Trade Agreements: Theoretical Foundations

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Summary

International trade agreements have played a significant role in the reduction of trade barriers that has taken place since the end of World War II. One objective of the theoretical literature on trade agreements is to address the question of why bilateral and multilateral trade agreements, rather than simple unilateral actions by individual countries, have been required to reduce trade barriers. The predominant explanation has been the terms of trade theory, which argues that unilateral tariff policies lead to a prisoner’s dilemma due the negative effect of a country’s tariffs on its trading partners. Reciprocal tariff reductions through a trade agreement are required to obtain tariff reductions that improve on the non-cooperative equilibrium. An alternative explanation, the commitment theory of trade agreements, focuses on the use of external enforcement under a trade agreement to discipline domestic politics.

A second objective of the theoretical literature has been to understand the design of trade agreements. Insights from contract theory are used to address the question of why trade agreements have an escape clause, why commitments are made in the form of tariff bindings, and how agreements can be self-enforcing in the absence of an external enforcement mechanism. Finally, the literature examines whether the ability to form preferential trade agreements serves as a stumbling block or a building block to multilateral liberalization.
Introduction

Despite the potential gains from the elimination of barriers to international trade, history has shown that countries acting unilaterally will impose trade barriers in various forms including tariffs, restrictions on the quantity of imports, and administrative trade barriers (e.g. red tape). These barriers rose to a peak during the 1930s, when tariffs in the US reached an average of almost 60% on dutiable goods and tariffs in the rest of the world also increased dramatically. Subsequently these tariffs have been substantially reduced. Some of that liberalization has come by countries unilaterally reducing their tariffs. However, much of postwar liberalization has come as a result of trade agreements. These tariff reductions have come through multilateral tariff reductions under the General Agreement on Tariffs and Trade (GATT) and its successor the World Trade Organization (WTO), as well as through preferential agreements through groups of countries such as the European Union (EU) and the North American Free Trade Agreement (NAFTA).

The literature on the theory of trade agreements has approached the question of why countries sign trade agreements using insights from the theory of contracts. An important first step is to model the preferences of countries over trade policies, and to explain how these preferences lead to the need for trade agreements to liberalize trade. The theory also addresses the design of trade agreements: how the trade agreement is to be enforced, how disputes between countries are to be settled, and how flexibilities can be built into the agreement to allow adjustments in the terms in the event of unforeseen changes in the economic environment. A number of detailed surveys of the literature on trade agreements and commercial policy exist, and we provide suggestions for in depth analysis of the issues in our
conclusion. Our goal here is to provide an overview of the main theoretical approaches to trade agreements and their implications for how trade agreements should be designed, as well as providing a brief discussion of the empirical support that has been found for the various models. In light of recent pressures for countries to leave or renegotiate trade agreements, our review will place special emphasis on the tension between the desire to achieve commitment to market access against the flexibility to respond to domestic political pressures in designing trade agreements.

This survey is organized as follows. First, the Section entitled “Motives for Protection” discusses two different motivations for protection and the types of trade agreements that they call for. Then, the subsequent Section extends the basic trade policy models to discuss issues related to asymmetric trading partners and multilateral relationships. We then provide a review of the literature on the design of trade agreements with an emphasis on policy flexibility. In a final section, the implications of trade policy interdependence on the optimal design of trade agreements is discussed.

Motives for Protection

The theoretical literature on trade policy has focused primarily on two reasons why countries might impose trade restrictions. One is due to the ability of a country to use trade policy to exercise its market power by altering world prices in its favor. Defining a country’s terms of trade as the price of its export goods relative to its import goods, an increase in a country’s terms of trade raises its welfare because it can purchase a given import bundle with a smaller quantity of exported goods. By imposing taxes on imported goods, a country will reduce the demand for its imported goods and encourage more domestic production. The decline in demand reduces the price it must pay foreigners for imported goods, resulting in an improvement in the terms of trade. This terms of trade
improvement can also be thought of as making foreigners pay part of the tariff. For a country that is large enough to influence world prices, there will be an optimal tariff that trades off the gains in terms of trade from an increase in the tariff against the loss in efficiency resulting from shifting resources away from their most productive activities. This optimal tariff argument for the existence of tariffs has a long tradition, dating back at least to the work of Mill (1844).

A second explanation for tariffs is a political one, and is based on the ability of producers in import-competing industries to influence politicians to impose trade barriers to protect them from foreign competition. Although such policies may result in a decline in national income overall, import competing producers are smaller in number and have more individually to lose than those hurt by higher prices. As a result, it is easier for them to organize to influence politicians to provide protection. Politicians will place greater weight on those in interest groups that are organized, and will thus choose to impose tariffs protection even though the gains to the import-competing producers are less than the losses to the country as a whole. The political economy explanation for tariffs applies even to countries that cannot influence world prices, and thus can explain why many countries that are relatively small have imposed significant trade barriers.

The political economy and market power motives have been combined in a sector-specific trade model to yield an optimal tariff formula that can be tested empirically. Letting $\tau$ be the ad valorem tariff rate for an import-competing industry, the optimal tariff with political pressure can be expressed as

$$\tau = \frac{\theta(1 + \tau)}{z} + \frac{1}{\omega}, \quad (1)$$

where $\theta$ is the political pressure in the sector, $z$ is the product of the domestic import demand elasticity and the import penetration ratio, and $\omega$ is the elasticity of export supply to the country. The first term in equation (1) captures the political motive for protection, while the second captures
the terms of trade benefit. If $\theta > 0$, the industry has greater political power so that the policymaker values a dollar of profits to the industry more than a dollar of profits to consumers. The denominator captures the deadweight loss of raising the tariff to the rest of the economy, so that the policymaker trades off political pressure against the cost of providing protection to the domestic industry. The market power of the country is the inverse of its export supply elasticity, since a low foreign export supply elasticity generates a greater improvement in the terms of trade for a given trade restriction. The classical optimal tariff formula is obtained in the case of $\theta = 0$, where import competing producers have equal weight with consumers. The political economy motive indicates that positive tariffs may be chosen by a country with no market power ($\omega \to \infty$) if import-competing producers have positive political weight to influence trade policy.

