The Economics of Special and Differential Trade Regimes*

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Abstract

We examine the theoretical rationale for the granting of temporary Special and Differential (S&D) treatment to developing countries—both in its protection and market-access components—under the WTO agreements. S&D rules constitute the centerpiece of the WTO's strategy for integrating developing countries into the trading system, but have been criticized—both on theoretical and empirical grounds—as being ineffective. We show that seemingly non-reciprocal, limited-duration S&D treatment can be rationalized as a transitional equilibrium feature of a self-enforcing international agreement between a large developed and a small developing country, where the two sides have a joint interest in helping the developing country to overcome a policy commitment problem.

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1 Introduction

The WTO agreements contain a number of provisions for the Special and Differential (S&D) treatment of developing countries, granting them special rights and privileges and allowing developed countries to give them preferential concessions. S&D provisions include a protection component, in the form of longer time periods for developing countries to implement their tariff commitments, and an access component, in the form of preferential access to the markets of developed countries under the Generalized System of Preferences (GSP).[1] Both components are intended to be temporary: tariff bindings must be complied with at the end of the implementation period; and GSP status is revoked once the granting country determines, on the basis of certain stated criteria, that the beneficiary developing country no longer has a need for it.

The wording of the relevant WTO articles suggests that S&D rules do not just reflect a passive acknowledgement of special needs: one of the stated objectives of S&D rules is to "ensure that developing countries, and especially the least-developed among them, secure a share in the growth of world trade commensurate with their needs."[2] S&D provisions thus appear to be intended as an integral part of a deliberate strategy for encouraging trade liberalization in developing countries.

Yet, S&D rules have been criticized precisely on the ground that they do not produce trade liberalization incentives. In particular, it has been argued that S&D provisions, by formally recognizing the *status quo*, do not encourage trade policy reform in developing countries; on the contrary, they violate the principle of reciprocity—which requires countries to lower their trade barriers together—and thus release developing countries from GATT obligations (Roessler, 1998). At first sight, empirical evidence would seem to lend support to this view, suggesting that developing countries that are withdrawn from GSP indeed become less protectionist. For example, Korea cut average nominal tariffs by six percent after being dropped from the US GSP program; similarly, Samoa, after being graduated, announced a drastic liberalization program aimed at eliminating all tariffs by 2010. These trade policy patterns have been interpreted as evidence that S&D treatment delays developing country liberalization (Özden and Reinhardt, 2003).

The objective of this paper is to provide an explanation for this theoretical puzzle: how can observed S&D provisions be reconciled with their stated objectives? To make sense of this puzzle, we need to take a closer look at the idea of reciprocity. Although

[1] GSP is legitimized under the 1979 Enabling Clause, which allows GATT/WTO members to suspend the granting of most-favoured-nation (MFN) treatment in cases where they are offering lower-than-MFN tariffs to developing countries.

[2] Preamble of Marrakesh Agreement establishing the WTO.

the articles of GATT/WTO do not provide a precise definition of reciprocity, they refer to the exchange of "reciprocal and mutually advantageous arrangements directed to the substantial reduction of tariffs and other barriers to trade" and stress the idea that trade concessions should be "substantially equivalent".[3] Reciprocity is sometimes interpreted as implying conditionality, i.e. one party's concessions being conditional on the other's. However, exchange of concessions and conditionality are distinct concepts, since comparable concessions can take place bilaterally but unconditionally. Moreover, whether or not conditionality is present cannot be determined solely on the basis of the letter of legal documents, since conditionality can exist implicitly. Another relevant distinction concerns the timing of mutual concessions: reciprocal concessions might occur simultaneously or materialize at different times.

Reciprocal liberalization, conditionality, and simultaneity are separate attributes, which can combine in different ways in a given outcome. Yet, these distinctions have remained blurred in the debate on S&D. For example, Roessler appears to take the principle of reciprocity as implying conditionality and simultaneity; and then to take the absence of simultaneous concessions to imply that no conditionality is present. The same applies to the observation that countries lower their trade barriers once they have graduated from GSP: this may simply reflect a temporal lag between reciprocal concessions, rather than GSP graduation directly inducing countries to liberalize.

In this paper, we show that temporary S&D treatment, in both its market-access and protection components, can be rationalized as a transitional cooperative regime between a small developing country and a large developed country, where concessions are reciprocal but non-simultaneous, and are linked, explicitly or implicitly, by conditionality.[4] This interpretation of S&D rules relies crucially on recognizing that cooperative trade policy outcomes must be *self-enforcing*: in the absence of a supranational agency with direct power to punish violators, trade policy cooperation must be sustained by

[3] Much of the policy debate on reciprocity revolves around the problem of measuring and comparing the significance of different concessions (see Finger and Winters, 2002).

[4] Explicit elements of conditionality are often included in GSP programs. For example, one of the conditions for a country to be eligible to GSP preferences by the United States is "the extent to which the country has assured the United States it will provide equitable and reasonable access to its markets" (see Section 502(c)6 of the US Trade Act of 1974). Also, under the US African Growth and Opportunity Act (AGOA) passed in 2000, GSP is extended for Sub-Saharan African beneficiary countries for seven years longer than in the rest of the world and qualify for an expanded list of GSP products beyond that available for other geographic areas. However, eligible AGOA recipients should eliminate their "barriers to US trade and investment". In December 2003, the United States dropped the Central African Republic and Eritrea from the list of AGOA beneficiary countries because they did not meet eligibility requirements.

mutual and continuously renewed threats of credible punishment of defections (Bagwell and Staiger, 1997; Maggi, 1999; Ederington, 2001). It is only when we look at S&D rules from this perspective that we can make sense of their temporal pattern.

We develop our arguments in a large-small two-country model of trade and protection lobbying. Our modelling choices are based on the following set of observations: (i) least developed countries (LDCs)[5] receive much stronger S&D preferences than other developing countries; being small market players, LDCs should find it in their interest to liberalize unilaterally, but seem unable to do so;[6] (ii) special interests exert significant influence on trade policy formation, both in developed and developing countries; (iii) S&D preferences are granted on a temporary basis; it would thus seem that the obstacles that these countries face are viewed by all parties as being transitory.

As a natural way of rationalizing the apparent gap between short-run protection incentives and long-run liberalization incentives (premise (i) above), we assume that policymakers in the small country suffer from a commitment problem.[7] In turn, we describe this time consistency problem as being related to pressure from import-competing groups (premise (ii)). We show that the presence of a commitment problem in the small developing country is crucial in explaining the scope for trade cooperation with the large developed country, and that the temporary nature of S&D treatment (premise (iii)) can be explained by the combined presence of a commitment problem and stock effects: if capital stocks in small country's import competing sector can adjust quickly, a "jump" to a long-run trade agreement may be feasible; however, if capacity depreciates slowly, the small country will be facing transitional constraints. In this case, we show that a self-enforcing transition agreement will necessarily feature higher protection in the small country in comparison with long-run equilibrium tariffs (i.e. delayed

[5] Forty-nine countries are currently designated by the United Nations and the World Bank as LDCs. The current criteria are: low national income (per capita GDP under $900 for countries now joining the list), weak human assets (a composite index based on health, nutrition and education indicators) and high economic vulnerability (a composite index based on indicators of instability of agricultural production and exports, inadequate diversification and economic smallness). Different thresholds are used for addition to, and graduation from, the list of LDCs. A country qualifies for addition to the list if it meets inclusion thresholds on all three criteria, and if its population does not exceed 75 million.

[6] The simple average MFN tariff of LDCs in 2000 was eighteen percent, which was higher than that of other developing countries (fifteen percent) and well above that of industrial countries (five percent). See IMF information Database (TIPID).

[7] The idea that policy discretion might provide governments with an incentive to renege on earlier promises and that this incentive could undermine the sustainability of optimal government policies was introduced in the seminal paper by Kydland and Prescott (1977). Time inconsistency problems often arise in international trade policy, as shown by Staiger and Tabellini (1987), Matsuyama (1990), Tornell (1991), and Maggi and Rodriguez-Clare (1998).

implementation); and, under certain conditions, lower protection by the large country will also be required (i.e. temporary GSP concessions).

Our analysis deals exclusively with the trade-related incentives associated with S&D rules. Any economic gains a large country may experience from gaining access to a small country market will, by definition, be perceived by the large country as being small, and could therefore be overshadowed by other considerations (e.g. relating to defense or security concerns, or even to altruistic motives) in shaping the large country's trade policies. While we do not deny that this may the case, we show that it is possible to rationalize S&D provisions solely on the basis of trade-related incentives.

We show that, when viewed in the context of self-enforcing cooperation, the market-access and protection components of S&D, even though they are not formally tied, become linked by conditionality both within and across periods: in each period, cooperative policies are sustained by the threat of future punishment; at the same time, concessions are exchanged across different time periods—with the large country offering temporary preferences in exchange for future market access, and the small country's determination to disentangle itself from its commitment problem being shored up by the prospect of facing future punishment by the large country for failing to succeed.

The interpretation of temporary S&D provisions as part of a carrot-and-stick mechanism to help the developing country to overcome their transitional institutional problems and to liberalize their economies is in line with the stated objectives of the law.[8] As stressed by Michalopoulos (2000), "the fundamental justification for the extension of additional time to implement agreed measures relates to weaknesses in the institutional capacity of developing and least developed countries. It is assumed that, given additional time (as well as technical assistance, which is often also expected to be provided in these areas), developing and least developed countries will strengthen their institutions in ways that would enable them to implement the agreements" (p. 22).

The remainder of the paper is organized as follows. Section 2 briefly describes the evolution of S&D provisions in the GATT/WTO. Section 3 presents the main features of our model, focusing on a single round of strategic interaction (the stage game). Section 4 looks at the long-run trade agreements that can be sustained under repeated interaction. Section 5 discusses existing S&D rules as transitional cooperative regimes, when capacity constraints make it impossible to immediately reach a low-

[8] Existing work by Coates and Ludema (2001) and Krishna and Mitra (2003) shows that permanent unilateral concession by a large developed country can be part of a system of incentives designed by the large country to induce liberalization in a small developing country. Their analysis can thus explain how *permanent* unilateral liberalization by a large developed country ("trade policy leadership," in the words of Coates and Ludema, 2001) can encourage liberalization by a small developing country, but cannot provide a rationale for both components of S&D treatment and for their temporary nature.

tariff agreement. Section 6 discusses competing explanations. Section 7 examines the conditions under which S&D treatment could be granted unilaterally. Section 8 concludes.

2 A Brief History of S&D Rules

As mentioned earlier, current S&D provisions consists mainly of longer implementation periods and GSP preferences, both of which are temporary in nature: implementation periods are transitory by definition,[9] while GSP preferences are lost upon "graduation," i.e. when a beneficiary country is deemed by the granting country to have attained a sufficient level of progress. Also, there is a strong emphasis on meeting the special needs of the LDCs, which are granted even longer implementation periods[10] and more favourable GSP preferences.[11]

Since the early years of the GATT, both developed and developing countries have long accepted the concept of S&D treatment, but its interpretation and implementation in terms of legal rules have evolved significantly over time (see Michalopoulos, 2000, and Whalley, 1999).

Until the early 1980s,[12] S&D treatment was primarily meant to meet the special problems of development faced by developing countries, according them special rights

[9]The length of the transition periods for developing countries varies considerably: from two years (SPS and Import Licensing), five years (TRIMs, Custom Valuation, and TRIPS), ten years (agriculture) and even up to an undetermined time (GATS).

