

Trade Policy Instruments over Time

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Abstract

This paper surveys political-economic research on the variety of instruments that governments use to conduct international trade policy. It presents key insights on the relationships between instruments such as tariffs, quotas, voluntary export restraints, and other nontariff barriers, as well as the ebb and flow of the national use of temporary trade barriers such as antidumping, countervailing duties, and safeguards. The survey examines trends in use of these trade policy instruments over recent history; and it reviews the major theoretical

and empirical explanations behind, and interrelationships between, their uses. Finally, the paper highlights potential institutional impacts of the General Agreement on Tariffs and Trade (GATT) and subsequent World Trade Organization (WTO) on choice of policy instruments, as well as how multilateral, unilateral, and preferential tariff liberalization may introduce political-economic shocks and affect incentives over time for how governments rely on different instruments.

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INTRODUCTION

Over the course of history, governments have applied import protection through many different policy instruments. One extreme features an instrument that is widespread, simple, and relatively transparent: most customs authorities currently apply a nondiscriminatory, ad valorem import tariff. Heading toward the other extreme are dozens if not hundreds of eclectic examples of instruments that are more complex, less transparent, and which frequently entail additional political-economic distortions. Consider the experience of only one industry in only one country – U.S. steel – even since the 1960s. While being protected by applied, nondiscriminatory, ad valorem import tariffs, U.S. steel has also featured quotas, minimum price arrangements, voluntary export restraints, antidumping, countervailing duties, suspension agreements, preferential tariffs to NAFTA and other partners, import licenses and monitoring, safeguards, expanded trade adjustment assistance, and local content requirements.

That import protection arises through such a number of different instruments raises fundamental questions for political-economic research. Are there apparent trends in the use and non-use of particular import protection instruments? Furthermore, what are the political-economic and institutional determinants of, interrelationships between, and implications for, government use of these different instruments?

The next section begins by examining historical trends for a number of import protection instruments. Perhaps the most pervasive trend across the international trading system since 1947 has been the reduction in applied tariffs and opening of economies to international commerce. Nevertheless, it is worth recalling *The New York Times* analogy that Robert E. Baldwin made famous at the conclusion of the Kennedy Round through its inclusion in his comprehensive economic analyses of nontariff protection, "[t]he lowering of tariffs has, in effect, been like draining a swamp. The lower water level has revealed all the snags and stumps of non-tariff barriers that still have to be cleared away" (1970, 2).

While individual nations may have drained their swamps by lowering applied tariffs, the more complete story of import protection admits to substantial heterogeneity. Sometimes these low applied tariffs have not been accompanied by the legal commitments that 'bind' them under the World Trade

Organization (WTO). Sometimes the low applied tariffs are not offered to all trading partners but are instead offered only on a discriminatory basis through regional, bilateral, or preferential regimes. Sometimes a low applied tariff on a particular product is then more than offset by application of a new and higher tax through antidumping, safeguards, or countervailing duties. Sometimes even more innovative, non-transparent, and complex nontariff barriers have fallen into use.

These trends suggest complexities between tariff and nontariff protection that push beyond even Baldwin's substantial foresight of the 1960s. Draining the swamp of tariff protection may have done more than just reveal the existence of previously unobserved nontariff protection. It may have stimulated *growth* in levels of old and new forms of nontariff protection. It may have also resulted in an altered political-economic ecosystem in which governments conduct trade policy.

Section 3 reviews some of the theories that guide the literature on import protection as well as the implications for the relationship between tariff and nontariff protection. These theories draw from both economic efficiency and redistributive motives for trade policy; many are also informed by the evolution of the multilateral trading system from the start-up of the General Agreement on Tariffs and Trade (GATT) through the WTO period that began in 1995.

The fourth section turns to major areas of empirical study in light of this theory. Econometric research has begun to shed new insight into the determinants of government application of import tariffs, as well as the forces that influence their negotiated reduction under international trade agreements. An emerging literature also explores empirically how trade agreement commitments, as well as political-economic shocks and incentives, jointly affect government resort to *other* instruments of import protection.

Finally, section 5 touches on recent and promising research innovations, and the last section concludes by considering open questions and future research.

2. INSTITUTIONS AND TRENDS IN POLICY INSTRUMENTS

This section describes key institutional developments and trends in use of tariff and nontariff instruments of import protection since the 1940s.

2.1 Institutional influences under the GATT/WTO system

Before the advent of the multilateral trading system in its current form, tariff and nontariff barriers were very high. The U.S. Smoot-Hawley tariffs of 1930 and the subsequent retaliatory response by the international community led to an accumulation of various instruments of protection that impeded the worldwide resumption of trade in the aftermath of the Great Depression. Irwin, Mavroidis, and Sykes (2008) provide a fascinating account of the political-economic negotiations that led to the GATT's arrival in 1947, signed by 23 Contracting Parties, which includes in its preamble:

“Recognizing that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, developing the full use of the resources of the world and expanding the production and exchange of goods,

Being desirous of contributing to these objectives by entering into reciprocal and mutually advantageous arrangements directed to the substantial *reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce...*” (GATT 1947, emphasis added.)

