffs, T_P and T_R , equal the Home tariff T. Under the FTA regime, we set the Home-Partner T's to zero exogenously. The building/stumbling bloc issues then turns on whether the Home government finds it optimal to choose a higher or lower T – under reciprocity – after the FTA has been implemented. The first order conditions of these two objective functions are the $GFOC_{unil}$ and $GFOC_{MFN}$ in the diagram; these show how the politically optimal tariff depends upon the vector of n's, \bar{n} .

Using the solutions for the n's from the FE conditions in the GFOC conditions, we can see what T would be chosen under the three scenarios: unilateral tariff setting, MFN tariff setting with reciprocity without an FTA between Home and Partner, and MFN tariff setting with reciprocity but with the FTA. An analytic solution for the T is available, but since it is the solution to a system of quadratic equations, it is too unwieldy for building understanding. If we use the numerical values for a, b and f as above, and take the political overweight of import-competing profits, α , to be two, we get:

$$T_{unil} = 0.09, \quad T_{MFN(recip)} = 0.06, \quad T_{FTA(recip)} = 0.005$$

This demonstrates the juggernaut building bloc formally. Intuitively, the FTA downsizes the overweighted import-competing profits and this in turn makes the Home government find it political optimal to set a lower tariff in reciprocal trade talks. For details of the calculations, see the Maple worksheet *JuggerBuildingBloc.ms*.

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