[10]For example, the agreement on TRIPs required industrialized countries to implement its provisions within one year and granted developing countries a transition period of five years (extendable to ten years for technology sectors where no previous intellectual property protection was accorded). For LDCs the allowed delay was eleven years.

[11]For example, LDCs may receive duty-free benefits under the US GSP program for some products otherwise exempted from the program. Granting GSP preferences to developing countries other than LDCs has become less attractive as a policy option for the granting countries, due to the tightening of the WTO rules and procedures on waivers. New rules and procedures on waivers are specified by the Understanding in Respect of Waivers and Obligations under GATT 1994 (Article IX).

[12]The important milestones in this period are: (i) the modification of Article XVIII of GATT in 1954-55 to allow developing countries to use trade restrictions for balance-of-payments purposes and infant industry protection; (ii) the establishment of UNCTAD and the creation of the Committee on Trade and Development in the GATT in 1964; (iii) the addition of Part IV on Trade and Development to the GATT in 1965; and (iv) the adoption of the Enabling Clause in 1979, which, by allowing GATT members to grant tariff preferences to developing countries and LDCs without having to grant the same treatment to industrialized countries, effectively sheltered these sorts of preferences from the GATT's MFN obligations.

to nurture infant industries and to obtain preferential access to developed countries' markets. The principle of non-reciprocity for developing countries (Article XXXVI) indicated recognition of unequal playing fields between developed and developing countries. Preferential treatment took many forms: better market access for exports by developing countries in accordance with GSP, so that they could boost economic development through exports; a lesser level of obligations for developing countries which provided them with the necessary flexibility to pursue policies for industrialization and economic development; and no requirement for developing countries to sign and adhere to all the agreements in GATT.

In the early 1980s, the situation changed rather dramatically. There was a broad consensus that the past approach to S&D treatment had been disappointing in that it had provided little incentive for developing countries to participate more fully in the multilateral trading system (see Whalley, 1999). There was also a growing disenchantment with the development strategy based on import substitution (see Kreuger, 1997, and Bora *et al.*, 2000). This led to a change of focus in the use of S&D treatment from problems of development to problems of implementation. Such change of focus meant that: (a) it was assumed that the level of development had no relationship with the level of rights and obligations under the multilateral trading system; (b) the same policies could be applicable for countries at various levels of development: all that was required was to grant short transition periods and technical assistance; and (c) developing countries did not have the option to sign or not on the various agreements: all the agreements were part of the Single Undertaking of the Uruguay Round.

In the last few years, development policy has moved near the top of the international agenda. In particular, the WTO Ministerial Declaration that launched the Doha "Development" Round in November 2001 has recognized the vulnerability of the least developed countries and committed the global trading system to "addressing the marginalization of least-developed countries in international trade and to improving their effective participation." Paragraph 44 of the Doha declaration states that "all special and differential treatment provisions shall be reviewed with a view to strengthening them and making them more precise, effective and operational." A total of eighty-eight new proposals on special and differential treatment have been put forward, but no agreement has yet been reached.

One of the main complaints about the current system is the fact that most S&D provisions are not legally binding, either because they are not explicitly included in the WTO agreements or because they are simply expressed as "best endeavor" clauses. For this reason, the Trade and Development Committee has been mandated to consider the legal and practical implications of turning them into mandatory obligations. Another recurrent complaint is the fact that the transitory nature of S&D privileges makes them

"eroding assets" (Stevens, 2003). There have also been calls for S&D treatment to be granted in a nondiscriminatory fashion (i.e. in line with a kind of "Most Favoured GSP Nation" principle.[13]

Our analysis challenges these criticisms. To begin with, including all S&D provisions in the WTO agreements in the form of explicit commitments would not by itself affect their enforceability. Moreover, if a transitional S&D regime is required to help developing countries to successfully liberalize their economies, one cannot say that its value is eroded following graduation. Finally, our analysis suggests that discriminating across beneficiaries may be required to deal successfully with different individual cases.

3 The Model

We focus on the interaction between a small developing country—which cannot affect its terms of trade—and a large developed country—which has monopoly power in trade. Crucially, we assume that the developing country has comparatively less dependable political institutions, in the sense that its policymakers cannot credibly pre-commit to certain trade policy choices, whereas policymakers in the large country can do so (by relying on institutionally available commitment devices). This assumed institutional difference between developing and developed countries, which drives our analysis of the transition to long-run cooperation, seems to be supported by available evidence. For example, if we rely on the World Bank indicator of institutional credibility,[14] industrialized countries are characterized by much more credible institutions than developing countries.[15]

As elsewhere in the literature (e.g. Maggi and Rodriguez-Clare, 1998), we assume that the commitment problem in trade policy arises as a result of special interest pressures. In particular, policymakers in the developing country are subject to protectionist lobbying pressures from the owners of variable inputs.[16] Investment decisions in the

[13] In a recent case brought before the WTO, India has targeted the EU's GSP program for granting certain countries preferential treatment in its efforts to combat illegal drugs.

[14] This index–ranging from a minimum of one to a maximum of six—is meant to measure the credibility of governments' policy announcements. It was constructed by the World Bank and the International Finance Corporation on the basis of a private sector survey conducted during 1996-1998 in seventy-four countries. More than 3,600 firms were asked questions aimed at capturing the reliability of the institutional framework as perceived by the private sector (Brunetti *et al.*, 1998).

[15] For example, the World Bank credibility index is 2.37 for an LDC like Tanzania and 3.87 for the United States.

[16] As we shall show later, lobbying by specific-factor owners should not be expected to give rise to a policy commitment problem of this kind, since the influence of these groups vanishes ex post, given that

import-competing sector are based on expected tariffs; ex post, investors exert pressure for protection so as to maximize the quasi-rents generated by unanticipated deviations of actual tariffs from expected tariffs.[17] With policy commitment, tariffs are fully anticipated and quasi-rents disappear. In the absence of policy commitment, however, forward-looking investment results in ex-post protection pressure for policymakers, which in turn supports high levels of investment in the first place. Therefore trade liberalization—although optimal from a long-run perspective—may not be credible in the short run.

The unilaterally sustainable level of protection in the developing country will thus be higher than that which is ex ante desirable—even when evaluated from the point of view of a non fully benevolent policymaker. This implies that such a policymaker would have an active interest in pursuing liberalization, but may be unable to do so. Then, S&D rules can be interpreted as a feature of an equilibrium agreement between a developed and a developing country where both sides have a joint interest in helping the developing country to overcome its commitment problem and liberalize trade.

The idea that a fully binding international agreement could be used to "tie policymakers' hands," enhancing the credibility of trade liberalization, has been suggested in the aforementioned literature on time-consistent trade policy. For example, Staiger and Tabellini (1987), Matsuyama (1990), and Maggi and Rodriguez-Clare (1998) have suggested that time inconsistency problems in trade policy could be overcome if governments could undertake *binding* commitments through the GATT/WTO. However, this argument neglects that, absent a supranational authority with autonomous powers of enforcement, international trade agreements are not directly enforceable, but need to be sustained by the threat of credible punishments between the parties involved.[18] As we shall show, it is only when we look at the problem in this way—characterizing the agreement as being self-enforcing—that we can account for the S&D provisions we observe under WTO rules.

We show that, if capacity in the import-competing sector cannot immediately adjust to the long-run equilibrium level, the developing country faces transitional constraints and cannot immediately "jump" to the long-term deal. This allows us to focus on the transitional process through which the developing country can move from a distorted

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ex-post rents are constant. It should also be stressed that, in the absence of a commitment problem, adding lobbying pressure in the large country would not affect the main results of our analysis.

[17] The effects of lobbying for quasi-rents by investors has also been examined by Grossman and Helpman (1996), and by Baldwin and Robert-Nicoud (2002).

[18] For an analysis of the two-way relationship between domestic credibility problems and international coordination problems, see Conconi and Perroni (2003).

trade regime towards a more liberal one. A self-enforcing agreement must accommodate both transitional and long-run deviation incentives: a stronger transitional temptation for the developing country to break the agreement and a correspondingly weaker transitional temptation for the developed country translate into the transitional asymmetries we observe under S&D rules. Our analysis shows that, in order to achieve maximum liberalization as quickly as possible, it might be necessary to temporarily allow the small (large) country to have higher (lower) tariffs relative to the long run.

3.1 The Economic Structure

There are two countries, a home country and a foreign country (represented by a "*"), each producing an exportable good and an import-competing good. As mentioned above, we assume that these two countries differ in two ways. The first difference is with respect to their size: the home country is assumed to be small, i.e. to be unable to affect its terms-of-trade, while the foreign country is assumed to be large, i.e. to have monopoly power in trade. The second difference relates to their domestic institutions: policymakers in the home country are assumed to be unable to precommit to trade policy vis-à-vis their private sector, while in the foreign country there are credible commitment mechanisms. In what follows, we will sometimes refer to the home country as the small country or developing country and to the foreign country as the large or developed country.

In the home country, exportables (domestically produced) and importables (imported and domestically produced import-competing goods) are respectively denoted by X and Y, which correspond to importables (Y^*) and exportables (X^*) in the foreign country. Each country levies specific trade taxes, t and t^*, which drives a wedge between the consumer price in the home country and the producer price in the foreign country. For the purpose of our analysis, it is notationally convenient to represent the small country's trade tax as an import tariff and the large country's trade tax as an export tax (relying on a well-known equivalence). The domestic prices of importables are then $p_Y = p_X^* + t^* + t$ and $p_Y^* = p_X$. We normalize the fixed terms of trade faced by the small country (net of any taxes levied by the two countries) to $p_X^*/p_X = 1$. The domestic relative price of importables in the small country is then $p_Y/p_X = 1 + t^* + t \equiv p$. Consumer preferences in the home country are represented by the following quasilinear utility function, $u(D_X, D_Y) = D_X + v(D_Y)$, where D_X and D_Y are, respectively, domestic consumption of exportables and importables, and where $v'(D_Y) > 0$, $v''(D_Y) < 0$. Demand for importables and importables can thus be written as $D_Y(p)$, $D_Y'(p) < 0$. Intertemporal preferences are additively separable, with future payoffs discounted by a constant factor $\delta < 1$.