An appealing feature of the optimal tariff formula (1) is that it provides a relationship that can be tested empirically. Testing the theory requires measures of the elasticity of import demand, the import penetration ratio, and proxies for the degree of political influence. In particular, it is necessary to find tariffs that are unilaterally chosen and have not been influenced by trade agreements. Goldberg and Maggi (1999) test a version of the optimal tariff formula (1) due to Grossman and Helpman (1994) where the political weight of an industry reflects the value placed by decision makers on campaign contributions relative to social welfare. They use the coverage ratio of non-tariff barriers in US industries as a measure of $\tau$, since non-tariff barriers are less likely to have been influenced by multilateral negotiations. They construct a dummy variable to measure whether an industry is organized based on whether or not the industry’s contributions to political action committees exceed a threshold. They find support for several of the specific predictions of the Grossman-Helpman model, and obtain an estimate of the relative weight placed on campaign contributions. They do not consider the role for market power in their analysis.
Broda, Limão, and Weinstein (2008) address the role of market power in setting unilateral tariffs by developing measures of export supply elasticities. They conduct the test by examining the tariff rates in two cases where tariff rates were not negotiated: non-WTO members and US trade policies that are not subject to trade negotiations. The latter include the statutory tariffs that are applied to countries that are not WTO members and non-tariff barriers that are not covered by trade agreements. In each case, they find that tariff rates are higher when the export supply is lower, as predicted by the terms of trade theory.

These empirical tests provide support for the optimal tariff formula (1) as a model of unilateral tariff setting. However, the trade model underlying these predictions is based on the assumptions of trade in final goods that are homogeneous products. As such, it ignores the role of trade in intermediate goods through global value chains and the role of product differentiation and imperfect competition, which have been shown to be important features of international trade. Extensions of the basic model to address these issues is a focus of current research.

**Externality Theories of Trade Agreements**

To illustrate how externalities can give rise to the motive for trade agreements, consider the unilateral choice of tariffs in a two-country model. The home country preferences can be represented by a utility function $U(\tau, \tau^*)$, where $\tau$ is the own tariff on imports and $\tau^*$ is the foreign tariff rate. The home country’s optimal unilateral policy is obtained by choosing $\tau$ to maximize home welfare, which will result in $U_\tau(\tau, \tau^*) = 0$.

The optimal tariff trades off the political and terms of trade benefits of raising the tariff against the deadweight loss resulting from too much production of import-competing goods. Similarly, the foreign country will choose $\tau^*$ to maximize its welfare, $U^*(\tau^*, \tau)$, which yields $U_{\tau^*}(\tau^*, \tau) = 0$. The Nash equilibrium outcome with unilateral policies occurs at the tariff
pair \(\{\tau^N, \tau^*N\}\) at which both of these conditions are satisfied.

A negative externality arises from the foreign country’s tariff if \(U_{\tau^*}(\tau, \tau^*) < 0\) and \(U_{\tau^*}^*(\tau^*, \tau) < 0\). One source of such externality is the impact of the foreign country’s tariff on the terms of trade, since an increase in the foreign country’s tariffs will reduce the demand for home exports, which worsens the home country’s terms of trade. However, there are also other channels by which a country’s tariff can have negative effects on trading partners. Venables (1987) shows that negative externalities can arise from the relocation of production between countries that occurs when industries are characterized by monopolistic competition model. Negative externalities can also arise in the case of oligopolistic industries, where trade policy can be used as an instrument to tilt the playing field in favor of domestic firms.

The existence of negative externalities from trade policies means that the equilibrium involving unilateral trade policy will be inefficient, and gives rise to a motivation for trade agreements. The inefficiency of this Nash equilibrium arises from the fact that each country can be made better off by a simultaneous reduction in tariff rates. A reduction in each country’s tariff in the neighborhood of the equilibrium must make both countries better off, since the reduction in the other country’s tariffs has first order positive effect on the welfare of each country. Neither country has a unilateral incentive to make this reduction, since the own tariff is at an optimum, so a trade agreement or some other form of cooperative action is required to raise welfare.

The principle of reciprocity, in which countries make mutually beneficial tariff concessions, is one of the primary principles of the GATT and is consistent with the idea that trade agreements are intended to correct an externality. If the externality is solely due to the terms of trade effect, then a reduction in tariffs by the partner countries that leaves world prices unaffected will raise the welfare of both countries. The fact that the terms of trade remain constant means that neither country experiences a terms of
trade loss from tariff reductions. The expansion in trade volume that arises from the tariff reductions will be welfare improving for both countries, because increased trade leads to increased specialization according to comparative advantage. In particular, Bagwell and Staiger (1999) show that reciprocity will maintain the world price if the balance of concessions is defined as the exchange of tariff concessions that result in an equal increase in the volume of imports and exports for each country. Within a differentiated-product framework, Ossa (2011) shows that the reciprocity principle will also help countries avoid the negative effects of de-location externalities.

Bagwell and Staiger also show that terms of trade externalities remain a motivation for trade agreements in the case where trade policy is influenced by political economy considerations. As long as the country is large enough to influence the terms of trade, politically motivated tariffs will also have a terms of trade externality on trading partners. Countries will still have an interest in some degree of trade liberalization that maintains the terms of trade. The primary difference is that when governments do not weigh the interests of domestic interest groups equally, the most efficient trade agreements will not result in the elimination of all tariffs.

According to the terms of trade theory, the role of trade agreements is to eliminate the terms of trade externality. This would lead to the prediction that trade agreements should eliminate the portion of the tariff that is due to the market power effect, $\frac{1}{\omega}$, in (1), while leaving the political economy component in place. This leads to the prediction that tariff reductions should be greater in industries where market power is greater. Bagwell and Staiger (2011) test this prediction by examining the tariff cuts made by countries that join the WTO. These countries are required to negotiate tariff reductions with member countries in order to be accepted as members, so the theory would predict that the greatest tariff reductions would be negotiated in industries where the externalities to member countries were greatest. Bagwell and Staiger find that acceding countries make deeper
tariff concessions on goods whose export supply is less elastic. This is consistent with the prediction of the terms of trade theory that the primary role of negotiations is to neutralize the terms of trade externalities from tariff setting.

While these tests support the terms of trade theory, there are also features of trade agreements that seem hard to explain within the terms of trade theory. One issue is the treatment of policies related to exports in the WTO. The GATT agreement banned the use of export subsidies, but did not put restrictions on export taxes. This suggests that member countries were concerned about the use of export subsidies by countries, but were less concerned about the use of export taxes. The problem for the terms of trade theory is that it predicts that countries should be using export taxes as a means of improving their terms of trade, but not export subsidies. An export tax will reduce the supply of a country’s exports to the world market, which will have the effect of improving a country’s terms of trade. In fact, in a two good trade model there is an export tax that has exactly the same effect as an import tariff, a result which is known as Lerner symmetry. This would suggest that if terms of trade were the primary motivation for tariffs, it would be desirable to restrict export taxes to prevent countries from substituting export taxes for import tariffs. Furthermore, export subsidies should never be used as they worsen the terms of trade by depressing the price of the country’s trade policy.