The broad strategy for those working within the GATT system at its inception was twofold.¹ First, get countries to convert their quantitative restrictions and other nontariff barriers into nondiscriminatory, or most-favored-nation (MFN), tariff form. Then, get the GATT Contracting Parties together in periodic negotiating rounds to reciprocally exchange concessions to lower these applied tariffs and legally ‘bind’ those tariffs to prevent them from increasing. For the more industrialized economies, the result was a general downward trend in applied import tariff rates and binding levels over the next 50 years. For developing countries – when they ultimately became GATT Contracting Parties – the import tariff story evolved differently. Most self-selected out of the reciprocal, multilateral negotiations framework for reducing MFN tariffs. Instead, developing country reductions to applied tariffs typically occurred much later and frequently resulted from a unilateral liberalization that took place independently or in conjunction with preferential trade liberalization. Furthermore, most developing countries have not immediately ‘locked in’ those tariffs by making legally binding commitments at the similarly low rates at which their MFN tariffs have actually been applied.

While the GATT framework attempted to cajole import protection toward the instrument of applied MFN tariffs, the 1947 Agreement also contained a variety of exceptions spelling out conditions under which governments could subsequently resort to *other* instruments of protection. For example, while the GATT’s Article XI contained a general prohibition on use of quantitative restrictions, Article XII permitted governments to use quotas to address balance of payments problems. While the GATT did not allow governments to simply raise their applied MFN import tariffs unilaterally without notice, Article VI (antidumping and countervailing duties) and Article XIX (safeguards) permitted governments to impose higher duties in response to certain economic shocks, provided they went through particular

¹ Important treatments of the evolution of the trading system under the GATT and WTO include Hoekman and Kostecki (2009) as well as Barton, Goldstein, Josling, and Steinberg (2006). Furthermore, Dam (1970), Hudec (1990), and Jackson (1997) are seminal and accessible studies from the perspective of international law. Gowa (1994) provides a comparison of postwar trade developments under the GATT to political-military trends under NATO. See also Gowa (Forthcoming).

procedural steps.² Finally, while the GATT's Article I demanded participants offer nondiscriminatory MFN tariffs to all other Contracting Parties, Article XXIV provided a fundamental exception by allowing formation of (preferential) free trade agreements and customs unions.³

2.2 Important trends in use of different policy instruments

Beginning from nearly autarky during the Great Depression, applied MFN import tariff rates have fallen considerably across countries over time. And while they may have fallen during different periods and for different reasons, the resulting simple average of applied MFN tariffs by 2010, for example, was extraordinarily low for a number of major economies: 3.5 percent for the United States, 4.4 percent for Japan, 5.1 percent for the European Union, 9.6 percent for China, 13.0 percent for India, and 13.7 percent for Brazil (WTO, 2011).

The remainder of this subsection describes three other important trade policy instruments of the GATT/WTO era: temporary trade barrier policies, voluntary export restraints, and preferential trade agreements.

Policies such as antidumping, safeguards, and countervailing (anti-subsidy) duties constitute one major class of nontariff protection to have taken on greater significance in an environment characterized

² The GATT's Article XXVIII also allows Contracting Parties to renegotiate their MFN tariff commitments so long as they compensate adversely affected trading partners. Antidumping requires evidence of injury to domestic competitors of a like product caused by dumped (low priced) imports. Countervailing duties require evidence of injury caused by subsidized imports. Safeguards require evidence of injury caused by an unexpected surge in imports. Mavroidis, Messerlin and Wauters (2008) provide a legal-economic introduction to these import protection instruments.

³ There are other important GATT exceptions to Article I that allow for discriminatory treatment. A GATT waiver initially permitted Contracting Parties to offer tariff preferences to developing countries before this was formalized in 1979 by the 'Enabling Clause.' Governments can also apply antidumping and countervailing duties on a discriminatory basis.

by low and legally bound applied MFN tariffs. These policies are often jointly referred to as trade remedies, contingent or administered protection, trade defense instruments, or *temporary trade barriers* – the latter stemming from the fact that WTO rules identify maximum specific periods over which these policies are permitted to remain in effect. Antidumping has been the most frequently used of these instruments; the first antidumping law pre-dates the GATT and was enacted by Canada in 1904. Australia, Canada, the European Union, and the United States dominated global use of antidumping until the early 1990s.

Many major emerging economies became important users of antidumping and other temporary trade barriers beginning in the 1990s (Bown, 2011). As Table 1 reveals, while the United States and European Union continued to have periods in which a significant share of their imports were covered by such import restrictions, comparable and sometimes higher levels of import coverage under these nontariff instruments arose, seemingly out of nowhere, for countries like Argentina, Brazil, China, India, Mexico, and Turkey. Most emerging economies had virtually no experience using these particular instruments before each underwent its own major episode of tariff liberalization in the late 1980s or 1990s.

Voluntary export restraints (VERs) are a second nontariff instrument that experienced a period of proliferation; most of this occurred prior to the more recent turn to temporary trade barriers. VERs work like an import quota but with one important twist: because the exporters voluntarily agree to restrict their quantities of foreign sales, the exporting country gets the ‘rents’ associated with the consumer price increase above its free trade level. While the economic outcome for exporters is typically not as good as free trade, it is frequently better than under a comparably trade-restricting import tariff or import quota.