Production of exportables uses labour and exhibits constant-returns-to-scale. With-

out loss of generality, the constant marginal product of labour is assumed to be unity. The import-competing good is produced using capital alone. In turn, capital (capacity) is produced using labour and a specific factor present in fixed supply (e.g. land). We assume that investors are individually small and forward-looking, i.e. they make their choices on the basis of expected prices $p_E = 1 + t_E + t_E^*$, where the E subscript denotes expected values. At any given period j a certain amount of labour must be devoted to generate capital to be employed in the production of import-competing goods in the subsequent period $j + 1$. The cost at j of obtaining an amount S of import-competing goods in period $j + 1$ is given by $\rho C(S)$, $C'(S) > 0$, $C''(S) < 0$—with convexity implicitly reflecting the presence of the sector-specific factor. Without loss of generality, we shall assume that ρ is equal to the inverse of the subjective discount factor of investors, δ, i.e. $\rho = 1/\delta$. Then, through the profit-maximizing condition $\rho C'(S)/\delta = C'(S) = p_E$, we can obtain ex-ante planned import-competing supply as a function of the expected price, $S(p_E)$, $S'(p_E) > 0$. Once investment decisions have been made, the ex-post domestic supply of importables is fixed at $S = S(p_E)$. This implies that a divergence between expected prices and realized prices will give rise to quasi-rents accruing to domestic investor and equal to the difference between the actual and the expected value of the investment:

$$(p - p_E)S(p_E). \tag{1}$$

3.2 The Political Structure

We assume that, after investment has taken place, investors successfully manage to form a lobby—solving the free-riding problem described by Olson (1965)—whose objective is to affect trade policies so as to maximize quasi-rents. Note that before investment takes place there is no identifiable interest group associated with quasi-rents in the small country's import-competing sector since entry into investment is free and expected rents from investment are zero. It is only ex post that one can identify a closed group of investors who share a common interest in increasing their quasi-rents. This means that, prior to investment taking place, investors would be unable to commit with respect to lobbying pressure to be applied on the policymaker—just as the policymaker is unable to commit to policies at that stage.[19]

[19] The arguments we develop here would also follow through if investors are sufficiently large that changes in their individual level of investment have a sizable effect on ex-post policies (e.g. the case of a monopoly investor). In this case, investment decisions will not be made on the basis of expected prices, and it will no longer be possible to identify quasi-rents separately from rents. Nevertheless, even in this case lobbying would generate a commitment problem (as in Maggi and Rodriguez-Clare,

Consistently with the political contributions model developed by Grossman and Helpman (1994), we assume that incumbent policymakers are semi-benevolent, i.e. their objective function is a weighted sum of aggregate welfare and lobbies' surplus:[20]

$$\Pi \equiv \int_p^{\infty} D(z)dz + \int_0^{p_E} S(z)dz + t(D(p) - S(p_E)) + (1+\lambda)(p - p_E)S(p_E), \quad (2)$$

where λ is a parameter that represents the extent to which the policymaker is "captive" to lobbies. The payoff of the small country's government is thus a function, $\Pi(t, t^*, t_E, t_E^*)$, of both expected and actual tariffs.

3.3 Unilateral Trade Policy Choices

Suppose that the small country is facing a given large country export tax t^*. The unilaterally optimal import tariff for the policymaker in the small country is than that which maximizes (2), given t^*. If the policymaker could commit to a tariff level before capacity is installed, p_E would coincide with p, and there would be no quasi-rents to lobby for. Unilateral liberalization would then maximize welfare in the small country as well as the objective of the policymaker, independently of whether or not the policymaker is benevolent. Thus, in this setup lobbying owes its very existence to the inability of policymakers to credibly precommit to trade policy before investment decisions are made, and policy commitment fully removes any effect of lobbying on trade policy.[21]

If policy commitment is not feasible, trade policy choices will have to be made after investment. Then, for a given level of installed capacity, and for $\lambda > 0$, the optimal tariff for the policymaker will be above zero. Given that potential quasi-rents—and hence lobbying pressure—increase with $S(p_E)$, the tariff will be increasing in the level of installed capacity, and hence will be an increasing function, $t(t^*, t_E, t_E^*)$, of the expected tariffs.

Investors, however, will correctly anticipate future tariffs and prices and select their level of investment accordingly, i.e. $S(p_E) = S(p) = S(1 + t + t^*)$. Provided certain

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1998) resulting in protection bias in comparison with a commitment outcome: the policymaker would like to commit to a lower level of protection than that to which the monopolistic investor forces him to by strategically increasing its investment. Whether this scenario or the one described in the paper will apply to a particular sector will depend upon the degree of concentration in that sector.

[20] As discussed in Grossman and Helpman (1994), this specification can be derived from an agency model where a semi-benevolent policymaker faces lobbies' truthful contribution schedules.

[21] This contrasts with the analysis of Maggi and Rodriguez-Clare (1998), who focus on a small country whose policymakers suffer from a commitment problem but are under the influence of lobbying by specific factor owners, implying that their optimal policy is not free trade.

monotonicity conditions are met,[22] this identifies, for a given constant t^*, a rational-expectation unilateral equilibrium tariff $t = t(t^*, t, t^*) \equiv t_R(t^*)$. Since investors rationally anticipate actual prices, the level of quasi-rents is zero in such an equilibrium; nevertheless, tariff changes produce a non-zero effect on quasi-rents, which translates into ex-post lobbying pressure and a positive equilibrium tariff.

Given that equilibrium quasi-rents are zero, the term associated with lobbying pressure in policymaker's objective function vanishes in equilibrium. Thus, for a given t^*, the policymaker in the small country will always be strictly worse off in an equilibrium with $t_R(t^*) > 0$ than under unilateral liberalization, and therefore the latter would always be the preferred outcome for the policymaker, even if the inability to precommit may prevent the policymaker from achieving it. That is, trade liberalization in the small country is optimal from a long-run perspective but not credible in the short run—a time consistency problem which traps the small country in a vicious circle of inefficient protection and inefficient investment allocation.[23]

Consider now the large country's trade policy choice. The policymaker in the large country will simply choose an export tax which maximizes its surplus, given the tariff chosen by the small country.[24] Neglecting domestic surplus—which can be taken as constant—the surplus the large country derives from trading with the small country

[22] Since the capacity installed is an increasing function of expected tariffs and tariffs are increasing in the installed capacity, the process could be exploding. We thus need to determine the conditions for a perfect-foresight equilibrium to exist and be unique. Twice totally differentiating the first-order condition for an optimum, gives $\partial t/\partial S(p_E) > 0$, $\partial^2 t/\partial S(p_E)^2 < 0$. Assume monotonicity of the first derivative of $S(p)$. Suppose $S(1 + t^*) > 0$, implying that $t(t^*, t, t^*) > 0$ for $t \geq 0$, and that therefore $t = 0$ is not an equilibrium outcome. Then, a sufficient condition for a pure-strategy perfect-foresight equilibrium with $t > 0$ to exist is $S''(p) < 0$ for all p (this ensures that there exists a level S' such that for $S > S'$ the difference $1 + t^* + t(S) - S^{-1}(S)$— where $S^{-1}(S)$ denotes the inverse function of $S(.)$—is monotonically decreasing in S at a non-decreasing rate and that it will therefore reach a point where it is zero). If $S''(p) > 0$ such an equilibrium may or may not exist (but an equilibrium either in pure or in mixed strategies will always exist by general principles.) Suppose $S(1) = 0$, implying $t(t^*, t, t^*) = 0$. Then an equilibrium with $t = 0$ will always exist, possibly alongside other pure-strategy equilibria with $t > 0$.

[23] Since we do not model growth, allocative efficiency—which determines the level of real income—is the only dimension that can be interpreted in this model as relating to economic development, albeit only in a very broad sense. Explicitly modelling growth, however, would not alter the structure of the problem, nor fundamentally affect conclusions.

[24] We could equivalently think of a scenario where large country exporters are oligopolists charging a mark-up that falls short of the (surplus-maximizing) monopolistic markup, and where the gap between the oligopoly and monopoly mark-up is bridged by an export-tax. Then t^* would represent a combination of private sector markup and export tax.

(the value of market access) is simply equal to the revenue from export taxation:

$$\Pi^* \equiv t^*(D(p) - S(p_E)); \tag{3}$$

this is a function, $\Pi^*(t, t^*, t_E, t_E^*)$, of tariffs as well as of the capacity installed in the small country—which is in turn a function of expected tariffs.[25] The large country's optimal export tax choice can be summarized by a reaction function $t^*(t, t_E, t_E^*)$.[26] The equilibrium conditions $t = t(t^*, t, t^*)$ and $t^* = t^*(t, t, t^*)$ together identify Nash equilibrium trade taxes

$$t_N \geq 0, \quad t_N^* > 0. \tag{4}$$

As we noted earlier, for any given level of t^*, a zero import tariff would be an optimal response for the small country, both in terms of maximizing the objective of its policymaker and its aggregate welfare. When we account for the large country's response in a retaliation equilibrium, however, the presence of the commitment problem in the small country, if it is not too severe (λ is small), may be beneficial to the small country, as it serves as a credible commitment to set high tariffs, which the large country may find it optimal to accommodate.[27] Nevertheless, if the commitment problem is sufficiently severe (λ is sufficiently large), it will still hurt the small country in comparison with an outcome where $\lambda = 0$—e.g. if the resulting t^N is large enough to result in a shut-down of trade. In this case, even accounting for accommodation by the large country, the policymaker in the small country would have an interest to achieve unilateral liberalization, but would be unable to do so.

[25] Ex-ante capacity investment in the small country affects ex-post supply responses in the small country, and hence policy responses in both countries. Abstracting from capacity investment in the large country, however, does not add another source of asymmetry between the two countries beyond that which comes from size, since any short-run rigidity in the large country's supply responses, related to capacity constraints, would become negligible when considering interaction with a small country. Also, abstracting from trade policy lobbying in the large country, as we do, does not crucially affect our argument. Lobbying would introduce a systematic source of protection bias in the large country; but, absent a commitment problem, it would not generate the same structure of incentives as it does for the small country.

[26] Tariffs can be strategic complements or substitutes, depending on how the import demand elasticity changes with the price, but this does not affect our analysis.

[27] In other words, the Stackelberg equilibrium tariff for a small country may be positive.

4 Long-run Trade Liberalization

The literature on policy credibility has appealed to the well-known idea that repeated interaction creates incentives to maintain "reputation"[28] and can therefore help overcome policy credibility problems, or at least mitigate them. As described in Stokey (1989), when the interaction between each government and its domestic investors is repeated indefinitely, time-consistency policy problems can be solved by the use of "trigger" punishment strategies involving a permanent reversion by the private sector to the expectation of future inefficient policies: the idea is simply that, if reneging on a policy promise—even only once—entails a permanent loss of credibility, the prospect of future losses can be sufficient to prevent a forward-looking government from going back on its promises.

In this section we look at how trade liberalization in the small country can be sustained under infinite repetition of the stage game described in the previous section. We compare the conditions for the sustainability of trade liberalization when the small country's policymaker acts unilaterally and when it is in an agreement with the large country. For simplicity, our discussion will focus on punishment strategies that involve indefinite reversion to a noncooperative outcome, although our arguments can be easily generalized to different forms of punishment strategies.

Let us first consider a scenario where there is no trade agreement and the large country always best responds to t. Then, a tariff $t_L < t(t^*, t_L, t^*)$, for $t^* = t^*(t_L, t^*, t_L)$, could be sustained unilaterally by the small country in a reputation equilibrium where a deviation from t_L in any given period results in investors indefinitely reverting to the expectation of a tariff $t_N = t(t^*(t_N, t^*, t_N), t_N, t^*(t_N, t^*, t_N))$. This tariff, t_L, is sustainable as long as the small country's temptation to deviate, $\Pi(t(t^*, t_L, t^*), t^*, t_L, t^*) - \Pi(t_L, t^*, t_L, t^*) \equiv \Delta(t_L, t^*)$, for $t^* = t^*(t_L, t^*, t_L)$, is less than or equal to the discounted loss from reverting to (t_N, t_N^*), which is equal to $(\delta/(1-\delta))\,(\Pi(t_L, t^*, t_L, t^*) - \Pi(t_N, t_N^*, t_N, t_N^*)) \equiv \Omega(t_L, t^*)$, where δ is the discount factor by which the government discount future payoffs, which for simplicity we will assume to be the same as for investors; this sustainability condition can be written as

$$\Delta(t_L, t^*(t_L, t_L, t^*)) \leq \Omega(t_L, t^*(t_L, t_L, t^*)). \tag{5}$$

The minimum tariff, t_R, that can be sustained by the small country in this way is identified by equality in the above equation, i.e. $\Delta(t_R, t^*(t_R, t_R, t^*)) = \Omega(t_R, t^*(t_R, t_R, t^*))$.