Political economy models of protection provide a potential explanation of the lack of use of export taxes. If producers in an export industry are organized, they will lobby against export taxes that reduce the domestic price of their output and will labor in favor of export subsidies. While this argument can be used to explain the presence of export subsidies and lack of use of export taxes, it does not explain why a trade agreement would ban the use of export subsidies. The terms of trade theory indicates that trade agreements are used to eliminate the negative terms of trade externalities from trade policies, but in the case of export subsidies the terms of trade effect benefits the importing country.
To summarize, the terms of trade theory of trade agreements has been the most studied approach to explaining trade agreements, both theoretically and empirically, and the theory has provided a number of useful insights. Puzzles still remain, and explaining these puzzles is a challenge for the literature.

**A Commitment Theory of Trade Agreements**

The terms of trade theory argues that political concerns per se do not result in a motive for the formation of trade agreements, because there is no spillover of protectionism to trading partners unless there is an impact of the partner’s terms of trade. However, Maggi and Rodriguez-Clare (1998, 2007) have argued that a trade agreement can serve as a commitment mechanism that can be used by a weak government to reduce protectionist pressure.

Their argument is based on the ability of policymakers to commit to reduce tariffs. If policymakers have weak bargaining power relative to protectionist interests, then producers will not take threats of liberalization seriously. They will continue to invest in relatively inefficient industries in the absence of a trade agreement, since they are confident of their ability to continue to negotiate protection for their investments in the future. By signing a trade agreement, a weak politician can appeal to the commitments to the foreign country under the trade agreement to deny protection. This approach is consistent with anecdotal evidence indicating that one of the goals of Mexican negotiators in signing NAFTA was to cement domestic reforms and trade liberalization from domestic political pressure.

The commitment theory is also consistent with the observation that countries might prefer to negotiate tariff bindings, which are maximum levels at which tariffs can be set, rather than rigid tariff rates. The argument is that by allowing countries to unilaterally lower tariffs below
the binding, the government can use the threat of tariff reductions to extract campaign contributions from interest groups that want to prevent such reductions. While the commitment model predicts the use of tariff bindings in trade agreements, it also predicts that in equilibrium the tariffs will be at the binding. In practice, however, a significant fraction of tariff rates are below the bindings.

The commitment theory can also be used to explain gradual tariff reductions. Trade agreements typically specify phase-in periods, frequently of 5 to 10 years, over which tariffs are reduced from the initial levels to the negotiated levels. According to the commitment theory, attrition of the sector-specific interests as resources leave the import-competing sector alleviates the political pressure for protection, allowing tariffs to be reduced further.

In the terms of trade theory, trade liberalization comes about because the negotiation of the agreement brings an additional party to the table that has an interest in reducing the domestic tariff. In the commitment approach, in contrast, the presence of the foreign government directly influences the interactions between the domestic government and special interests. While this approach has considerable intuitive appeal, there has been less empirical work done to test the empirical predictions of the model.

**Policy Uncertainty**

Prior to China’s accession to the WTO, the US granted China MFN status but required that the status be extended annually by the President. Once China became a WTO member, this status was guaranteed for its relations with all member countries. Since firms have to make sunk investments in order to develop relations in order to sell in an export market, the possibility that China’s MFN status could be revoked had the potential to deter Chinese firms from making long term investments to sell in the US
market. Thus, an additional benefit of a trade agreement is that it can commit a country to a particular level of trade barriers and eliminate the uncertainty for a country whose firms are selling in that market.

Handley and Limão (2017) and Pierce and Schott (2016) find evidence that the increase in Chinese exports to the US following China’s entry into the WTO was larger in industries where the US tariffs would have risen the most if China lost its MFN status. They argue that this provides evidence that policy uncertainty was deterring Chinese exporters from making investments in the US market prior to the WTO accession.

Of course, committing to a trade policy takes away the flexibility of politicians to respond to domestic pressure for protection. This trade-off between flexibility and commitment in trade agreements typically results in the inclusion of some form of escape clause that allows countries to change tariffs under certain circumstances. This point is addressed in more detail in the next Section.

Extensions of the Basic Model

The symmetric two country trade model provides insights about the motivations for trade agreements, but it does not address some important policy questions that arise when applying the model to a trading world with many countries that have varying degrees of market power.

Large and Small Countries

When countries are symmetric in size, their market power will be similar and both will suffer a similar degree of harm from the tariff externality. In contrast, in a trading relationship between a large and a small country, the market power of the small country will be negligible while that of the large country is significant. This leads to the possibility that the large country
will be better off in the Nash equilibrium than it would be if the countries were to go to free trade. In a free trade agreement between the US and Canada, for example, the expectation would be that Canada would have much more to gain from access to the US market than the US gains from access to the Canadian market.

One way to address this asymmetry is to allow for lump sum transfers between the countries as part of the agreement. In the case where countries are maximizing national welfare, an efficient free trade agreement can be reached by having the small country make a lump sum transfer to the larger country. While typically countries do not make cash payments to trading partners as part of a trade agreement, trade agreements often include side agreements on issues such as labor standards and foreign investment. Thus, a large country might grant market access to a small country in return for concessions on side agreements from the small country.

**Many Countries**

The previous discussion has focused on the incentives for trade agreements in a two country world. The introduction of a third country into the discussion raises additional questions. Should trade agreements be negotiated between countries on a bilateral basis, or with a simultaneous negotiation between all three countries? In the case of simultaneous negotiations, should discrimination between trading partners be allowed?

**The MFN Principle**

The GATT agreement answered these questions by making non-discrimination one of its fundamental principles, and by focusing on trade negotiations that take place in rounds of multilateral bargaining. Nondiscrimination in trade among member countries is implemented
through the Most Favored Nation (MFN) principle, which states that any trade concession that is offered to a member country must also be extended to all other trading partners.

One justification for non-discrimination in trade agreements is economic efficiency, since discrimination between countries will lead to an inefficient allocation of world resources. If country A faces a higher tariff than B when selling a common good in country C’s market, country B will be able to compete in C’s market even though its costs are higher than those of A. This results in too much of the production taking place in country B relative to the least cost allocation of production.

A second justification for the MFN principle is that it may be useful in facilitating bargaining between countries. If a country negotiates a tariff reduction with a trading partner in the absence of the MFN principle, it risks being undercut in subsequent negotiation if the partner offers a more favorable tariff reduction to a third country.

On the other hand, with an MFN principle in place a tariff reduction becomes a form of public good, in that all members benefit from another member’s tariff reduction whether or not they have made a concession to obtain the reduction. This can potentially create a free rider problem, since countries would prefer to have another country make the tariff concession.