At least two related factors took hold in the 1960s that contributed to the proliferation of VERs. The first factor was Japan’s GATT entry in 1955 and the integration of its export-led growth model into the trading system. Increased Japanese exports of textiles and related products put adjustment pressure on import-competing industries across many countries, including a number of industrialized economies. Between Japan’s GATT accession in 1955 and 1970, roughly 50 GATT Contracting Parties invoked their

Article XXXV rights not to apply MFN tariffs to Japan's exports; many imposed country-specific quotas. The United States, on the other hand, sought to negotiate VERs with Japan. The second factor was pragmatism. In an environment in which governments were committed to imposing some new import protection, VERs were more palatable to exporters than import quotas or tariffs; for with a VER the exporter at least received the rents associated with the trade restriction.⁴

The proliferation of VERs was ultimately headlined by the Multi-Fiber Arrangement (MFA) – a system of VERs and quantitative restrictions that governed global trade in textile and apparel products for 30 years before its eventual phase-out in 2005. A number of other prominent examples of U.S.-Japan VERs continued to arise through the 1980s including in footwear, semiconductors, automobiles, steel, photo paper, and chemicals. In fact, an explicit outcome of the Uruguay Round of GATT negotiations was attempts to reign in VERs; the more recent increase in temporary trade barrier use may be partially related to VERs falling out of favor by the late 1980s.⁵

A third important trend is that applied import tariffs for a number of countries have also fallen *preferentially*, through two main instruments, for a number of countries since 1947.⁶ The first are

⁴ Baldwin (1970, 30-46) also highlights the frequency with which quotas were used during this period in areas unrelated to Japan's GATT entry. While many of the quotas that had been imposed as Article XXII (balance of payments) exceptions after the Second World War were phased out by the mid-1960s, industrial economy quotas continued to affect coal, petroleum, and agricultural products. Furthermore, Baldwin finds that 40 industries were covered by quota bills introduced in the U.S. Congress in the fall of 1968 alone.

⁵ The 1995 WTO Agreement on Safeguards prohibits VERs as the outcome of investigations. Paradoxically, the WTO's Agreement on Antidumping *encourages* investigations be resolved by exporters voluntarily agreeing to 'price undertakings.' VERs have thus not completely disappeared: in 2005, the EU, U.S. and China negotiated VERs to address China's export surge around the timing of the expiration of the MFA; in 2013, VERs were considered as a potential solution to address China's large exports of solar panels.

⁶ Mansfield and Milner (1999) provide a more comprehensive review of the regionalism phenomenon; Hoekman and Ozden (2007) survey the literature on foreign preference regimes facing exporters in developing countries.

preference regimes offered to developing countries under programs such as the Generalized System of Preferences, Everything But Arms, and African Growth and Opportunity Act. The second are free trade areas (FTAs) and customs unions; important examples include the European Union, the North American Free Trade Agreement (NAFTA), and MERCOSUR, which involves Argentina, Brazil, Paraguay and Uruguay. Under both categories of arrangements, not only did applied rates fall to different levels for preferential versus MFN tariffs, but the tariff reductions frequently took place during different time periods.

To summarize, the major inter-temporal movements in the rates of import protection under these different policy instruments – e.g., applied MFN tariffs, preferential tariffs, VERs, antidumping, safeguards, and countervailing duties – suggest common political-economic determinants. The remainder of this paper highlights formal research examining these questions.

3. THEORETICAL STUDIES

Before turning to the determinants of import protection *instruments*, an examination of two more fundamental questions is in order. First, why do governments impose import-restricting policies at all? Second, why do governments voluntarily commit to limit their access to certain import-restricting policy instruments by signing trade agreements? Once informed by frameworks that address these questions, this section then turns to the implications of these trade agreement commitments (covering tariffs) for government use of other instruments of import protection.

3.1 Theories of import restrictions: Tariffs and everything else

Research has coalesced around two main government motives to explain policies that interfere with free trade. The first motive is economic efficiency. If the country is ‘large’ – so that a shift to its consumption or supply of a product leads to changes in world (or the foreign exporter’s received) prices – the government can use trade policy to shift the terms of trade in its country’s favor and improve national wellbeing relative to free trade (Johnson, 1953-54).

The second motive is redistributive. Even if the country is ‘small’ – so that changes to its trade policy do not affect world prices, thus ruling out the terms-of-trade motive by assumption – governments may want to impose a ‘politically optimal’ import tariff if its benefits are greater than the costs. The economic costs of protection are well known; they include the deadweight losses associated with too little domestic consumption and too much induced production by relatively inefficient domestic industries. However, in political-economy models of import protection, political benefits can overcome such costs. For example, in the Grossman and Helpman (1994) workhorse, political-economy model of lobbying for protection, the benefits arising from tariffs can outweigh their efficiency costs if governments value campaign contributions in addition to the economic wellbeing of producers and consumers.