[28] Consistently with the use in some of the literature, the term *reputation* is used here to refer to policy credibility in the context of a game of complete information. For a discussion of reputation in games of incomplete information, see Fudenberg and Tirole (1996).

Consider now a scenario where there is a trade agreement with tariffs (t_L, t_L^*) between the two countries sustained by Nash-reversion punishment strategies.[29] Then the agreement is sustainable for the small country as long as

$$\Delta(t_L, t_L^*) \leq \Omega(t_L, t_L^*). \tag{6}$$

The temptation, $\Delta(t_L, t^*)$ is decreasing in t^* and is therefore less for $t_L^* < t^*(t_L, t^*, t_L)$— i.e. if the agreement involves bilateral liberalization— than it is for $t^* = t^*(t_L, t_L, t^*)$. A below best-response tariff $t_L^* < t^*(t_L, t_L, t^*)$ in the large country also raises the punishment cost $\Omega(t_L, t_L^*)$ relative to $\Omega(t_L, t^*(t_L, t_L, t^*))$, since the cooperative payoff is smaller in the latter expression and the punishment payoff is the same. Therefore, $t_L^* < t^*(t_L, t_L, t^*)$ is a sufficient condition for an agreement (t_L, t_L^*) to facilitate liberalization by the small country. Notice that such an agreement involves reciprocal liberalization, with reciprocity being conditional on compliance by the small country. Intuitively, a bilateral agreement can make it easier for the small country to overcome its commitment problem as it adds an outside carrot-and-stick inducement that would not otherwise be present.

Proposition 1 *The degree of patience (the minimum discount factor, δ) required for the small country to sustain a given tariff $t_R = t_L$ unilaterally is greater than that required to sustain t_L in a relationship of conditional reciprocity with the large country. For a given degree of patience, a relationship of conditional reciprocity with the large country makes it possible to sustain a tariff $t_L < t_R$.*

Thus, conditional and reciprocal concessions by the large country, while not necessary for trade liberalization to *benefit* the small country, may nevertheless be a necessary condition for trade liberalization to be *sustainable* by the small country.[30]

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[29] Nash reversion punishment strategies have been criticized by Farrell and Maskin (1989) on the basis that they are not renegotiation proof. When only lobbying for quasi-rents is present, there can be no scope for trade cooperation under renegotiation proofness. This is because, if the optimal tariff with commitment in the small country is zero in the punishment phase, any Pareto efficient tariff combination would involve $t = 0$ and in turn this means that the large country would have to "punish itself". Long-run cooperation between a large and a small country under renegotiation proofness may only be possible if there is some non-vanishing lobbying pressure in the small country (e.g. lobbying by owners of specific factor in the import- competing sector). As we have already mentioned, our setup can be readily augmented by allowing for lobbying by the owners of specific factors, without altering the structure of our argument.

[30] Lack of reciprocal concessions could alternatively be characterized as the case where t^* is exogenously fixed, rather than being a best response to t. If we look at this scenario, however, we reach the same conclusions as with t^* is fixed: for $t^* = t_L^*$, the cooperation payoff is the same as with an agreement, but the punishment is greater under an agreement.

The agreement must also be sustainable for the large country: its one-shot deviation gain, $\Pi^*(t_L, t^*(t_L, t_L, t_L^*), t_L, t_L^*) - \Pi^*(t_L, t_L^*, t_L, t_L^*) \equiv \Delta^*(t_L, t_L^*)$ must be less than the cost of Nash reversion, $(\delta^*/(1-\delta^*))\,(\Pi^*(t_L, t_L^*, t_L, t_L^*) - \Pi^*(t_N, t_N^*, t_N, t_N^*)) \equiv \Omega^*(t_L, t_L^*)$:

$$\Delta^*(t_L, t_L^*) \leq \Omega^*(t_L, t_L^*). \tag{7}$$

In order for both $\Omega(t_L, t_L^*)$ and $\Omega^*(t_L, t_L^*)$ to be positive, (t_L, t_L^*) must Pareto dominate the one-shot Nash tariffs. As noted earlier, for λ sufficiently large, tariff combinations with this property always exist.

Note, however, that, if $\lambda = 0$, we have $t = t_R = t_N = 0$. In turn, an equilibrium with $t = 0$ and $t^* = t^*(0, 0, t^*)$ would result in the highest possible payoff for the large country. This implies that, if $\lambda = 0$, and therefore the small country does not face a commitment problem, one can find no alternative feasible tariff combination that can Pareto dominate the unilateral outcome $t = t_R$, $t^* = t^*(t_R, t_R, t^*)$.[31] But if λ, δ, and δ^* are sufficiently large, one may find a sustainable tariff combination (t_L, t_L^*), with $t_L < t_R$ and $t_L^* < t^*(t_L, t_L, t_L^*)$, which benefits both countries.[32] A reduction in t^* accompanied by a reduction in t will always benefit the small country, and it will also benefit the large country—raising the value of market access for the large country—as long as the corresponding sustainable reduction in the small country's tariff is large enough; in turn such a reduction will be sustainable if δ is sufficiently large. Helping the small country to overcome its policy commitment problem may thus also be in the large country's best interest.

This can be summarized as follows:

Proposition 2 *If the small country's policymaker can credibly commit to trade policies (or, equivalently, if $\lambda = 0$) there is no scope for trade cooperation between the large and the small country. If the small country's policymaker cannot credibly commit to tariffs, for λ, δ, and δ^* sufficiently large, there always exists a sustainable, cooperative agreement that Pareto dominates the unilateral reputation outcome.*

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[31] In this limit large/small country case, the presence of lobbying together with the inability to commit are necessary conditions for the small country to be able to engage the large country in a trade deal. The thrust of our argument would also apply to a scenario where the developing country has some market power. In that case the presence of a commitment problem, while not essential for engaging the large country in an agreement, would nevertheless broaden the scope for cooperation. We choose to focus on the small country case as this best illustrates the commitment mechanism upon which our argument is based (by isolating it from terms-of-trade effects), but all the results that we derive below for the small country case can be extended to the general case.

[32] If tariffs are strategic complements, it is possible for such an agreement to feature a tariff in the large country that is higher than the corresponding tariff in a one-shot commitment equilibrium, even when the agreement Pareto dominates a unilateral outcome with $\lambda > 0$.

Thus, the small country's inability to liberalize unilaterally may be instrumental for securing conditional and reciprocal concessions by the large country: not only can the small country rely on reciprocity vis-à-vis a large partner to overcome its commitment problem, but it can also leverage on its inability to precommit to engage a large partner that would otherwise have no interest in trade policy cooperation. In this sense, even when it makes the one-shot tariff retaliation outcome worse, the commitment problem can be beneficial for the small country, which is able to "credibly commit" to high tariffs in case of a breakdown of cooperation.

5 S&D Rules and the Transition to the Long-run Agreement

Our analysis so far generates predictions that are in line with the idea that the small country faces a liberalization problem for which it needs outside help—help which the large country has an interest in offering (consistently with the stated function of S&D rules). What it does not do is explain the temporary nature of S&D treatment and the simultaneous presence of its market-access and protection components. However, as we shall show in this section, it can do so if stock effects are introduced into the previous modelling framework.

When capacity in the import-competing sector depreciates in a single period—as it has been assumed in our analysis so far—transition to a long-run cooperative arrangement, if sustainable, can take place in a single step. Hence, there would be no role here for transitional S&D provisions. In the analysis that follows, however, we shall show that, if capacity depreciates more slowly, the two countries face an additional transitional constraint. Then, under certain conditions, a cooperative equilibrium path will exhibit features consistent with S&D provisions. Suppose that capacity in the small country's import-competing sector depreciates slowly, but there is no lobbying by recipients of quasi-rents. Given that the cost of the installed capacity is sunk, the optimal trade policy for the small country is the same—a zero tariff—in the transition as it is in the long run, and so are cooperation incentives. Thus, stock adjustments cannot by themselves justify the need for a transitional trade policy regime.[33] As we shall show, however, S&D rules can be rationalized as a transitional equilibrium phenomenon in the presence of both slowly depreciating stocks and lobbying by recipients of quasi-rents

[33] Several papers, including Staiger (1995), Bond and Park (2004), and Ju (2004), provide theoretical explanations for gradualism in trade liberalization. However, these papers cannot explain the structure of existing S&D provisions and their temporary nature.

in the small country's import-competing sector.

In what follows, we will focus on an agreement (t_L, t_L^*) which, for given discount factors δ and δ^* can "just be sustained" in the long run, i.e. for which both (6) and (7) are met with equality.[34]

Let $S_L \equiv S(1 + t_L + t_L^*)$ be the equilibrium capacity of the small country's import-competing in such a trade deal. If, starting from a higher level, capacity can immediately be adjusted downwards, it would be possible at any point in time to "jump" to the agreement (t_L, t_L^*). If, however, capacity cannot be instantaneously adjusted to its long-run equilibrium level (as in Brainard and Verdier, 1997), the small country might face transitional constraints, i.e. might not be able to reach the long-run low-tariff agreement instantaneously. To develop our argument, we shall simply assume that there is an upper bound on capital depreciation and denote with $\phi \in (0, 1)$ the rate at which capacity in the import-competing sector can be reduced from one period to the next. Then, if S_j is capacity at period j and N_j is the level of new capacity investment at j, the level of capacity at $j + 1$ is $S_{j+1} = (S_j + N_j)(1 - \phi)$.

For simplicity, in our analysis we will focus on the scenario described by Figure 1, in which the long-run agreement (t_L, t_L^*) can be reached in two periods:[35] at period $j - 2$ countries agree about their transitory and long-run tariffs; at period $j - 1$ they implement transitory tariffs (t_T, t_T^*); from period j onwards, they select long-run tariffs (t_L, t_L^*). Notice that, starting from a certain level of installed capacity, S_0, at $j - 2$—inherited from earlier periods—and given the rate of depreciation, ϕ, it may conceivably be possible to reach the long-run equilibrium in two periods, but it is not possible to do so in one period, i.e.

$$\frac{S_L}{(1-\phi)^2} \geq S_0 \geq \frac{S_L}{1-\phi}. \tag{8}$$

This can be thought of a scenario where the transition to long-run tariffs lasts for two periods, or, alternatively, as the final two periods of a longer process of transition to a long-run equilibrium.

We can then focus on the one-period transition agreement, (t_T, t_T^*), at $j - 1$, which might be needed to get to the long-run deal, (t_L, t_L^*), at j. The long-run agreement can only be achieved at period j if the capacity for period $j - 1$, planned at $j - 2$ on

[34] Notice that this is not necessarily the agreement characterized by lowest overall barriers or the highest volume of trade; nor is it necessarily a constrained efficient agreement. However, all Pareto efficient deals characterized by positive tariffs will have the characteristic of being "just sustainable".

[35] As discussed earlier, the Uruguay Round Agreements specify implementation periods of different length, for different developing countries and economic sectors. Our analysis could easily adjusted to the case of longer transition periods.