Whether or not a country that stays out of the negotiations benefits from the tariff reductions depends on the concessions made between the negotiating countries. Suppose that countries A and B both export good x to country C in exchange for good y, and that countries B and C negotiate a reduction in each other’s tariffs on goods x and y. Although A faces a lower tariff in country C, it will also be the case that B’s reduction in its tariff on good y will shift its resources toward production of good x to sell in C’s market. Country A will gain only if the increase in country B’s supply is not sufficiently large to satisfy the increased demand in A. Another way to say this is that country A will benefit only if the negotiations between B and C result in an increase in the relative world
price of good $x$. If the negotiation between B and C results in a fall in the relative price of $x$, it will actually harm country A. Therefore, the question of whether a country could free ride on tariff cut negotiations of other countries is an empirical question.

The GATT has adopted a principal supplier rule to guide negotiations, so that the principal supplier of a good to a particular country is supposed to make the request for tariff concessions. The principal supplier presumably has the strongest interest in gaining market access, and the free rider problem is likely to be more severe when the export suppliers to the market are less concentrated. Ludema and Mayda (2013) provide some evidence suggesting that trade liberalization is less effective at mitigating the market power effect when suppliers are less concentrated.

**Preferential Trade Agreements**

Preferential trade agreements (PTAs) are agreements between two or more countries in which the members give lower tariff rates on imports from the partner countries than on those from non-members. Preferential trade agreements come in two basic types, customs unions (CUs) and free trade agreements (FTAs). CUs, such as the European Union, have a common external tariff against non-members for all countries. Under an FTA, such as the North American Free Trade Agreement (NAFTA), members set their own tariffs on member countries.

Viner (1950) made the point that PTAs involve a welfare trade-off for the participating countries. Reductions in trade barriers with the partner country increase the volume of trade, which is a favorable effect that he dubbed *trade creation*. On the other hand, the discriminatory nature of the tariff cuts means that a country may switch suppliers from a low cost supplier to a high cost supplier. He referred to this unfavorable effect as *trade diversion*.

Subsequent theoretical modeling of the effects of preferential trade
agreements has analyzed the effects of PTAs under a variety of assumptions regarding the production structure of the countries involved. This literature has confirmed the ambiguous welfare effects of preferential trade agreements, although it is not in general possible to identify trade creation and trade diversion in a welfare decomposition. However, these terms remain in common usage as an intuitive way of describing the ambiguous effects of preferential trade agreements.

A related question is how the formation of a PTA affects the tariffs imposed on non-member countries. The incentives differ depending on the type of PTA, since the external tariff is set jointly by members in a CU but is set individually by members in an FTA. In the case where member countries are importing a common good from non-member countries, one country’s tariff on the non-member will benefit the other members by reducing the price of the non-member’s good. The member countries in a CU will have the incentive to raise their external tariffs in this case, because they internalize this favorable spillover to other members when they are setting a common external tariff.

In contrast, FTA members are likely to reduce their tariffs against non-members, an effect known as tariff complementarity. The internal liberalization among members of the FTA diverts trade from non-members. The reduction in trade volume raises the elasticity of export supply from the non-member countries, which reduces the optimal external tariff of the individual members.\(^3\)

The existence of differential tariff rates across members creates an arbitrage incentive, since the price of an imported good will be lowest in the member country with the lowest external tariff. If arbitrage between members is unconstrained and transport costs are sufficiently low, all trade would flow into the country with the lowest external tariff. In order to prevent arbitrage of this type, FTAs usually set rules of origin that set minimum levels of content from member countries that are required for goods to have duty free access in trade between members.
**Building Blocks or Stumbling Blocks**

Although the GATT adopted an MFN principle for trade negotiations, it also provided an exception in Article XXIV that allowed preferential trade agreements between countries under certain conditions. Three conditions were specified: (i) member countries should not raise their tariffs against non-members as a result of the formation of the agreement, (ii) members should eliminate substantially all trade barriers between members, and (iii) the tariff reductions should be completed within a reasonable period of time. The requirement that tariffs not be raised against non-members would serve to minimize the ability of CUs to use their increased market power against non-members.

The important policy question is whether allowing PTAs facilitates or enhances the path of trade liberalization. This question is motivated by the explosion in the number of PTAs that has occurred, with the number increasing from 60 in 1995 to more than 275 in 2010. This increase has been primarily an increase in PTAs between developing countries or between developed and developing countries. In contrast, the number of PTAs between developed countries has remained relatively constant. This growth in PTAs has occurred at the same time as multilateral trade liberalization under the WTO has slowed down. The question then is the direction of causation: has the slowdown in multilateral negotiations led countries to pursue FTAs, or has the expansion of PTAs made countries less interesting in pursuing multilateral liberalization.

Trading blocs (i.e. PTAs) could be building blocs to global free trade if they expand to include all member countries. On the other hand, they could be stumbling blocs to free trade if there is an incentive for members to stop short of expanding to include all member countries. A substantial literature has developed that analyzes the strategic incentives of countries in deciding whether to form a PTA. The literature has developed that analyzes the issue under various assumptions regarding the type of PTA, the pattern of trade between the countries, the objective function of the
governments, and the protocol for forming preferential agreements. The type of PTA matters due to the incentives of countries in setting external tariffs once the agreement has been formed. In a CU, the incentive is to use coordination on the tariff to benefit members at the expense of non-members when they import a common good from non-members. The potential terms of trade gains from forming a CU may also prevent members from wanting to expand the membership to include all countries, since a sufficiently large customs union could find itself better off than under free trade as noted in the case of trade agreements between large and small countries. For an FTA, in contrast, the setting of external tariffs may actually create a favorable spillover to the non-member countries.

A couple of examples will illustrate the type of results that have been obtained. Ahgion, Antras, and Helpman (2007) consider a model where governments have a political economy objective and countries can make lump sum transfers. The results depend critically on whether the payoffs are "grand coalition super-additive," which means that the payoff to an agreement among all parties dominates that between any alternative coalitions. If this property holds, as would be the case when countries are maximizing national welfare, then global free trade will be reached in equilibrium. However, if payoffs are not grand coalition super-additive, as occurs when political economy motives are particularly strong, FTAs can be either building blocks or stumbling blocks.

Saggi and Yildiz (2010), on the other hand, consider a three country model where transfers between countries are not allowed. They consider two scenarios, one in which countries can make bilateral or multilateral agreements and one where they can only make multilateral agreements. The concept of coalition proof Nash equilibrium is used to determine which trade agreements will be stable. They show that if countries are symmetric, free trade is achieved whether or not bilateral agreements are allowed. However, if countries are asymmetric or political power of producers is particularly strong, allowing bilateral agreements may be
necessary to reach free trade.