A longstanding literature has evolved that compares the political-economic implications of different instruments of import-protection. Import tariffs are generally inefficient for small countries relative to free trade; furthermore, import tariffs are inefficient relative to outcomes whereby governments use domestic policy instruments (taxes, subsidies) to address particular market failures in ways that do not create by-product distortions.⁷ Nevertheless, conditional on an outcome whereby a government is committed to imposing *some* form of import protection, a nondiscriminatory ad valorem tariff is typically the least inefficient instrument.⁸ To provide one illustrative example, consider a nontariff alternative such as a quantitative restriction, an instrument that theoretically can be structured so as to be exactly as trade-distorting as an import tax. Because quotas also require the government to undertake a separate and discretionary decision for how to allocate the licenses, additional opportunities for wasteful rent-seeking (Krueger, 1974) can arise in addition to the potential for discrimination between foreign sources.

⁷ There are numerous ‘second-best’ motives for import protection to improve economic wellbeing when more appropriate domestic policy instruments are unavailable. See the seminal work of Bhagwati and Ramaswami (1963).

⁸ Ad valorem tariffs are frequently preferred to specific tariffs because the restrictiveness of the latter depends also on price levels. For the specific duties found in the U.S. Smoot-Hawley tariffs, for example, Irwin (1998a) shows how the deflation of the early 1930s increased their trade restrictiveness, while Irwin (1998b) attributes more of the 1940s trade liberalization to the period’s import price inflation than resulting from trade policy negotiations.

3.2 Large countries, import protection, and trade agreements

Why do large countries sign trade agreements, and what are the implications? To begin, consider a world without trade agreements in which rational governments thus set optimal (Nash) import tariffs so as to maximize their country's economic wellbeing.

One strain of the literature suggests governments of large countries find trade agreements efficiency-improving if the agreement helps coordinate their and another large country's trade policies so as to avoid a prisoner's dilemma outcome (Bagwell and Staiger 1999, 2002). For import tariffs, the trade agreement is needed because neither country has an incentive to lower its tariff *unilaterally*; a unilateral reduction for a large country starting from its optimal tariff would lead to an increase in the world price of its imported good, which would make it worse off. Interestingly, the GATT/WTO principle of reciprocity can be interpreted as facilitating a negotiated outcome whereby one country trades off a reduction to its import tariffs (affecting a foreign trading partner's exports) against a reduction to the foreign country's import tariffs (affecting the home country's exports). The trade agreement's *coordinated* reduction of import tariffs improves each country's economic wellbeing by expanding the total volume of trade while *neutralizing* what would otherwise be an adverse impact on each country's terms of trade, defined as each country's price of exports relative to its price of imports.

One acknowledged limitation of this approach is its abstraction from the complexities of *enforcement* – a particularly acute issue in the context of trade agreements between sovereign states. Thus a related literature examines the self-enforcing nature of trade agreements between large countries. Bagwell and Staiger (1990), for example, examine a repeated game played between governments in which each stage is a prisoner's dilemma and there is uncertainty over trade volumes. A trade agreement is modeled as the most liberal or 'cooperative' trade policy that can be supported without either government having an incentive to 'defect' by imposing its unilaterally optimal (non-cooperative) tariff. This approach reveals that governments may need to increase their equilibrium levels of import protection in order to maintain cooperation in response to import surges, because those surges create a new and strong incentive for the government to defect by raising its tariff because it would improve its nation's

economic wellbeing. However, an implication for countries that have taken on commitments to lower and bind their applied MFN tariffs at the WTO is that the government may need to switch to some other policy instrument to increase protection if it hopes to remain consistent with its basic WTO obligations.

To summarize, large countries have a unilateral incentive to impose beggar-thy-neighbor import protection policies that improve their economic wellbeing by shifting some of the protection's costs onto trading partners. Trade agreements can thus be used to help two or more such large countries coordinate the import tariff reductions that each would not undertake unilaterally. Nevertheless, trade agreements that constrain national use of tariffs come with their own caveats. In particular, a cooperative trade agreement on tariff commitments may be unsustainable in an environment characterized by trade flow volatility if the agreement does not provide governments with the flexibility to sometimes access additional import protection.⁹

3.3 Small countries, import protection, and trade agreements

A second strain of the literature examines the case of 'small' countries that do not have (national) economic efficiency motives to impose tariffs, and yet which may do so for redistributive purposes. This literature posits trade agreements may play a 'commitment' role for governments to tie their own hands with respect to their private sectors.

Take the classic Grossman and Helpman (1994) political-economy model of a small country. Here the government would not want to sign a trade agreement that would tie its hands and constrain its tariffs because this would foreclose its ability to extract rents from domestic producers through their lobbying activities and campaign contributions. However, Maggi and Rodríguez-Clare (1998) relax the model's assumption on capital immobility and allow factors to be mobile across sectors in the long-run in order to show that the expectation of import protection can lead unproductive industries to make

⁹ Rosendorff and Milner (2001) provide a related approach that abstracts from a number of the economic market issues and predictions highlighted in Bagwell and Staiger (1990).

excessive investment that even a politically motivated government would prefer to avoid. A trade agreement that *commits* the government to impose lower tariffs in the long run can therefore help prevent excessive lobbying for import protection.¹⁰

There are, however, potential costs for politically-motivated governments that seek to sign trade agreements to constrain their use of tariffs, especially when other instruments of protection are available. Copeland (1990), for example, develops a two-staged game in which governments can first negotiate cooperatively over tariffs and then implement nontariff protection non-cooperatively in the second stage. If governments are politically-motivated and place a high value on the interests of producers, trade agreements that eliminate tariffs can lead governments to substitute policy toward more economically costly forms of nontariff protection in the second stage so that consumers are made worse off.