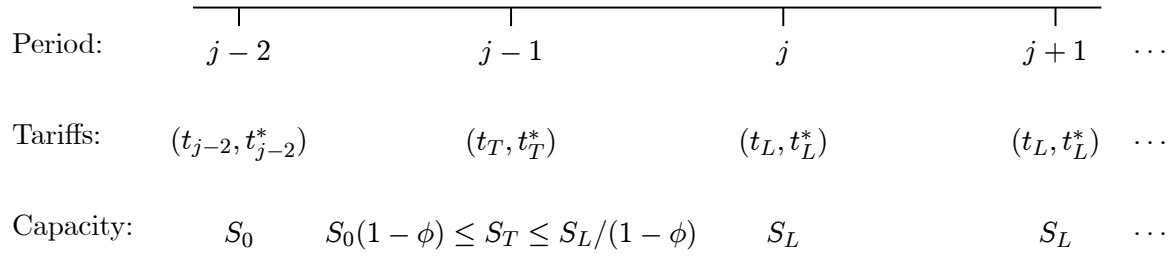

Figure 1: Transitional and Long-run Tariffs and Capacity

the basis of the tariffs expected at $j-1$, does not exceed $S_L/(1-\phi) \equiv \overline{S}_T$. Thus, convergence to the long-run agreement at j requires sufficiently low transitional tariffs at $j-1$, which must also be part of an overall self-enforcing agreement between the two countries, i.e. both transitional and long-run tariffs must be sustainable given the two countries' deviation incentives and the punishment that accompanies deviations.

Note that the punishment for deviating from the transition agreement is the same as the punishment for deviating from the long-run agreement: if a country deviates from transitional tariffs at $j-1$, from j onwards it will face Nash tariffs (t_N, t^*_N) rather than the cooperative tariffs (t_L, t^*_L). In contrast, transitional deviation incentives differ from long-run deviation incentives due to the fact that the small country's import-competing capacity is larger at $j-1$ than at j. It follows that, during the transition, there are larger quasi-rents to be earned in the small country, and its import demand is also more elastic. In turn, this implies that the small country faces a stronger temptation to deviate from the agreement and the large country faces a weaker temptation to deviate from the agreement in comparison with the long run.

Let us first examine the transitional deviation incentives for the small country. The capacity at $j-1$ installed at $j-2$ on the basis of the tariffs expected at $j-2$ can be determined as follows. If transition is completed in two periods, prices will remain constant from period j onwards. Then, we can identify a function $\tilde{S}_T$ relating transitional capacity to the transitional gross-of-tariff price of importables, i.e. $\tilde{S}_T(1+t^*_T+t_T)$ with $\tilde{S}'_T(.) > 0$.[36] This represents the optimal level of capacity when there is

[36] Assume that the cost of installing new capacity at j is a function of the level of capacity installed, in such a way that the marginal cost depends on the total level of capacity, and suppose that this cost can be expressed as $\Gamma[C((S_j+N_j)(1-\phi)) - C(S_j(1-\phi))]$, where, without loss of generality, $\Gamma \equiv \delta/(1-\delta(1-\phi))$. If the expected domestic price of importables from $j+1$ onwards is p_E—as is the case in a long-run agreement with constant tariffs—the expected present value of the revenue flow from the new investment is $\Gamma p_E(1-\phi)N_j$. Then, the optimal level of new capacity investment at j will

positive investment at $j-2$, otherwise, capacity will be $S_0(1-\phi)$. So, capacity during the transition can be expressed as

$$S_T(t_T, t_T^*) \equiv \max\{S_0(1-\phi), \tilde{S}_T(1+t_T^*+t_T)\}. \tag{9}$$

The transitional deviation gain for the small country is given by

$$\Delta_T \equiv \int_{p_T}^{p_D} D(p)dp + t_D D(p_D) - t_T D(p_T) + \lambda(t_D - t_T)S_T(t_T, t_T^*). \tag{10}$$

where $p_T = 1 + t_T + t_T^*$ is the domestic price (ratio) associated with the transitional tariffs and $p_D = 1+t_D+t_T^*$ is the price of importables when the small country optimally deviates from the transition agreement. It can be easily verified that $\partial\Delta_T/\partial t_T < 0$. Proceeding in the same way for the large country, we obtain:

$$\Delta_T^* \equiv t_D^*(D(1+t_D^*+t_T) - S_T(t_T, t_T^*)) - t_T^*(D(1+t_T^*+t_T) - S_T(t_T, t_T^*)). \tag{11}$$

Again, one can verify that $\partial\Delta_T^*/\partial t_T^* < 0$.

Thus, during the transition (at $j-1$), the small country faces a stronger temptation to deviate from the agreement in comparison with the long-run (from j onwards), while the opposite is true for the large country. It then follows that

Proposition 3 *In the transition period, the minimum t that can be supported in the small country for a given t^* and the minimum t^* that can be supported in the large country for a given t are respectively smaller and larger than the corresponding minimum tariffs that can be supported after the transition.*

This, however, does not imply that transitional tariffs *must* exhibit this pattern in comparison with long-run tariffs. In order to characterize the set of sustainable transitional tariffs we need to consider both unilateral policy deviation incentives and investment incentives in the small country's import-competing sector. Specifically, given "just sustainable" long-term tariffs (t_L, t_L^*), sustainable transitional tariffs (t_T, t_T^*) are identified by the following set of conditions:

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be identified by the condition $p_E = C'(S_{j+1})$, as before. If the path of future prices is not stationary, however, the optimal investment condition will be different. In the case of a two-period transition, the present value, at $j-2$, of the revenue flow from a level of investment N_{j-2} can be expressed as $\delta(1-\phi)N_{j-2}p_T + [\delta^2(1-\phi)^2/(1-\delta(1-\phi))]N_{j-2}p_L$. Then, letting $S_T = (1-\phi)(S_{j-2}+N_{j-2})$ and equating marginal revenue with the marginal cost of investment gives $C'(\tilde{S}_T) = (1-\delta(1-\phi))p_T + \delta(1-\phi)p_L$.

1. For each country, transitional deviation gains are less than or equal to long-run deviation gains:

$$\Delta_T(t_T, t_T^*, S_0) \leq \Delta_L(t_L, t_L^*, S_L), \tag{12}$$

$$\Delta_T^*(t_T, t_T^*, S_0) \leq \Delta_L^*(t_L, t_L^*, S_L). \tag{13}$$

2. For given expected tariffs (t_T, t_T^*), capacity at $j-1$ is less than or equal to $\overline{S}_T \equiv S_L/(1-\phi)$:

$$S_T(t_T, t_T^*) \leq \overline{S}_T. \tag{14}$$

These conditions identify a (possibly empty) set of feasible transitional tariff combinations, whose characteristics depend on the parameters of the problem. In order to obtain a more precise characterization, we employ a differential approach, which we develop as follows. Consider scenarios where capacity depreciates just fast enough that two period transition is feasible, i.e. where $S_0(1-\phi)^2 = S_L$. In such borderline scenarios, if we take S_0 as exogenous and make it progressively closer to S_L, the sustainable transitional tariffs will approach (t_L, t_L^*). Let

$$\left(\frac{dt_T}{dS_0}\right)_{S_0=S_L} \equiv \theta, \tag{15}$$

and

$$\left(\frac{dt_T^*}{dS_0}\right)_{S_0=S_L} \equiv \theta^*; \tag{16}$$

i.e. θ and θ^* are the marginal differences between transitional and long-run tariffs in the neighbourhood of a limit scenario with $S_0 = S_L$. In this case, it can be shown that $\partial\Delta_T/\partial t_T^* = 0$. Then, for S_0 approaching S_L and $\phi = 1-(S_0/S_L)^{1/2}$, transition to (t_L, t_L^*) is feasible from j onwards, passing through a single transitional period with tariffs (t_T, t_T^*)—i.e. conditions (12)-(14) are met—if there exist a combination (θ, θ^*) that satisfies the following system of linear inequalities:

$$\frac{\partial\Delta}{\partial t}\theta + \frac{\partial\Delta}{\partial S} \leq 0, \tag{17}$$

$$\frac{\partial\Delta^*}{\partial t^*}\theta^* + \frac{\partial\Delta^*}{\partial t}\theta + \frac{\partial\Delta^*}{\partial S} \leq 0, \tag{18}$$

$$(\theta + \theta^*)\tilde{S}'(p) - 1 \leq 0. \tag{19}$$

For condition (17) to be satisfied, given that $\partial\Delta/\partial t < 0$ and $\partial\Delta/\partial S > 0$, θ must be greater than or equal to a critical level $\hat{\theta} = -(\partial\Delta/\partial S)/(\partial\Delta/\partial t) > 0$. This implies that $t_T > t_L$, i.e. during the transition the small country's tariff must always be higher than the following long-run tariff. We can thus state the following result:

Proposition 4 *When capacity in the import-competing sector of the developing country cannot immediately adjust and the rate of depreciation of capacity is sufficiently small, the developing country must always liberalize gradually. Therefore the temporary protection component of S&D treatment is a necessary condition for the transition to a low-tariff long-run agreement.*

Consider now condition (18), which captures the incentive constraints of the large country. Given that $\partial\Delta^*/\partial t^* < 0$, $\partial\Delta^*/\partial t < 0$, and $\partial\Delta^*/\partial S < 0$, θ^* can be negative or positive. Let $\hat{\theta}^*(\theta)$ be the minimum θ^* for which (18) is satisfied for a given θ, i.e. $\hat{\theta}^*(\theta) = -\left(\partial\Delta^*/\partial S + \theta\partial\Delta^*/\partial t\right)/\left(\partial\Delta^*/\partial t^*\right)$. This value is negative. Substituting $\hat{\theta}$ and $\hat{\theta}^*(\theta)$ into condition (19), we obtain the following prediction about the access component of S&D treatment (GSP):

Proposition 5 *Under the assumptions of Proposition 4, temporary GSP might or might not be necessary for a fast transition to the long-run agreement:*

(*i*) *if $\tilde{S}'(p) \leq 1/\hat{\theta}$, there is no sign restriction on θ^*, i.e. the long-run agreement can be reached in two periods with t_T^* smaller, larger or equal to t_L^*;*

(*ii*) *if $1/(\hat{\theta} + \hat{\theta}^*(\theta)) > \tilde{S}'(p) > 1/\hat{\theta}$, θ^* must be negative, implying that GSP ($t_T^* < t_L^*$) is necessary to reach the long-run agreement in two periods;*

(*iii*) *if $\tilde{S}'(p) > 1/(\hat{\theta} + \hat{\theta}^*(\hat{\theta}))$, then a two-period transition is not feasible.*[37]

Note that the critical values $\hat{\theta}$ and $\hat{\theta}^*(\theta)$ are obtained for a given constant level of capacity, and are therefore independent of investment responses: intuitively, rapid transition will be easier the less responsive investment in the import-competing sector is to prices.[38]

Propositions 4 and 5 imply that the observation that countries dropped from the US GSP program become less protectionist—as stressed, for example, by Özden and

[37] The sum $\theta + \hat{\theta}^*(\theta)$ is minimized for $\theta = \hat{\theta}$.