Seidmann (2009) studies a three country model where transfers between countries are possible and free trade is globally optimal. He uses a dynamic bargaining approach, in which countries can continue to negotiate after an initial round of trade agreements. His point is that a pair of countries may form a bilateral agreement as strategic positioning, in that the agreement improves the outcome for the countries in subsequent bargaining with the non-member country.

These examples show that the theoretical literature has not provided clear answers to the question of whether the WTO should discourage the formation of PTAs, because the results are sensitive to the assumptions about the availability of transfers, the protocol for coalition formation, and the preferences of the governments.

Since multilateral tariffs are already at low levels for most developed countries, the tariff reduction component of PTAs is in most cases relatively small. The other aspects of the agreement, such as rules on intellectual property and regulatory standards, may be primarily factors in the formation of such agreements. These are also areas where multilateral agreements have had more difficulty making progress. How these non-tariff issues affect non-member countries is an open question. Furthermore, PTAs are potentially a means of expanding political influence with trading partners, a factor that has not been incorporated in existing political economy models.

## Flexibility in Trade Agreements

The economics literature generally views trade agreements as a means to contain the negative externality of unilateral trade policies (See Subsection ). The governments, however, may face various constraints that prevents them from designing and implementing a first-best agreement that
maximizes their joint political-economy welfare. In this section, we identify these constraints and their effects on the design of trade agreements.

A main theme of this article is that trade agreements must provide the governments with the flexibility to adjust their obligations in response to changes in the political economy conditions. In other words, a first-best outcome will be a flexible agreement that is contingent on the state of the world. A flexible agreement, however, is costly to design and implement due to the transaction costs that are associated with identifying relevant contingencies in advance (i.e., at the time of negotiation) and agreeing on prevailing contingencies at the time of implementing the agreement.

A second rationale for allowing policy flexibility is to ensure self-enforceability of the agreement. A government’s short-term temptations for protection could increase due to various parameters such as a surge in imports or political pressures. To ensure the resilience of the cooperative arrangement, a trade agreement should include a safety valve mechanism to let off steam in times of heightened protectionist temptations.

In this light, we will analyze various flexibility mechanisms that are present in trade agreements, including tariff binding overhang, which provides unilateral flexibility, and temporary trade barriers such as the escape clause/safeguards, anti-dumping, and countervailing duties. We also analyze various rules of breach remedies and sanctions as well as dispute settlement processes in trade agreements as mechanisms that facilitate the implementation of contingent trade agreements.

In the following subsections, we identify three main obstacles in forming a first-best trade agreement and discuss their implications for the design of trade agreements. These obstacles include: 1) Incomplete information about the state of the world, which hinders the implementation of a state-contingent agreement, 2) Transaction cost of writing and implementing the agreement, which leads to endogenously incomplete agreements to save on transaction costs, and 3) Self-enforcement requirement, which may render a first-best agreement infeasible due to lack of enforceability.
Incomplete Information and Policy Flexibility

In order to implement a state-contingent agreement, the interested parties must have a mutual understanding about the prevailing state of the world and their obligations, or else a mechanism is needed to resolve any potential dispute. The literature has explored two causes of disagreement about the state of the world and the obligations of the parties. First, a disagreement may arise due to incomplete information about the prevailing contingency or the actions of the parties. A second cause of disagreement, which is studied more intensively in the legal literature, is related to the fact that agreements are often subject to various interpretation.

Contracts under asymmetric information are usually modeled as incentive-compatible, or truthful, mechanisms: In order to be feasible, a contract should give adequate incentives to the parties to reveal their private information truthfully. The premise of these models is that contracts are designed to maximize the expected joint welfare of the parties subject to an incentive compatibility constraint.

Under asymmetric information, the incentive compatibility constraint may render the the first-best outcome infeasible. The first-best outcome may be still implementable under asymmetric information if governments’ welfare were transferable, i.e., if one government could transfer part of its utility to another without any efficiency loss. Such costless transfers, however, are difficult to come by in international trade relations. Instead governments use policy adjustments, such as tariff retaliations, as a means of receiving (potentially partial) compensation from defecting countries.

Escape Clause

Assuming that governments transfer compensations through tariff adjustment, Beshkar (2010a) provides a model of escape clause in which
governments negotiate a baseline tariff and a remedy rule that determines the magnitude of tariff retaliation in response to any deviation from the negotiated baseline. Consider a world with two countries, Home and Foreign, where Home imports good $x$ and exports good $y$. The trade policy instrument at the governments’ disposal is an ad valorem import tariff denoted by $\tau$ and $\tau^*$ for Home and Foreign, respectively. The Home government’s political payoffs from its import sector are given by

$$V_x(\tau; \theta) \equiv S_x(p_x(\tau)) + (1 + \theta)\pi_x(p(\tau)) + T_x(\tau),$$

where, $S_x$, $\pi_x$, and $T_x$ are the consumer surplus, the producer surplus, and tariff revenues in sector $x$ as a function of the price $p_x(\tau)$. Moreover, $\theta$ is the extra weight given to the producer surplus in the government’s objective function. The Home government’s payoffs from its export sector, $y$, are a function of the Foreign country’s tariff:

$$V_y(\tau^*) = S_y(p_y(\tau^*)) + \pi_y(p_y(\tau^*)).$$

The payoffs of the Foreign country, denoted by $V_x^*(\tau)$ and $V_y(\tau^*; \theta^*)$ are similarly defined. We further define the joint welfare of the governments from sectors $x$ as $W_x(\tau; \theta) \equiv V_x(\tau; \theta) + V_x^*(\tau)$. $W_y(\tau^*)$ is similarly defined.

The political parameters $\theta$ and $\theta^*$ are determined by the political preferences of the policy makers in the respective countries, which are in turn affected by the political influence of various special interest groups. In the following discussion, it is assumed that the political parameter, $\theta$, is a random variable distributed according to a probability density function, $f(\theta)$.

The unilaterally optimal tariff for the Home country is given by

$$\tau^N(\theta) \equiv \arg\max V_x(\tau; \theta),$$

while the fully cooperative tariff, which maximizes the joint welfare of the
countries, is given by
\[ \tau^E(\theta) = \arg \max_{\tau} W_x(\tau; \theta). \quad (3) \]

Both of these tariffs are increasing in the political parameter, \( \theta \). However, due to the negative externality of tariffs on exporting countries, the unilaterally optimal tariffs are higher than efficient tariffs, i.e., \( \tau^N(\theta) > \tau^E(\theta) \).

If \( \theta \) was publicly observable, assuming enforceability, the first best tariff, \( \tau(\theta) \), could be implemented. However, it is more likely that Home country is better informed about its political economy conditions, represented by \( \theta \), than other parties. In that case, an agreement on tariffs must also satisfy an incentive compatibility constraint.