Overall, this literature identifies a number of tradeoffs associated with trade agreements, even for small countries. Politically-motivated governments may use trade agreements as a commitment device to help prevent their own excessive application of import tariffs. However, trade agreements with loopholes that make it too costless to replace (once high) applied tariffs with protection through another instrument can undermine the agreement's commitment value. Furthermore, agreements that constrain tariffs too much may risk pushing import protection into nontariff instruments that may be even more distorting.

4. EMPIRICAL STUDIES

This section turns to the major empirical studies of import protection. It follows a similar organizational structure that first identifies empirical support for the determinants of import tariffs and the role of trade

¹⁰ Maggi and Rodríguez-Clare (2007) construct a 'large' country version of the model to illustrate how the key commitment insights are affected by governments that also have terms-of-trade motivations. Staiger and Tabellini (1987) present a related modeling approach for a small country that is concerned with the time inconsistency problem of trade policy announcements in the presence of discretionary policy.

agreements. The analysis then builds from these results in order to assess their implications for alternative instruments of import protection.

4.1 Evidence on import tariff formation before and after the signing of trade agreements

The first foundational piece from the empirical literature examines why countries impose tariffs in the *absence* of international trade agreements. Broda, Limão, and Weinstein (2008) provide evidence from disaggregated data and export supply elasticities in line with the terms-of-trade theory: governments impose higher import tariffs where they have greater market power. Evidence on the determinants of these optimal tariffs is supported via four different empirical exercises. First is evidence for the applied import tariffs for 15 *nonmembers* of the WTO. The second and third are evidence from the United States for its ‘column 2’ tariffs (which apply to countries not granted MFN status) and for measures of its nontariff protection. Fourth is the *lack* of statistical evidence for the U.S. applied MFN tariff rates. This meets the expectation that U.S. applied tariffs would be statistically unrelated to the theoretically-predicted optimal tariff because these tariffs have been continually reduced after being subjected to successive GATT/WTO negotiating rounds.

A second set of studies provide evidence that the terms-of-trade theory can help understand the tariff *cuts* that countries take on under trade agreements like the WTO. Bagwell and Staiger (2011), for example, examine determinants of the one-time tariff cuts for 16 countries that acceded to the WTO between 1995 and 2005. The evidence indicates that negotiated tariff levels are related to pre-negotiation levels of tariffs, import volumes, import prices, and trade elasticities. Furthermore, Ludema and Mayda (Forthcoming) examine the Uruguay Round negotiations and the resulting MFN tariffs for 36 developing and high income economies, including Australia, Canada, European Union, Japan, South Korea, and the United States. Evidence suggests that the level of the negotiated import tariff is also negatively related to the importer’s market power and the Herfindahl-Hirschman index of exporter concentration. The free-rider problem of dispersed export interests can help explain why some products – such as agriculture,

prepared food, textiles, and footwear – have experienced much smaller reductions to their applied MFN tariffs under multiple rounds of multilateral negotiations than more concentrated export interests.

The main insights from this empirical literature are twofold. First, in the absence of trade agreements, governments impose higher tariffs where they have market power. Second, these and related economic forces affect the negotiation outcomes for WTO member countries and thus implicitly also affect the size of their remaining (‘politically optimal’) applied MFN import tariffs.

4.2 The decline in applied tariffs and the rise in other instruments of nontariff protection

Now armed with a better understanding of the political-economic forces behind the different import tariffs that countries apply in the absence of trade agreements and when they are party to the GATT/WTO, this subsection turns to research on the implications of trade agreements for other instruments of import protection.

The fundamental result that applied import tariff reductions resulting from GATT/WTO negotiations are at least partially responsible for the levels and patterns of nontariff protection is implicit, if not explicit, in much of the rest of the literature.¹¹ In the influential empirical studies of the Grossman and Helpman (1994) theory of the political-economy of import protection, both Goldberg and Maggi (1999) as well as Gawande and Bandyopadhyay (2000) do not use data on applied U.S. import tariff rates. Instead, they estimate structural determinants of measures of U.S. *nontariff* protection.

Other approaches attempt to more directly examine implications of the terms-of-trade theory for countries that have taken on MFN tariff commitments under the WTO and which must then use alternative policy instruments to increase their levels of import protection. For example, Bown and

¹¹ Much of the research described here was also informed by Trefler’s (1993) critique of the existing state of the empirical literature on the political-economic determinants of import protection. Trefler identified the importance of this endogeneity for *empirical* estimates of the formation of trade policy; his application to U.S. data in 1983 estimated that treating trade policy as exogenous under-estimated its *actual* impact on trade flows by a factor of ten.