[38] Quasi-rents in a given period have been assumed to only reflect the gap between unanticipated prices and the prices that were anticipated in the period that immediately precedes the policy change; i.e., once a change is anticipated any windfall gain or loss associated with undepreciated investment is assumed to become sunk. If we instead took quasi-rents as reflecting the difference between the actual value of the investment and the value that was anticipated at the time investment took place, then there would be some positive quasi-rents arising from the undepreciated portion of installed capacity when reverting to Nash—even if the punishment path is fully anticipated after a deviation occurs. These quasi-rents would be larger in the transition in comparison with the long run. Thus, there would be an additional reason for having comparatively higher transitional tariffs in the small country, and an even stronger need for GSP treatment to facilitate transition, strengthening our conclusions.

Reinhardt (2003)—should not be interpreted as evidence that GSP delays liberalization. On the contrary, our theoretical analysis shows that a temporary reduction in tariffs by the large country may be required to secure rapid transition, even if this must always be accompanied by transitionally higher tariffs in the small country. Under such an agreement concessions are linked by conditionality, even if only implicitly. Furthermore, concessions are traded intertemporally (i.e. they are not simultaneous).[39]

Along this transitional equilibrium path, the withdrawal of seemingly unilateral tariff concessions by the large country is accompanied by increased liberalization in the small country.[40] However it is not the withdrawal of tariff concessions that produces liberalization; rather it is the implied threat of Nash reversion that becomes comparatively more effective once transition to a long-run tariff equilibrium has occurred. Thus, GSP graduation does not necessarily mean that the "carrot" is taken away from the small country: a carrot-and-stick mechanism will still be at work in the long-run agreement.[41]

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[39] Our analysis only focuses on bilateral trade in the absence of third-country trade. Accordingly, we characterize preferences in terms of the difference between the tariffs faced by a GSP beneficiary during the transition and the MFN tariffs faced by the same country after graduation. In a setup with more than two countries, preferential market access during the transition is commonly understood as reflecting the difference between GSP tariffs and MFN tariffs faced by non-GSP countries *during* the transition. Such a difference has been shrinking over time as a result of continuing trade liberalization on a MFN basis. For example, Amjadi *et al.* (1996) show that pre-Uruguay Round tariff rates in three major OECD markets (the European Union, Japan, and the United States) on the imports of non-oil products from sub-Saharan African countries averaged 4.56 percent and the margin of preferences was estimated at 4.25 percent. After the Uruguay Round, these figures fell to 2.68 and 2.47, respectively. In a multilateral environment, if the pre-transition MFN tariff is higher than the corresponding post-transition value, the effect of a given GSP preferential tariff on bilateral trade during the transition—other things equal—would be larger because of trade diversion.

[40] Our analysis of the properties of the transition has relied only upon comparisons of deviation incentives; therefore it is independent of the punishment strategies adopted (including strategies that satisfy renegotiation-proofness), as long as the punishment for transitional deviations is the same as the punishment for deviations from the long-run agreement.

[41] Notice, however, that it is also possible for conditionality to disappear in the long-run once transition has taken place: nothing in the preceding analysis rules out the case in which the long run tariff is just the unilaterally sustainable tariff, i.e. $t_L^* = t^*(t_L, t_L, t_L^*)$. But even in such a scenario, transitional cooperation may be present in the form of a transitionally lower tariff by the large country. In this case, the large country would only be engaged transitionally to help the small country reach conditions under which it can sustain liberalization unilaterally (through a reputation mechanism). However, even in this scenario conditionality is present, albeit implicitly, because each country's effort to facilitate liberalization must be reciprocated by the other during the transition in order to be effective, and each country is able to sustain lower tariffs during the transition only on condition that the other country participates in the effort.

As discussed earlier, S&D treatment of developing countries has been criticized for being in violation of the principle of reciprocity, according to which GATT/WTO members should exchange "substantially equivalent concessions." Our analysis shows that S&D rules can be rationalized as a conditional exchange of trade concessions across different periods, when simultaneous reciprocal liberalization is not possible. Our interpretation is supported by the explicit trade requirements included in some GSP programs, such as the eligibility criteria for US GSP status. Also, whether or not conditionality is present cannot be determined solely on the basis of the letter of legal documents, since conditions may be implicit (tacit)—as is often the case, for example, when concessions are exchanged across different policy dimensions.[42]

As stressed by Youssef (2003), "S&D treatment constitutes an integral part of the balance of rights and obligations of the Uruguay Round Agreements as a whole. [Developing countries ...] accepted the obligations in the expectation that some of their concerns would be addressed and dealt with through S&D provisions." >From a legal perspective, WTO rules need only allow for S&D provisions rather than prescribe them. As higher transitional protection by the small country affects all parties in a multilateral system, it must be formally sanctioned by multilateral rules. On the other hand, a lower transitional tariff by a large country can be legally described as a discretionary concession by the large country, which needs to be sanctioned by multilateral rules (through the Enabling Clause) only to the extent that it violates the MFN principle of non-discrimination.

The preceding analysis has established that the structure of transitional and long-run tariffs can be consistent with observed of S&D treatment. It can also be shown that it is consistent with the trade-test graduation criterion applied by many granting countries, whereby GSP status is lost if its exports surpass a given threshold.[43] In the equilibrium transition we have described, capacity has to be declining ($S_T < S_0$). This implies that the gross-of-tariff transitional price (at $j-1$) has to be less than the pre-transition price (at $j-2$). Hence the volume of trade will have to increase in the transition.[44]

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[42]For example, it has been argued that the United States succeeded in internationalizing labour standards (in the International Labour Organization) over the longstanding objections of the developing countries because of the implicit threat to shift the forum on labour standards to the WTO, where disciplines are more demanding (Brown, 2000).

[43]For example, a beneficiary developing country can be graduated from the US GSP program for a given product if its yearly exports of that product to the United States exceed a given threshold (e.g. $100 million per tariff line or $13 million if the exporting country has more than a fifty percent share of U.S. imports.)

[44]GSP preferences often come with many restrictions, product exclusions, and administrative rules.

Furthermore, the equilibrium transition we have described is consistent with an income-based GSP graduation test:[45] given that $S_T \leq S_0$, and as long as the large country's export tax is less at $j-1$ than at $j-2$, welfare (real income) in the small country will be greater in the transitional period than before.[46]

Results on welfare comparisons for both countries are summarized by the following proposition:

Proposition 6 *In the regime where both S&D provisions are present, the following welfare comparisons hold: both countries gain in a long-run agreement in comparison with a no-agreement situation* ($\Pi_L > \Pi_N$ *and* $\Pi_L^* > \Pi_N^*$)*; compared with a no-agreement situation, the developing country will always gain by entering the transition phase of the agreement* ($\Pi_T > \Pi_N$)*, while the large country might gain or lose* ($\Pi_T^* \lesseqgtr \Pi_N^*$)*; compared to the transition period, the large country will always gain in the long-run agreement* ($\Pi_L^* > \Pi_T^*$)*, while the small country might gain or lose* ($\Pi_L \lesseqgtr \Pi_T$).

PROOF: The comparison between the Nash equilibrium (t_N, t_N^*) and the long-run tariff equilibrium (t_L, t_L^*) is straightforward: unless the two coincide, by construction, cooperation yields a higher level of welfare for both countries than noncooperation. Comparing the transition period with the noncooperative and the post-transition outcomes, let us first consider the small country. Compared with the Nash equilibrium, the transition phase involves a reduction in both tariffs, so the small country unambiguously gains.[47] The welfare comparison for the small country between the transition

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Preference programs often cover only a share of exports from developing countries, and among those eligible countries and products, only a fraction of preferences are actually utilized. For these reasons, in 2001, only approximately thirty-nine percent of eligible exports actually received preferential treatment. However, the percentage is much higher for LDCs (around sixty percent), reflecting the fact that they receive much less restrictive treatment (World Bank, 2004).

[45] For example, Section 502(c) of US GSP law includes the level of per capita income as one of the criteria to graduate beneficiary countries. In 1998 the United States dropped Aruba, Cayman Islands, Cyprus, Greenland, Macau, and the Netherlands Antilles from its GSP Program, after these countries become "high income" (i.e. per capita income of $8,956 or more) as defined by the World Bank.

[46] Our model does not explicitly incorporate economic growth, so GDP growth can only be measured here in terms of changes in real income. Nevertheless, our setup could be augmented to incorporate growth mechanisms—including trade-led technological growth—without affecting the nature of our argument.

[47] Recall that it is assumed that λ is large enough that both countries are hurt by the commitment problem. This means that the one-shot noncooperative equilibrium tariff in the small country is above the tariff level which, if the small country were to best-respond, would maximize welfare for the small country (the Stackelberg equilibrium tariff). Therefore, for any given t^*, any reduction from t_N is beneficial for the developing country. Also, for any given t, a reduction in the export tax of the large country, t^*, will always imply a gain in consumer surplus for the small country.

and post- transition period is ambiguous: one can construct scenarios under which the small country will gain by moving from the transition to the long-run agreement[48] and others in which it will lose.[49] Consider next the large country. Under the regime in which both components of S&D treatment are present (i.e. $\theta > 0$ and $\theta^* < 0$), the large country must unambiguously gain from moving from the transition to the post-transition phase, since an increase in its own tariff and a fall in the tariff of the small country both increase its monopoly profits. In contrast, the welfare comparison between the Nash and transition equilibrium for the large country is ambiguous: under some scenarios it will gain[50] while in others it will lose.[51] □

Thus, both countries unambiguously favour the long-run, low-tariff deal compared to a no-agreement outcome. The issue is simply "how to get there " if, due to institutional constraints in the small country (i.e. the existence of a commitment problem and capacity constraints), it is not possible to jump immediately to the long-run deal. Our analysis shows that this can be done through exchanges of concessions across time periods: the large country might willingly accept a drop in the surplus it can extract from the small country in the transition in order to secure a long-run surplus gain; one the other hand, the small country knows that, after temporarily receiving S&D treatment aimed at disentangling it from its institutional problems, it might have to accept a welfare drop. However, this not necessarily the case: there exist equilibrium paths under which the developing country will experience a progressive improvement in welfare despite its loss of GSP status. In other words, the small country may favour

[48] Consider a situation in which, during the transition, the large country grants GSP by a minimum amount ϵ (i.e. θ^* is negative but tending to zero). In this case, graduation will have a negligible effect, while further liberalization from j onwards will unambiguously benefit the small country.

[49] Suppose that we are in a regime where $\theta = \hat{\theta}$ and $\theta^* = \hat{\theta}^*$—i.e. a situation where GSP is necessary to reach the long-run agreements in two periods. Also, assume that $\hat{\theta} = \hat{\theta^*}$. Moving from the transition to the long-run agreement, the small country will experience a loss in consumer surplus (due to the increase in t^*). This may be partly compensated by a gain in consumer surplus (due a reduction in t). However, the small country will also lose tariff revenues. Hence the overall effect will be ambiguous.

[50] Suppose that the long-run agreement involves a tariff t_L^* very close to t_N^*; also suppose θ^* is negative but close to zero, implying that t_T^* is very close to t_L and t_N^*; since the move from the Nash equilibrium to the transition involves some trade liberalization from the small country (i.e. $t_T < t_N$), then it must be that $\Pi_T^*(t_T^*, t_T) > \Pi_N^*(t_N^*, t_N)$.