For a simple analysis of an incentive compatible contingent contract, consider Beshkar (2010a) in which it is assumed that the political parameter \( \theta \) could take a high value, \( \theta = h \), with probability \( \rho \), and a low value, \( \theta = l \), with probability \( 1 - \rho \). An incentive-compatible agreement that maximizes the expected joint welfare of the governments is a solution to the following maximization problem:

\[
\max_{\tau(\theta), \tau^*(\theta)} \quad (1 - \rho) \left[ W_x(\tau(l); l) + W_y(\tau^*(l); l) \right] + \rho \left[ W_x(\tau(h); h) + W_y(\tau^*(h); l) \right],
\]

subject to incentive compatibility constraints:

\[
V_x(\tau(l); l) + V_y(\tau^*(l)) \geq V_x(\tau(h); l) + V_y(\tau^*(h)), \quad (5)
\]
\[
V_x(\tau(h); h) + V_y(\tau^*(h)) \geq V_x(\tau_l; h) + V_y(\tau^*_l). \quad (6)
\]

The first constraint above ensures that when political pressure is low, i.e., \( \theta = l \), Home prefers the baseline tariff pair \( (\tau(l), \tau^*(l)) \) to the safeguard tariff pair \( (\tau(h), \tau^*(h)) \). The second constraint, ensures incentive compatibility when political pressure is high, i.e., \( \theta = h \).
Based on the reciprocity principle, if a government invokes the escape clause in response to a domestic political economic emergency, the affected parties are free to withdraw equivalent concessions immediately, so that a balance of concession is maintained among parties at all time. Using a general definition of the reciprocity principle, it is straightforward to show that following a notion of reciprocity in trade agreements ensures the incentive-compatibility of the agreement. Interpreting reciprocal retaliation as the award of expectation damages, which places the victim in as good a position as it would have been in if the violator had honored its obligations, Schwartz and Sykes (2002) argue that “expectation damages thus deter inefficient breach because the promisor will not wish to violate and pay expectation damages unless the promisor gains more from the breach than the promisee loses, in which case breach is efficient.”

Although reciprocity is sufficient for incentive compatibility, the solution to the maximization problem (4) indicates that it is an inefficient rule for regulating the GATT/WTO escape clause. In particular, the solution to the maximization problem (4) prescribes a degree of retaliation that is only large enough to dissuade a country from using the escape clause if and only if the escape is jointly inefficient. Therefore, as argued by Beshkar (2010a), the withdrawal of equivalent concessions is an unnecessarily harsh punishment as it makes the safeguard-imposing country strictly worse-off.

**The Role of Third-Party Arbitration**

Beshkar (2010b, 2016) and Maggi and Staiger (2018) show that incorporating an arbitration system, such as the WTO’s Dispute Settlement Body (DSB), could further decrease the need for breach remedies. In both models, the benefit of the DSB emerges from the presumed ability of the arbitrators to evaluate facts and produce an impartial and informative opinion about the state of the world. The arbitrator’s opinion works as a public signal that mitigates the information asymmetry between the disputing parties, which enables them to coordinate on a more cooperative
equilibrium.

The optimal agreement under Beshkar (2016) is an “Arbitrated-Liability Regime”, where the breaching party is liable if and only if the DSB disapproves of the deviation. Similar to the Arbitrated-Liability Regime, a safeguard-imposing country under the WTO is not liable for damages unless the adopted measures are ruled illegal by the DSB. The results of Maggi and Staiger (2018) also show that the magnitude of the breaching country’s liabilities is a function of the DSB’s signal; such that the optimal compensation is (weakly) decreasing in the DSB’s assessment of the benefits of protection.

**Tariff Overhang**

Tariff commitments are usually in the form of a *cap* or *binding* on applied tariffs, which gives the governments the flexibility to choose any tariff rate below the cap/binding. In a substantial fraction of sectors worldwide, the negotiated tariffs *caps* are above the applied rates—a phenomenon known as *tariff overhang*.

In a model where the political-economy preferences of the governments are subject to shocks, Bagwell and Staiger (2005) and Amador and Bagwell (2013) argue that these *weak* tariff binding rates, could act as a flexibility mechanism. Formally, if the tariff binding, denoted by $t^B$, is sufficiently high, the unilaterally optimal tariff for a political realization, $\theta$, might be below the binding, i.e., $t^N(\theta) < t^B$, thereby creating a *tariff overhang* equal to $t^B - t^N(\theta)$.

The size of tariff binding rates and tariff overhang show a great variation across countries and sectors. Beshkar, Bond, and Rho (2015) show that tariff binding rates in the WTO tend to be higher in sectors where the importing country has a lower import market power.

Beshkar, Bond, and Rho (2015) argue that the governments face a trade-off between flexibility and externality in negotiating tariff binding rates. That
is because while a reduction in tariff binding rates reduces the negative externality of tariffs on exporting countries, it also reduces the ability of the importing countries to respond to preference shocks. This trade-off implies that optimally negotiated tariff bindings are lower in sectors with a greater import market power in which the government’s unilateral trade policies generate greater negative externalities.

Beshkar, Bond, and Rho (2015) predict that there must be a non-monotonic relationship between import market power and negotiated tariffs. In particular, there is a threshold of import market power below (above) which tariff bindings are decreasing in (independent of) import market power. Moreover, above that market power threshold, the optimally negotiated bindings are so low that no tariff overhang will be observed in equilibrium. In other words, for sufficiently high import market power, providing unilateral flexibility in the form of tariff overhang is not optimal. Tariff overhang may occur in some states of the world if and only if import market power is sufficiently low—i.e., if the inverse of the export supply elasticity is below the threshold mentioned above. The average size of tariff overhang declines in the level of import market power, which reflects that the cost of providing unilateral flexibility is increasing in the ability of the government to manipulate its terms of trade using tariffs.

**Transaction Costs and Incomplete Contracts**

Transaction costs are another important consideration in the design of trade agreements. Both negotiation and implementation of trade agreements could involve substantial transaction costs such as the cost of human resources needed for negotiations, adjudication, monitoring of compliance, and dispute settlement. It is, therefore, reasonable for the negotiators to strive for a *simpler* agreement that could be successfully negotiated at a lower cost. is easier to negotiate.the agreement to economize on the cost of reaching the agreement as well as the cost of
implementing it.

In the negotiation stage, parties should spend resources on writing the agreement, which involves identifying various contingencies and determining the appropriate obligations under each contingency. Naturally, a more comprehensive agreement would be more costly to write and, thus, the parties might find it optimal to write a *simpler* agreement that could be successfully negotiated at a lower cost.