Crowley (2013a) construct measures of nontariff protection from U.S. application of antidumping and safeguards over 1997-2006 in order to investigate the repeated game model of Bagwell and Staiger (1990). Evidence is consistent with the theory that countries in self-enforcing trade agreements increase their levels of import protection in response to positive trade volume shocks, with variation arising according to industry-level trade elasticities. Market power may thus still affect the *levels* of import protection that governments impose, even when applied MFN import tariffs are constrained by trade agreement commitments, provided that measures of import protection reflect the influence of the appropriate additional nontariff instruments.

Studies on different countries and time periods examine other aspects of the relationship between tariff and nontariff protection. Limão and Tovar (2011) examine Turkey's experience during the 1990s period in which it Turkey signed a customs union arrangement with the European Union and it legally bound some of its tariffs under the WTO. Evidence suggests that Turkey's tariff commitments increased the likelihood and restrictiveness of its government's subsequent use of nontariff instruments of import protection.

Another interesting case study is India, which made massive cuts to its applied MFN import tariffs in the 1990s and subsequently became the trading system's heaviest user of the antidumping and safeguards. Bown and Tovar (2011) estimate structural determinants of the Grossman and Helpman (1994) political economy model of protection on repeated cross-sections of Indian data – before and after India's unilateral applied MFN import tariff rate cuts associated with its 1991–1992 standby arrangement with the IMF. Changes to India's applied MFN tariffs during this period appear to have resulted in an exogenous, trade-liberalizing shock to India's trade policy. Nevertheless, by 2002, India had unwound much of the applied MFN tariff reductions of the 1990s by accumulating a substantial stock of imposed antidumping and safeguards nontariff restrictions.

Finally, a number of studies provide cross-country evidence that an important determinant of import protection through 'new' policies such as temporary trade barriers is the commitment that governments take on that limit their access to 'old' instruments of protection. For example, combined

evidence from Bown and Crowley (2013b, 2013c) for 18 high income and emerging economies over 1989-2010 finds that as more products' applied MFN tariffs push up against the trade agreement constraints of WTO tariff binding commitments, governments implement new import protection by turning to instruments like temporary trade barriers.

4.3 Preferential tariff reductions and multilateral tariff reductions

A separate stream of research examines potential interrelationships between a government's preferential tariffs and its MFN tariffs offered under the WTO. These empirical studies have begun to inform understanding on whether and when preferential trade agreements can be 'building blocks' versus 'stumbling blocks' for multilateral cooperation in trade policy (Bhagwati, 1991). This has been an open empirical question given the conflicting results that arise from the theoretical literature.¹²

The first major empirical study to examine this question used product-level data from the United States (Limão, 2006). It considered the impact of U.S. preferential trade agreements (PTAs) on the multilaterally negotiated MFN tariff cuts that the United States subsequently made under the Uruguay Round. Evidence suggests a stumbling block effect: i.e., U.S. multilateral tariff reductions were smaller for products imported under its PTAs relative to similar products imported only from PTA nonmembers. In a follow-up study of the European Union, Karacaovali and Limão (2008) provide related evidence indicating this stumbling block effect is not limited to just the United States and its PTAs. Their evidence indicates the EU reduced its multilateral tariffs on goods not imported under FTAs by almost twice as much as the tariffs imported under its PTAs.

Because the spread of PTAs is so pervasive, there are many opportunities to investigate the extent to which the stumbling block phenomenon extends to other settings. In one important study,

¹² One fundamental economic efficiency concern arising from preferential tariffs is the trade diversion identified initially by Viner (1950). For excellent surveys of the theoretical literature on the incentives that can arise under preferential versus multilateral liberalization, see Freund and Ornelas (2010) and Panagariya (2000).

Estevadeordal, Freund, and Ornelas (2008) reach the opposite conclusion after examining the experience of ten Latin American countries in the 1990s. For these Latin American countries, the preferential reductions in applied tariffs were, on average, subsequently followed by governments making applied MFN tariff *reductions*. In this context, Latin American PTAs were found to be a building block to future multilateral tariff liberalization.

Can theory help explain the difference in these results across empirical settings, and whether any particular PTA is likely to hinder or promote subsequent multilateral trade liberalization?¹³ Part of the explanation for the stumbling block evidence may be the importance of non-trade objectives particular to the U.S. and EU PTAs. Limão (2007), for example, provides a theoretical motivation that the U.S. and EU need to maintain preferences with certain partners in order to compensate for their commitments to higher labor and environmental standards and intellectual property rights protection.

Furthermore, Estevadeordal, Freund, and Ornelas (2008) note an important difference arising in the context of the Latin American countries' liberalization episodes. Unlike the U.S. and EU cases, the Latin American PTA negotiations would have resulted in a given product's 'preference margin' – defined as the difference between its applied MFN tariff and its PTA tariff – as being quite large. Large preference margins present the opportunity for substantial economic efficiency costs to arise through trade diversion (Viner, 1950). One explanation is that Latin American governments were cognizant of this concern and thus minimized the potential negative PTA impact and deliberately reduced preference margins by also cutting their MFN tariffs toward PTA nonmembers.

¹³ A related question is the extent to which multilateral liberalization affects subsequent efforts at preferential liberalization. On one hand, when focusing on tariffs alone, full multilateral liberalization over tariffs would obviate the need for additional (redundant) preferential tariff reductions. Mansfield and Reinhardt (2003) argue that impediments to further multilateral liberalization may push members to pursue PTAs instead.