[51] Imagine a situation in which the payoff of the large country under cooperation is very close to the noncooperative payoff, so that the size of the punishment under Nash reversion tends to zero. Also suppose, that the discount factor δ is close to unity. Then it is always possible to have a regime in which S&D preferences have to be so strong (i.e. $\theta > 0$ and $\theta^* < 0$ are large enough in absolute value) that the monopoly surplus experienced by the large country in the transition is less than under noncooperation.

the post-transition outcome not only relative to the no agreement scenario, but also relative to the transitional outcome (no "asset erosion" need take place.)

Finally, although our analysis has abstracted from growth effects, it is worth noting that the mechanism we have described can be at work whether or not there exist significant growth spillovers from trade liberalization: in this interpretation S&D rules respond directly to problems of implementation, and only indirectly (if at all) to the presence of trade-related development effects.

6 Competing Explanations

The literature on trade and development has identified a number of different mechanisms—not based on political economy—which can also be responsible for protection bias in developing countries: for example, tariff revenue requirements, or trade related technology spillovers. In this section we briefly discuss whether these mechanisms can provide a competing explanation for a transitional S&D regime. We do not claim this discussion to be exhaustive; nevertheless, it demonstrates that many of the mechanisms that are usually thought of as being responsible for protection bias in developing countries cannot easily explain the structure of S&D treatment and its temporary nature.

6.1 Revenue Constraints

It is well known that revenue requirements are a possible source of tariff protection bias in developing countries. The absence of well-developed formal markets and of viable monitoring mechanisms makes taxation of domestic transactions difficult to administer; trade taxes then become an essential source of public funds—in many developing countries tariff revenues account for 10-20% of total government revenues.

However, it is difficult to imagine how a revenue-based bias would, by itself, translate into divergence between transitional and long-run liberalization incentives. On the other hand, if lobbying by quasi-rent recipients is also present, the commitment problem it generates will be compounded by the presence of a tariff revenue premium: a marginal premium on tariff revenues in the objective function of the small country translates into even higher tariffs, which in turn lead to a larger import-competing capacity, higher quasi-rents and so even higher tariffs. Therefore, the argument presented in the previous section would only be reinforced by the presence of revenue constraints.

6.2 Technology Spillovers

Another traditional explanation for temporary protection in developing countries is the infant industry argument. This can be loosely summarized as follows: import-

competing production generates positive technology externalities which are uncorrected by direct instruments (e.g. a production subsidy, which may have too high an opportunity cost in terms of forgone revenues) and which are more significant transitionally than they are in the long run. This may justify higher transitional tariffs.

To focus our discussion, imagine that the technological spillover can only be generated in period j and has permanent effects from period $j+1$ onwards. Such a spillover could lead to a productivity shift in the import-competing sector alone or in the economy at large. Both cases would result in positive incentives for the small country to engage in temporary protection. Whether the large country has an interest in any spillover materializing, however, depends on whether this directly or indirectly increases the value of access to the small country's market. For this to be the case, the productivity shift in the small country must translate into increased demand for imports through income effects. But even if this condition was met, the small country would still have unilateral incentives to increase its protection temporarily, and so there should be no need for the large country to facilitate the process. On the contrary, the unilaterally optimal tariff applied by the large country should by itself already contribute to the expansion of the import-competing industry in the developing country. Thus, there should be no reason for the large country to have to temporarily reduce its tariff (i.e. to grant GSP status), even if, for some reason, the small country was not able to increase its own tariff. The infant industry argument seems unable to account for the observed structure of S&D provisions.

The need for temporary trade protection has traditionally been associated with spillovers in the import-competing sector. However, the literature has also stressed related mechanisms that operate in the opposite direction, such as the so called infant-export industry argument first described by Bhagwati (1968) and trade- driven technological spillovers (Grossman and Helpman, 1991).[52]

Suppose positive spillovers arise from the production of export goods (or from the imports that can be obtained in exchange for those exports) rather than from the production of import-competing goods, which implies that a temporary increase rather than decrease in the volume of trade above the free trade equilibrium level is required. Even this mechanism, if considered in isolation from other distortions, is unable to provide a rationale for S&D provisions. As in the case of infant-industry protection,

[52] According to Grossman and Helpman (1991), countries that trade in world markets invariably learn a great deal about the novel methods that are being used to produce goods. They also state that while it is true that agents in an economically isolated country might also acquire some such information by reading professional journals, speaking to foreign experts, or inspecting prototype products, it seems that the contacts that develop through commercial interaction play an important part in the international exchange of information and ideas.

the large country would only have an interest in the spillover occurring if it increased the value of market access.[53] In this case, the small country will also have an interest in temporarily subsidizing its trade, as long as the long-rung gain exceeds the short-run cost of doing so. If this latter condition is not met, then it is possible that the large country would find it optimal to subsidize trade instead (for example, the small country might discount future gains less than the small country).

The above mechanism could then explain temporary GSP preferences; however, it could not explain the simultaneous application of temporary protection, given that neither country could gain from trade reducing measures. It is only when we also invoke some other temporary source of protection bias that we can account for both components of S&D. For example, the small country could have limited flexibility in reducing its trade taxes because of revenue requirements. A permanent expansion of trade due to a permanent increase in import demand, could ease the effects of revenue requirements in the long run. This explanation, which is based on a different institutional mechanism from those present in our previous analysis, would nevertheless lead to similar conclusions with respect to the interpretation of S&D rules as implying conditionality: the small country would be induced to adopt lower levels of taxation—both during in the transition and in the long run—by the credible threat of the large country raising its tariffs; vice-versa, the large country would be induced to grant GSP during the transition phase by the prospect of the small country being permanently locked in a high-tariff equilibrium.

7 S&D Treatment as Unilateral Concession

The analysis carried out in Section 5 provides an interpretation of the existing structure of S&D provisions as a transitional equilibrium feature of *cooperation* between a developed and a developing country under repeated strategic interaction. However, the granting of GSP status has often been interpreted as *unilateral*, despite the fact that GSP law currently contains explicit elements of conditionality. In what follows, we ask whether the model we have developed in Section 4 and 5 can be modified so as to yield features consistent with a unilateral S&D regime, and, specifically, what institutional framework would be implied by such an interpretation.

As we will show, for this interpretation to be possible certain institutional features must be present. While these features may be consistent with the patterns we observe

[53] This could be the result of either a combination of technological shift plus income effects, as in the case discussed previously. Alternatively, it could have to do with a "market cultivation" mechanism as described by Bhagwati (1968).

for some countries, they are less so in the case of other countries, which suggests that in those cases an interpretation of S&D regimes as cooperative may be more fitting.

7.1 Lobbying by Rent Recipients

As noted earlier, lobbying by rent recipients can explain the presence of a protection bias but cannot by itself provide a rationale for S&D treatment under cooperation. It can, however, make it possible to rationalize a unilateral regime of permanent concessions by the developed country, as the following discussion shows.

Suppose that both rent and quasi-rent recipients lobby but that they do not exert the same influence; specifically, rent recipients can exert more pressure than quasi-rent recipients. Then, it is possible for the ex-ante optimal tariff to be greater than the ex-post optimal tariff. In this case the policymaker of the small country may attempt to sustain a higher tariff unilaterally, and the large country may find it in its interest to lower its own tariff unilaterally in order to bring about liberalization.

Formally, let the policymaker's objective be defined as $\Pi \equiv CS + TR + (1+\lambda')R + (1+\lambda)Q$, where CS is consumer surplus, TR tariff revenues, R is rents (producer surplus), Q is quasi-rents, and λ' and λ are respectively the premia attached to rents and quasi-rents (due to lobbying). Let $t_U(t^*)$ denote the ex-post optimal tariff in a perfect-foresight equilibrium for a given t^*, and $\hat{t}(t^*)$ the ex-ante optimal tariff given t^*.[54] Then, if λ' is sufficiently larger that λ, $\hat{t}(t^*)$ will be greater than $t_U(t^*)$. Suppose that this is the case. Then the policymaker would attempt to support a tariff t_L, with $t_U(t^*) < t_L \leq \hat{t}(t^*)$, unilaterally, i.e. via a reputation mechanism. The condition for such a tariff to be sustainable when the large country best responds to it can again be written as (5). The highest tariff, $t_L = t_R(t^*)$, that can be sustained in this way will be identified by equality in (5).[55]

Suppose, however, that the large country manages to sustain a tariff below its best-response level. Other things equal, a lower expected t^* lowers $S(p_E)$. This results in a lower ex-post optimal tariff, and hence in a lower maximum sustainable tariff t_R. The resulting effect on the volume of imports may produce an increase in the value of

[54] The ex-post optimal tariff is identified by $-S + tD' + (1+\lambda)S = tD' + \lambda S = 0$, which gives (together with the forward-looking condition $p_E = p$) $t_U(t^*) = -\lambda S(1+t^*+t)/D'(1+t^*+t)$. The ex-ante optimal tariff is identified by $-S + t(D'-S') + (1+\lambda')S = t(D'-S') + \lambda' S = 0$, which gives $\hat{t}(t^*) = -\lambda' S(1+t^*+\hat{t}(t^*))/(D'(1+t^*+\hat{t}(t^*)) - S'(1+t^*+\hat{t}(t^*)))$.

[55] Let $\Phi(t_L) \equiv \Delta(t_L, t^*) - \Omega(t_L, t^*)$. $\Phi'(t_L)$ is positive at $\hat{t}(t^*)$, and, by continuity, in a neighbourhood of $\hat{t}(t^*)$. A maximum $t_R < \hat{t}(t^*)$ cannot occur where $\Phi'(t_R) < 0$, otherwise it would be possible to raise t_R further. Thus, either $t_R = \hat{t}(t^*)$ or, for $t_R < \hat{t}(t^*)$, t_R is identified by $\Phi(t_R) = 0$ in the neighbourhood of $\hat{t}(t^*)$ where $\Phi'(t_R) > 0$.

market access for the large country despite the fact that t^* is lower.[56] In this case, the large country may have an interest in unilaterally reducing its tariff.

Such an outcome would be characterized by $t_R^* < t_N^*$, i.e. a unilateral market-access concession by the large country. In this scenario, GSP would be interpreted as a tool to induce liberalization by a recalcitrant policymaker—who would actually experience a higher payoff without it—undermining the policymaker's ability to support inefficient policies. No cooperation is implied here, although bilateral liberalization would take place. A form of conditionality may still be present if deviation by the small country—downwards in this case—triggers withdrawal tariff concessions by the large country. However, punishment is more effective in this case if the large country can also keep its tariff down in the punishment phase, rather than reverting to its best-response tariff, i.e. if the large country's tariff concession is unconditional.

Rationalizing a *transitional* S&D regime in this way, however, is more difficult. Suppose again that capacity does not fully depreciate in one period; and suppose that the large country reduces its tariffs temporarily from t_{j-2}^* to t_{j-1}^*—assuming that the resulting gross-of-tariff price, $1+t_{j-1}^*+t_R(t_{j-1}^*)$, is also less than the pre-transition price and that this reduction is fully anticipated by investors (so that S_{j-1} is less than S_{j-2}). If t^* is restored to its initial level, t_{j-2}^*, from period j onwards, the small country would have no problem reverting, at $j-1$, to the promise of credibly delivering $t_R(t_{j-1}^*)$ from j onwards—given that the stock can adjust immediately upwards to S_{j-2}. So for transitional stock effects to translate into transitional constraints on tariffs in this scenario, there would need to exist an upper bound on the rate at which capacity can be accumulated. Then, starting from a low stock, effects of tariffs on quasi-rents would be small, making it more difficult for the small country to immediately move to a high tariff (which in turn would keep the build-up of capacity in check). Constraints on the rate of build-up of import-competing capacity are not inconceivable (e.g. if we think of the accumulation of human capital) but are on the whole less plausible than depreciation constraints.