This idea is formally modeled by Horn, Maggi, and Staiger (2010) who show that at the presence of writing costs, optimal trade agreements are *incomplete* in the sense that some policy instruments may be left unrestricted and some relevant contingencies may not be included in the agreement. They consider an agreement on two policy instruments, namely, import tariffs and domestic production subsidies. They assume that the cost of writing an agreement is increasing in the number of trade policy instruments that are included in the agreement. This model implies that for moderate levels of writing costs, it is optimal to restrict import tariffs while leaving domestic subsidies to the discretion of the governments.

In the implementation stage, the governments have to incur costs on monitoring compliance with the terms of the agreement, settling potential disputes over their obligations or the interpretation of the agreement, and enforcing the agreement. These costs are likely to rise with the number of contingencies that are incorporated in the agreement. These costs are specially significant if the contingencies are more difficult to verify publicly. As in the case of writing costs, the cost of implementation may also lead to the optimality of incomplete agreements.

Beshkar and Bond (2017) investigate the implication of monitoring costs for the design of trade agreement by proposing a model in which verifying the state of the world is possible at a monitoring cost. They extend the tariff binding model by allowing the importing country to undertake a costly investigation that verifies in the true value of its private information
being revealed. This process of verifying the state corresponds to the investigation process that is required before a safeguard can be imposed. For simplicity, it is assumed that the verification process reveals the true state of the world. If the state of the world, \( \theta \), is verified publicly, the importing country could implement the jointly efficient tariff, \( t^E(\theta) \), which is given in equation 3. Under high political-economy preferences for protection, if the monitoring costs are sufficiently low, it will be jointly optimal to incur the monitoring costs and let the importing country escape from a tariff binding agreement by setting a tariff higher than the binding.

The optimal cap-and-escape agreement provides the governments with two types of trade policy flexibility that are substitutable: (i) unilateral flexibility through tariff overhang and (ii) contingent flexibility through the escape clause. The analysis in Beshkar and Bond (2017) shows that the optimal combination of the unilateral and contingent flexibility depends on the degree of trade policy externality and the monitoring cost. In particular, the optimal level of unilateral flexibility is inversely related to the cost of monitoring. Moreover, for a given monitoring cost, the optimal cap-and-escape agreement will assign a greater degree of unilateral flexibility to sectors that have a lower degree of terms-of-trade externality.

Self-Enforcement

As a treaty among sovereign states, trade agreements must be self-enforcing, which may limit the level of cooperation that the contracting parties could achieve. Self-enforcing agreements are usually studied within a repeated-game framework. This framework hinges on the assumption that a violation (i.e., cheating) could be detected and punished only after a delay, which allows the deviator to enjoy higher payoffs during this time. Therefore, a player weighs the short-run benefits of cheating against its long run loss in terms of reduced or no cooperation. An agreement is self-enforcing if the long-run benefits of cooperation are at
least as large as the short-run benefits of violation for any party at all times.

In this section, we discuss three issues that are related to self-enforcement of international agreements. These include political economy shocks to preferences, dynamic responses to trade liberalization, and difficulty with detecting and verifying violations.

**Shocks to political economy preferences**

First, consider environments in which the benefits of short-run violations are subject to political or economic shocks. In these environments, an optimal trade agreement features an *escape clause* that allows a temporary increase in protection in periods where the temptation for cheating is high. 

Bagwell and Staiger (1990) show that increases in the volume of trade can result in the optimality of state contingent tariffs in a self-enforcing agreement. In their model, a free trade agreement is optimal for countries in all states of the world, but it may not be sustainable in states where trade volumes are high. Since countries are using tariffs to influence the terms of trade, the gains from the optimal tariff are increasing in the volume of trade. Therefore, in response to an import surge, it is optimal to allow for higher tariffs.

Shocks to political preferences for protection could also lead to the optimality of a state-contingent trade agreements. Beshkar (2010b) proposes a model of safeguards assuming that agreements must be self-enforcing, and political-economy preferences are subject to shocks. Moreover, he assumes that the realization of the political-economy preferences are the private information of the importing country’s government. Under this model, allowing for an escape clause increases the level of cooperation that could be sustained through a self-enforcing agreement.

The implementation of the escape clause in Beshkar (2010b) is hindered by the moral hazard problem as the state of the world cannot be publicly
verified. The escape clause, therefore, must include rules that induce the importing country to use it only when political pressure for protection is truly high. Truthfulness of the safeguard-imposing country in this model is guaranteed by the threat of reciprocal retaliations from the exporting countries: A country would find it optimal to adopt the safeguard measure and face the consequent retaliations only if the political pressures for protection are sufficiently high.

**Gradual Liberalization**

Consider a dynamic environment in which trade liberalization induces a reallocation of resources from the import competing sectors to the export sector over time, thereby mitigating the protectionist pressures over time. In such dynamic environments, it may be optimal to gradually increase the level of cooperation among parties.

Staiger (1995) show the optimality of gradual liberalization in a model where workers have sector-specific skills that allows them to earn rents from import protection. By transforming a portion of tariff’s dead wight loss to rents, the presence of these sector-specific skills makes deviation from a low cooperative tariff to a high (noncooperative) tariff more desirable for the deviating country, thereby making a cooperative agreement more difficult to sustain.

At the presence of substantial sector-specific skills, therefore, parties could only sustain very moderate levels of trade liberalizations. Nevertheless, in response to these (moderate) liberalization, a portion of the factors with sector-specific skill will relocate to elsewhere in the economy. This relocation mitigates the enforcement problems associated with the presence of specific factors, which makes more aggressive liberalizations sustainable.

A similar result is obtained in a model where relocation of factors is associated with a cost. As articulated by Furusawa and Lai (1999), the
social and economic costs of resource reallocation after entering an agreement, increases the short-term temptations for deviating from the agreement. Therefore, once again, to sustain an agreement it is necessary to liberalize only gradually over time.

The above models find a role for gradualism in situations where there is a dynamic response to trade liberalization that makes further liberalizations easier to sustain. Bond and Park (2002), however, show that even in a stationary environment, gradualism increases the sustainability of trade agreements among asymmetric countries. A larger country, which is naturally more able to manipulate its terms of trade using tariffs, has a greater short-term incentive to impose tariffs. Under a fixed agreement, i.e., one without gradualism, the most cooperative agreement would involve a positive trade barrier in the large country and zero tariff in the small country. With gradualism, the most cooperative agreement starts from a positive tariff in the large country that gradually declines over time and approaches zero asymptotically.

Detecting Violations

In Subsection , we discussed the effect of information asymmetry on the design of trade agreements assuming that enforcement was externally guaranteed. We now revisit this question at the presence of the self-enforcement requirement.