4.4 Additional influences on import protection: Retaliation capacity and WTO dispute jurisprudence

Because trade policy is a repeated game played between sovereign states, the expected trading partner *reaction* to a new import restriction is also likely to endogenously affect how countries implement import protection in the first place. Historical evidence from the Great Depression has long established expectations that retaliation can have important effects; e.g., Irwin (2011) argues that the trading partner retaliation to the U.S. Smoot-Hawley tariff in 1930 severely curtailed U.S. exports.

Research on more recently implemented policies shows how the latent threat of meaningful foreign trade retaliation is also likely to affect the channels through which import protection arises *ex ante*. Blonigen and Bown (2003) use the setting of industry applications for U.S. antidumping to illustrate how the presence of this tailor-made – i.e., product-specific and trading partner-specific – instrument presents opportunities for import protection to be funneled toward certain countries and/or industries that lack the capacity to retaliate. Similarly, Bown (2004) provides cross-country evidence to argue that the incentives inherent in the multilateral system’s formal dispute settlement procedures affected government choices of whether to implement protection through GATT-consistent instruments during 1973-1994.

Finally, the WTO’s dispute settlement system is also likely to influence the instruments of import protection that member governments apply through means other than its ability to authorize retaliation.¹⁴ Sykes (2003), for example, identifies problems stemming from Panel and Appellate Body decisions resulting from legal challenges to national use of import restrictions under the WTO’s Agreement on Safeguards. Not only did these WTO rulings strike down virtually all challenged instances in which governments had applied this nontariff instrument, but the resulting jurisprudence failed to provide

¹⁴ Surveys of the empirical literature on GATT/WTO dispute settlement include Busch and Reinhardt (2002), Busch and Pelc (Forthcoming) and Bown (2009, chapter 4); the latter includes a discussion of the potential for GATT/WTO disputes to affect the endogenous formation of trade policy and thus choice of instruments of import protection.

policymakers with useful guidance for how to actually apply a safeguard in a WTO-consistent manner.¹⁵ In a trading system where governments have access to relatively substitutable instruments of import protection, discouraging the use of safeguards in isolation may not lead to less protection overall. While such rulings may help explain the decline in safeguard use, they may also help explain the steady increase in use of antidumping.

5. NEW APPROACHES

Notwithstanding the additional questions raised by the burgeoning empirical literature on the determinants of use of different trade policy instruments over time, a number of new theoretical and methodological approaches are also worth introducing.

Ossa (2011) has provided an innovative theoretical approach that identifies an international cost-shifting effect of trade policy that is separate from the terms-of-trade externality found in Bagwell and Staiger (1999, 2002). The approach starts from a monopolistically competitive market of the ‘new trade theory’ models which feature shipping costs and two-way trade in similar (but differentiated) products. One important result is that a beggar-thy-neighbor motive for trade policy intervention can arise from a ‘firm-delocation’ (or ‘profit-shifting’) effect, as governments have incentives to attract more of the world’s firms to locate locally so as to save on transport costs.

Antràs and Staiger (2012) have introduced a new approach out of recognition for the global fragmentation of production, offshoring, and the increasing economic importance of trade in intermediate inputs.¹⁶ They conclude that one change to a simple assumption maintained in most prior economic theory on trade agreements – i.e., prices being determined not from market clearing conditions but due to

¹⁵ Goldstein and Martin (2000) offer other examples of ways through which the increased legalization of the WTO system may have unintended consequences for domestic political economy forces and trade liberalization.

¹⁶ In their extensive work studying value-added trade, Johnson and Noguera (2012), for example, find that intermediate inputs may account for as much as two thirds of international trade.

bilateral bargaining between international buyers and sellers – can have profound implications. Intuitively, an international ‘hold-up’ problem can arise when relationship-specific investments are required if contracts between buyers and sellers are incomplete. In such instances, because one party (e.g., the buyer or importer) may be able to hold up the other (e.g., the exporter) and renegotiate the terms of their deal after the exporter has made a sunk investment, the seller will not make the jointly efficient level of investment in the first place. The hold-up problem can thus result in volumes of input trade across countries under free trade that are inefficiently low, suggesting an additional, efficiency-enhancing motive for trade policy intervention.

Such approaches have the potential to affect understanding of not only why governments impose tariff protection, but also why they voluntarily sign agreements to constrain tariff protection, and thus the implications of these agreements for alternative instruments of protection.

Before concluding this section, it is also worth highlighting that one of the fundamental questions arising from the disparate empirical research on different instruments of import protection involves the issue of comparability. Any attempt to make comparisons – across countries, industries, and time – is complicated by the variety and complexity of the instruments in use. For example, how does one compare the restrictiveness of the ‘protection’ inherent in one country – e.g., that may apply low MFN tariffs but which is also frequent user of nontariff protection – against that of a different country – e.g., that has zero nontariff protection but much higher applied MFN tariffs? One important sign of progress in this area is the effort of Kee, Nicita and Olarreaga (2009) to more accurately aggregate and measure the many different forms of tariff and nontariff protection through application of the theory of trade restrictiveness indices (Anderson and Neary, 2005).