7.2 Lobbying by Exporters

There is an alternative mechanism—still involving lobbying from quasi-rent recipients, but on the export side—which can rationalize a transitional regime analogous to the one we have described, but where S&D is nevertheless unilateral in nature.

[56] In other words, the "equilibrium" elasticity of imports with respect to t^* is greater than the corresponding ex-post elasticity, making the Stackelberg equilibrium t^* smaller than its ex-post best-response level.

Suppose that both exportables and import-competing goods are produced domestically in the small country from nontraded goods through decreasing-returns technologies, and require investment in capacity. Let p^H be the domestic price of nontraded goods, and let the net-of-tariff price of importables be normalized to one. Assuming additively separable, quasilinear preferences, defined over importables, exportables, and nontraded goods—with nontraded goods entering utility linearly—domestic demand for importables can be written as $D(p/p^H)$ and domestic demand for exportables as $D_X(1/p^H)$. Capacity in the import-competing sector, $S(p_E/p_E^H)$, and capacity in the export sector, $S_X(1/p_E^H)$, both depend on expected prices and are fixed ex post. Quasi-rents in the exporting sector are $(1/p^H(t,t^*) - 1/p_E^H)S_X(1/p_E^H)$, while quasi-rents in the import-competing sector are $(p/p^H(t,t^*) - p_E/p_E^H)S(p_E/p_E^H)$. For simplicity, also suppose that rent recipients and quasi-rent recipients exert the same influence on policymaking.[57]

In this model, the price of nontraded goods is an implicit function of tariffs $p^H(t,t^*)$ (determined by trade balance). Suppose then that dp^H/dt is positive but less than one in absolute value[58]—which implies that $d(p/p^H)/dt$ is positive. In this case, quasi-rents in the import competing sector will be increasing in t but quasi-rents in the exporting sector will be decreasing in t.

As before, the policymaker's payoff will be the sum of consumer surplus, tariff revenue, weighted rents, R, and weighted quasi-rents, Q. Then, the ex-post optimal tariff $t_R(t^*)$ can be positive or zero (disallowing subsidies) depending on whether dQ/dt is positive or negative (dR/dt is always zero ex post).[59] The ex-ante optimal tariff, $\hat{t}(t^*)$, on the other hand, will only depend on dR/dt (since dQ/dt is zero ex ante).[60] It could then be the case that, for λ positive, dR/dt is positive and therefore the commitment tariff is positive, but dQ/dt is sufficiently smaller than dR/dt that the no-commitment tariff in the small country is less than the commitment tariff.

In this scenario, the policymaker in the small country would again benefit from being able to commit to a higher tariff, and if commitment is not possible, a higher tariff may be sustained unilaterally through a reputation mechanism. Then, as in the scenario discussed earlier, the large country could successfully undermine the small country's ability to sustain a high tariff by lowering its own tariff, leveraging on the

[57] This general specification encompasses the scenarios discussed earlier as special cases.

[58] The expression for dp^H/dt is $(1+t^*)D'/[(1+t^*)(p/p^H)D' - (1/p^H)D'_X]$.

[59] Equilibrium tariffs are identified by the first-order condition for payoff maximization in conjunction with the forward-looking condition $p_E = p$, $p_E^H = p^H(t,t^*)$.

[60] The ex-ante optimal tariff is found by first substituting $p_E = 1 + t^* + t$ and $p_E^H = p^H(t,t^*)$ into the expression for the payoff, and then deriving a first-order condition for a maximum.

small country's commitment problem vis-à-vis its export lobbies—a mechanism that is closely related to that described in Krishna and Mitra (2003). In the presence of slowly depreciating capacity, one could rationalize a temporary reduction in t^* just as we did in our previous analysis: starting from a history of high tariffs, the small country will have inherited a small exporting capacity, making it possible to credibly sustain high tariffs indefinitely; a temporary reduction in the large-country's tariff may raise capacity just enough so that the small country is unable to revert to a high-tariff, low-capacity reputation equilibrium. Then, following this transitional period, the large country could revert to comparatively higher tariffs without triggering any significant increase in tariffs by the small country.[61] No cooperation would again be present: liberalization by the large country would be a unilateral move used to force an unwilling policymaker to liberalize by trapping her in a "pro-trade bias" commitment problem. GSP would be used temporarily and unilaterally.[62]

For such a pattern to arise, several conditions must be met: there must be a permanent (rents related) protection bias working against a transitory (quasi-rents related) comparative liberalization bias. In turn this means that there must be larger marginal effects on rents in the import-competing sector than in the exporting sector, while the opposite must be true for quasi-rents. Whether or not such a scenario is plausible for any particular country depends on the types of goods that are traded by that country. If we examine the list of countries and sectors granted GSP status, we see that in some cases preferential tariffs favour traditional exporting sectors (such as agricultural exports), which we would expect to generate significant rents (e.g. from land and natural resources) but not to involve significant new capacity investment.[63] Moreover, there is clear evidence that declining industries are more effective at lobbying than new industries are (Grossman and Helpman, 1996; Baldwin and Robert-Nicoud, 2004); thus,

[61] Krishna and Mitra (2003) do not look at transitional outcomes. In their framework, the endogeneity of lobbying derives from the presence of fixed lobbying costs, rather than quasi-rents; extending their specification to capture transitional equilibrium preferences would require assuming that lobbying costs are not only fixed but temporally sunk.

[62] One can imagine a fourth type of scenario, with both lobbying from both rent and quasi-rent recipients on the export side, with the former dominating the latter. Then the ex-ante optimal tariff would be less than the ex-post tariff. This would give rise to a scenario where S&D is cooperative in nature but permanent (unless there is an upper bound on the rate of build-up of export capacity).

[63] For example, data from the United States Trade Representative show that the leading US imports from Sub-Saharan GSP recipients include crude oil, unwrought platinum, diamonds, and cocoa. Similarly, leading imports from Latin-American beneficiaries under the Caribbean Basin Initiative (CBI) comprise agricultural products and commodities, bars and rods of iron or steel, higher priced cigars, raw sugar, beef, and ethyl alcohol.

a history of protection would generate an intrinsic bias in favour of import-competing industries rather than exporting industries.[64] Nevertheless, in some cases (e.g. some East Asian and Southeast Asian countries), the interpretation presented in this section seems plausible.

8 Conclusion

We have shown that S&D treatment under existing WTO rules can be interpreted as a transitional equilibrium feature of a self-enforcing international agreement between a developed and a developing country, where both transitional and post-transitional policy choices can be sustained by each party because of the policy path followed by the other. In our interpretation, the two components of S&D, even though they are not formally tied, become linked by conditionality both within and across periods: in each period, cooperative policies are sustained by the threat of future punishment; at the same time, concessions are exchanged across different time periods.

If the developing country cannot immediately shrink the capacity of its import-competing industry and jump to a low-tariff agreement, it will face transitional constraints. A self-enforcing agreement must accommodate both transitional and long-run deviation incentives: a stronger transitional temptation for the developing country to break the agreement and a correspondingly weaker transitional temptation for the developed country. These incentives translate into the transitional asymmetries we observe under S&D rules.

This interpretation reconciles observed S&D provisions with their objectives as stated in the law, by showing that temporary S&D treatment can help developing countries to overcome their institutional problems and can thus encourage them to liberalize their economies. Temporary preferences can indeed produce a "ratchet effect" on liberalization incentives, so that they are no longer required once the initial institutional hurdles have been overcome. Furthermore, contrary to the view held by some in the policy debate, reciprocity (of the non-simultaneous kind) and conditionality (cooperation) are consistent with S&D treatment.

Our analysis aims to provide an internal consistency check on international law:

[64] This pattern could be predicted by our modelling framework if we assumed that owners of undepreciated capital can act as a cohesive "monopoly" lobby, given that they are identifiable prior to policy choices. Then, they could anticipate the effect that their lobbying will have on the process of transition, and hence they could attempt to sustain a comparatively stronger lobbying pressure by reputation in order to delay transition. On the other hand, investors in an expanding export sector would be identifiable prior to policy choices, and could therefore not form a cohesive lobby ex ante.

we have described a model, which is very much in line with the current consensus on how trade policy is formed, and which is capable of producing an interpretation of S&D rules as facilitators of trade liberalization. We make no claim of realism for our model; rather, we demonstrate that the observed structure of the law—and specifically an interpretation of the law that implies conditionality and cooperation—*can* be explained if the perceptions of the parties involved are consistent with the model we describe. Nevertheless, certain features in the law—e.g. explicit conditionality elements in GSP law—do suggest that this interpretation of S&D rules seems more likely than one in which S&D treatment is unconditional. Also, we do not claim that a cooperative interpretation of S&D treatment should apply generally, since in some cases it may be possible to rationalize S&D treatment as unconditional. If conditionality *is* present, it can operate implicitly, without having to be written in a formal agreement. Nevertheless, to the extent that we expect written agreements to reflect changes in the underlying equilibrium relationships, we would also expect the written law eventually to be more explicit about the conditionalities involved in S&D; but this would not make S&D provisions directly binding, as some suggest, since their application ultimately rests in the hands of the developed and developing countries involved.

The multilateral trading system stands at a crossroads. Will the Doha Agenda regenerate the multilateral consensus that has been the hallmark of successive rounds of trade liberalization since the creation of the GATT in 1947? Or will the Doha Agenda collapse, possibly opening the floodgates for a multitude of preferential arrangements? Success or failure appears to hinge crucially on progress being made on development related objectives—to "secure beneficial and meaningful integration into the multilateral trading system and the global economy."[65] Developing countries' dissatisfaction with the present system stems from a widespread perception that developed economies have been the ones to benefit the most from earlier liberalization rounds.

In the ministerial declaration of the Doha Round, countries have "agreed that all special and differential treatment provisions shall be reviewed with a view to strengthening them and making them more precise, effective and operational." Calls for reform in the WTO S&D system have paralleled a shift towards greater emphasis on problems of implementation. On the basis of our analysis, the current stress on the need for S&D treatment to be transitory (rather than permanent) suggests a change in the structure of liberalization incentives. And the emphasis on implementation problems, as well as the explicit mention of conditionality in GSP law, suggests a shift from a unilateral to a cooperative regime. Both changes would be consistent, in our interpretation, with increased pressure from quasi-rent recipients on the import-competing side.

[65] WTO, 2001 (Declarations of the WTO Ministerial Conference in Doha).

However, not all developing countries are alike, and different individual situations may give rise to different types of S&D regime (transitional or permanent; cooperative or unilateral). So, it may not be possible to slot all developing countries into a single regime, and may therefore not be desirable to draw a legal framework which establishes uniform rules applying to all cases.[66]

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[66] The need to differentiate among developing beneficiary countries has been asserted by a recent landmark ruling of the WTO Appellate Body in the aforementioned case brought by India against the EU (ref. Footnote 13). On 7 April, 2004 the Appellate Body pronounced that developed countries are not prohibited by WTO rules from granting different tariffs to products originating in different developing countries under the GSP, provided this is done in an objective, non-discriminatory and transparent manner.

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