Riezman (1991) and Park (2011) explore the ways in which concealed trade barriers could be restrained in a repeated-game framework. Riezman (1991) proposes a model in which the volume of a country’s import works as a public signal of hidden protectionist policies of the government and shows that governments can sustain a cooperative outcome (i.e., low tariffs) with occasional periods of high tariff when a country’s import volume falls substantially.
Park (2011) extends this framework by introducing imperfect private monitoring: the exporting country receives a private signal of the importing country’s potential hidden trade barriers. Park (2011) finds conditions under which each country triggers a punishment phase by imposing an explicit tariff in response to privately observed imperfect signals of hidden barriers.

This framework also uncovers a potential role for the WTO’s Dispute Settlement Body in a self-enforcing agreement. Assuming that the WTO is impartial and could also receive a signal of the potential hidden trade barriers, it can change the nature of punishment-triggering signals from private into public. A public signal enables countries to employ punishment phases of any length, which in turn can help countries to attain a better cooperative equilibrium.

Policy Interdependence and Trade Agreements

Various policy instruments at the governments’ disposal are potentially interdependent. As a result of policy interdependencies, an incomplete agreement that only constrains a subset of the policies may be undermined by the governments’ policy reactions in other areas. For example, as discussed by Horn, Maggi, and Staiger (2010), in response to tariff cuts, governments may opt for using domestic subsidies to manipulate their terms of trade. Alternatively, governments may resort to hidden trade barriers, such as wasteful customs regulations, in an attempt to open up their policy space that is constrained by a trade agreement.

Horn et al. (2010) highlight the substitutability between import tariffs and domestic subsidies. They show that this instrument substitutability plays a critical role in the optimal design of incomplete trade agreements. As was mentioned briefly in Subsection, Horn et al. (2010) propose a model in
which the cost of writing an agreement is increasing in the number of policy instruments that are included in the agreement. They show that for moderate levels of writing costs, it is optimal to constrain import tariffs while leaving domestic subsidies to the discretion of the governments. It would be optimal to constrain domestic subsidies as well only if the transaction costs of negotiating a trade agreement were sufficiently low.

The analysis of Horn et al. (2010) suggests a liberalization priority: import tariffs must be liberalized before or simultaneously with domestic subsidies. In other words, negotiating a cut in domestic subsidies while leaving tariffs to discretion cannot improve over the noncooperative equilibrium. This result is obtained due to imperfect substitutability of tariffs and domestic subsidies.

Horn et al. (2010) provide an alternative explanation for including an escape clause in an incomplete trade agreement that constrains tariffs but leaves other instruments at the discretion of the governments. An escape clause may improve welfare under such an agreement if it induces the government to use tariffs in lieu of less efficient policy instruments in response to political-economy shock. Given discretion in the choice of domestic subsidies, the government could use subsidies in response to economic changes such as an increase in the import volume. Nevertheless, subsidies may cause more inefficiencies than import tariffs as a response to a surge in imports. Therefore, in order to avoid inefficiencies caused by subsidies, the optimal agreement should include an escape clause that allows governments to increase import tariffs in response to an import surge.

Beshkar and Lashkaripour (2019) identify other trade policy interdependencies that could potentially affect the optimal structure of trade agreements. In a general equilibrium framework, they find that: (i) Sectoral import tariffs are complementary such that restricting tariffs in a subset of sectors decreases the level of the optimal tariff in unrestricted sectors, (ii) Import policy is only an imperfect substitute for export policy,
and (iii) Non-revenue trade barriers (such as import bans or inefficient customs regulation) can be optimal in some sectors, serving as an imperfect substitute for tariffs.

The policy interdependence results in Beshkar and Lashkaripour (2019) suggests a priority order in liberalization negotiations. In particular, consider their second finding that import policy is an imperfect substitute for export policy in the government’s objective function. According to this result, under an agreement that restricts import tariffs while leaving export policies to discretion, government’s optimal adjustment of export policies will undermine the benefits of the negotiated tariff cuts. On the contrary, constraining export policies while leaving import tariffs to discretion could improve welfare compared to a non-cooperative equilibrium. This analysis, therefore, suggests that export policies should have a higher priority in negotiations.

**Conclusion**

This survey highlighted some of the main issues that have been addressed in the theoretical literature on trade agreements. For further reading on the terms of trade approach to trade agreements, see Bagwell and Staiger (2002), which provides an excellent analysis of how the terms of trade approach to trade agreements can be used to understand various features of the GATT/WTO agreements. Maggi (2014) provides a detailed survey of the theory of trade agreements. The recent Handbook of Commercial Policy contains surveys of the purpose and design of trade agreements, as well as analysis of a wide range of legal and economic issues related to commercial policy. Bagwell, Bown, and Staiger (2016) survey recent literature related to the tension between multilateral liberalization and preferential liberalization. A more complete List of Further Reading is provided below.
Further Readings


Beshkar, Mostafa and Eric Bond (2016), The Escape Clause in Trade Agreements, in Handbook of Commercial Policy: Volume 1b, Kyle Bagwell and Robert Staiger (eds), North Holland (Amsterdam).

Grossman, Gene (2016), The Purpose of Trade Agreements, in Handbook of Commercial Policy: Volume 1a, K. Bagwell and R. Staiger (eds), North Holland (Amsterdam).


References


Notes

1 According to the principle of comparative advantage, the elimination of trade barriers results in a country exporting the goods in which its relative cost is low compared with the rest of the world and importing goods where its cost is relatively high. If markets are operating efficiently, the elimination of trade barriers between countries should result in the location of production in its least cost locations. This reallocation of production will result in a more efficient allocation of the world’s resources and an increase in world income. Although the argument must be modified somewhat in the presence of imperfect competition and economies of scale, the idea that free trade has the potential to provide Pareto improvements is quite robust.

2 It should be noted that in the case of China, which made significant use of export taxes in some industries prior to its accession to the WTO, the accession agreement put restrictions on the use of export taxes. Thus, the WTO has shown concern about export taxes in cases where they have been extensively used. However, this still does not explain why the use of export taxes is relatively rare.

3 If instead the tariff of one country has a negative effect on the payoff to another member county, then tariff complementarity can arise under CUs as well. Members will choose a
lower external tariff to internalize the negative effect of one country’s tariff on the welfare of others, resulting in tariff complementarity in this case as well.

4These changes could be transitory, e.g., political shocks to policy preferences, or permanent such as an improvement in a country’s productivity or the introduction of political and economic reforms.

5Feenstra and Lewis (1991) confirm this result in a model where the affected exporting country is compensated with a portion of the tariff revenues or quota rents.