6. CONCLUSION

This paper has examined the evolving nature of import protection and research on the political-economic and institutional determinants of different instruments in use over time.

Nevertheless, our treatment of this topic has not been comprehensive. Omitted areas include the relationship between import protection and pressures stemming from choice of exchange rate regime; Irwin (2012), for example, describes important linkages between the constraints imposed on monetary policy under the gold standard and the outbreak of protectionism in the early 1930s.¹⁷ A second omission is subsidy instruments. Bagwell and Staiger (2006), for example, provide a theory to help understand WTO rules on subsidies, identifying some of the tradeoffs that arise and suggesting somewhat provocatively that the existing rules on subsidy use may be too stringent. Furthermore, this paper has deliberately avoided many of the instruments that will arise in attempts to address the ‘21st Century’ trade agreement issues – such as state-owned enterprises, foreign direct investment, intellectual property rights protection, labor and environmental standards, technical and health standards, and achieving other forms of ‘regulatory coherence.’

To conclude, it is worth reconsidering Baldwin’s original analogy – that applied tariff reductions are like draining a swamp – in light of this paper’s highlighted body of research. Draining the swamp has more than simply revealed the existence of the ‘snags and stumps’ of nontariff protection. Some of the major instruments of nontariff protection to arise were not even present at the initial draining of some national swamps. Perhaps the GATT/WTO institutional framework helped the seedlings for such instruments blow in from somewhere and take root in new locations. Perhaps the newfound exposure to sunshine, alongside the inevitable rains that followed, also triggered the growth of the new, and still-adapting, forms of nontariff protection. However, it is also possible that draining the tariff swamp may have begun to reveal fundamental limits to feasible international cooperation over import protection. A still open question is whether a multilateral system with fully enforceable, time-invariant, free trade would be possible or even desirable in the long run.

For what outsiders may deride as a swamp, earth scientists refer to more fondly as a wetland. And what the process of swamp draining has also revealed, once its broader contributions to areas such as flood control and biological diversity have come to be accounted for and appreciated, is that such

¹⁷ See also Copelovitch and Pevehouse (Forthcoming).

wetlands may play unexpectedly critical roles in sustaining a larger ecosystem than had been previously understood.

APPENDIX: DATA SOURCES

It is only relatively recent that panel data for product-level trade policy instruments for many countries have become publicly and freely available and widespread enough for a wide group of political-economic researchers to access.

Important sources for product-level applied and bound tariff data across countries include the WTO's Integrated Database and Consolidated Tariff Schedule; these are available from both the WTO website and through the World Bank's free, on-line, World Integrated Trade Solutions (WITS) software platform. Preferential tariff data compiled by UNCTAD (TRAINS) has also been made available through WITS.

Antidumping, countervailing duty, and safeguards policy use data across countries has been freely and publicly available in electronic format since 2005 through the World Bank's *Temporary Trade Barriers Database* (Bown, 2012) and *Global Antidumping Database*.

With respect to other, more difficult to measure, nontariff instruments of import protection, other useful sources for data construction include the information collected by the Global Trade Alert, WTO's Trade Policy Reviews, and to the WTO Committees on Technical Barriers to Trade (TBT), as well as Sanitary and Phytosanitary (SPS) measures.

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Table 1. Imports Covered by Imposed Temporary Trade Barriers, 1995-2011

Economy	Year of first antidumping law/initiation	Estimated share of non-oil manufacturing imports covered by TTBs in...				...peak year, 1995-	(Peak year)
		...1995	...2000	...2005	...2010	2011	
Argentina	1972/NA	0.7	2.4	1.8	2.6	3.5	(2002)
Australia	1906/NA	0.8	0.4	0.5	0.5	0.8	(1996)
Brazil	1987/1988	0.5	1.0	1.6	1.4	2.1	(2008)
Canada	1904/NA	1.2	1.9	1.0	0.7	1.9	(2001)
China	1997/1997	0.0	0.5	2.9	2.8	4.5	(2003)
European Union*	1968/1968-69	2.7	3.4	2.9	1.8	4.2	(2002)
Indonesia	1995/1996	0.0	1.1	0.2	0.8	1.3	(2001)
India	1985/1992	0.1	2.6	2.4	4.3	6.3	(2011)
Japan	1920/1982	0.1	0.1	0.0	0.0	1.2	(2009)
Mexico	1986/1987	1.7	1.3	0.7	0.3	1.8	(1998)
South Africa	1914/1921	0.3	0.7	0.9	0.4	1.0	(2002)
South Korea	1963/1986	0.2	0.5	0.5	0.5	0.5	(2009)
Turkey	1989/1989	2.4	1.8	2.6	4.2	4.9	(2008)
United States	1916/1922	1.9	5.2	4.3	3.6	5.6	(2001)

Source: data taken from Bown (2013, Figure 1a) and Bown (2012). *EU at the time was the European Economic Community, some EU member states have AD laws that predate 1968. Temporary trade barriers (TTBs) include antidumping, countervailing duties, global safeguards, and China-specific transitional safeguards. NA=not available.