Doha and the Developing World: Explaining Deadlocks in WTO Negotiations

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PRELIMINARY AND INCOMPLETE

Abstract

To date, the received theory regarding the theoretical underpinnings of multilateral trade negotiation does not provide a satisfactory account of the impasses that have characterised recent WTO meetings. This paper attempts to address this omission by extending the widely cited model of Bagwell and Staiger (1999, 2002) to explain the observed phenomena of developing country coalition forming in WTO negotiations and developed country non-cooperation with such coalitions. When seen from this perspective, WTO negotiating deadlocks, such as those at the Cancún ministerial, can be regarded as stemming from power struggles between these two opposing groups.

1. Introduction

The cessation of proceedings within the Doha development round of the World Trade Organisation (WTO) has added impetus to the notion that the current multilateral trade negotiating framework suffers from inherent flaws that preclude it from success. Identifying remedies to these flaws requires sufficient understanding of the mechanisms that create them. However, to date, the received theory regarding the theoretical underpinnings of multilateral trade negotiation does not provide a satisfactory account of the impasses that have been the source of negotiating deadlocks; a lacuna that this paper attempts to go someway towards addressing.

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Clearly, trade negotiations can, and have, broken down in the past for myriad reasons and it is beyond the scope of this paper to provide a comprehensive explanation for every past and potential cause of impasse. However, two key phenomena distinguish the present problems from those of previous rounds and merit particular attention: the emergence of infrangible developing country negotiating coalitions; and the proliferation of Preferential Trade Agreements (PTAs). It is the contention of this paper that these two phenomena are related and partly responsible for the demise of the Doha round.

Coalitions of developing countries that negotiate collectively have been a feature of multilateral trade negotiations for a number of years. However, as noted by Baldwin (2006) and Narlikar and Tussie (2004), the coalitions of the Doha round were much more active, cohesive and, ultimately, integral to the eventual outcome of the negotiations than those of previous rounds. By the time of the Cancún ministerial there were several major developing country groups: the group of Least Developed Countries (LDC); the Small and Vulnerable Economies (SVE); the Like-Minded Group (LMG); the African Caribbean Pacific group (ACP); the African Group; the Core Group; the coalition on cotton; the alliance on Strategic Products and Special Safe-guard Mechanism; and the G20. Moreover, these coalitions were not as autonomous as this listing suggests; inter-group cooperation lead to a web of related developing country negotiating stances involving logrolling as well as moral support for single issues such as that of the concerns of the cotton producers.

Narlikar and Tussie (2004) argued that existing theories of coalition stability, such as those of Hamilton and Whalley (1989) and Kahler and Odel (1989) etc, predict that cohesion based upon such a multiplicity of interests is susceptible to domino-effect style fragmentation catalysed by bilateral 'carrots and sticks' offered by more powerful negotiating partners. However, contrary to theory, the coalitions of the Doha round held their ground in spite of considerable arm-twisting by the developed countries. Possible reasons for this are manifold: superior, hybrid coalition structures incorporating features from both bloc-style and issue-based coalitions; strong leadership from the emerging economies; and well balanced agendas etc. The failure of developed countries to recognise the credibility of developing country threats is posited by Narlikar and Tussie (2004) as the foremost explanation of the collapse of

the Cancún ministerial. Essentially, past experience, and knowledge of coalition theory, led developed countries to conclude that concessions were not necessary in the endgame as bilateral carrots and sticks should be enough to break coalitions; thus an impasse was reached. However, this diagnosis fails to consider the second distinguishing feature of the Doha round: the proliferation of PTAs.

Since the early 1990s the number of regional trade agreements has quadrupled to the extent that every member country of the WTO, except Mongolia, is party to at least one PTA, and on average each country belongs to six PTAs (World Bank, 2005). Interestingly, the EU and the US (which traditionally eschewed PTAs until the closing years of the Clinton administration) have actively been pursuing PTAs with developing countries since the collapse of the 2003 WTO ministerial in Cancún. Indeed, following the end of the Cancún talks, the chief US negotiator claimed to have been approached by numerous developing countries hungry for bilateral deals even before the talks had been formally postponed (the Economist, 2003). This so-called 'new regionalism' encompasses a great deal of North-South trade deals, with approximately 45 developing countries having signed bilateral PTAs with a Northern trading partner (World Bank, 2005).

The opportunity cost of multilateral trade agreements is that of the value of PTAs foregone. Thus, the threat-point of developing country coalitions during WTO trade rounds is not total non-agreement, but a move to bilateral rather than multilateral negotiation. Accordingly, economists have sought to ascertain whether PTAs have a positive or negative impact upon the goal of universal free trade as reflected in Bhagwati's (1993) memorable phrases "building blocks" and "stumbling blocks". What has not yet been considered in this literature is the impact that developing country coalitions within multilateral trade negotiations have on the relative desirability of PTAs. Whilst liberalisation is not a zero sum game, the actions of trade negotiators are often viewed as mercantilist in nature, as noted by Krugman (1991) and explained by Bagwell and Staiger (1999, 2000). Accordingly, from the point of view of developed country negotiators, a better deal for developing countries is viewed as worse deal for developed countries. Consequently, a large proportion of the problems of the Doha round can be explained thus: the multilateral deal sought by resilient developing country coalitions reduced the relative merit of multilateral

negotiation, from a developed country perspective, to such an extent that PTAs became more desirable. The impasse was not caused by naïve developed country logic, but by the well informed choice of developed countries to pursue bilateral outcomes, which, for them, would be superior to a successful Doha round. Essentially, the new found fortitude of developing country coalitions and the rise in PTAs can be viewed as cause and effect with WTO based negotiation being a victim in the process.

This paper presents a formal exposition of the notion that coalitions reduce the desirability of multilateral outcomes from a developed country perspective by extending the Bagwell and Staiger (1999, 2000) framework to incorporate 3 countries (one large developed country and two smaller, identical developing countries) that have the option to negotiate bilaterally or via the WTO. A welfare taxonomy is developed to show the benefits to each country under a variety of different scenarios. It is found that…

The structure of this paper is as follows: section 2 provides a non-technical summary of the model; section 3 presents the model in full; section 5 discusses potential remedies to the problems discussed; and, finally, section 6 discusses directions for future research and concludes.

2. Model

The current model consists of three countries and two goods. Country A is a large country that exports good *y*; and countries B and C, are two small identical countries who both export good *x*. It is assumed that countries B and C are of a sufficiently low level of development as to be eligible for Special and Differential Treatment (SDT) within WTO negotiations. For simplicity it is also assumed that countries B and C do not trade with each other.[2] Let the local relative prices faced by producers and consumers be defined as $p^i \equiv P_x^i / P_y^i$ for $i \in \{A, B, C\}$ and define the world price of each good as P_j^* for $j \in \{x, y\}$. Given that good *y* is the export good in country A, the price will correspond with the world price such that $P_y^A \equiv P_y^*$. Likewise, the domestic

[2] This avoids the possibility of trade deflection as discussed by Richardson (1994).

price of good x in countries B and C will correspond with the world price such that $P_x^i \equiv P_x^*$ for $i \in \{B,C\}$. Ad valorem import tariffs applied to imports from countries B and C by the government of country A are denoted as t^{AB} and t^{AC} respectively, whereas tariffs on imports of good y in countries B and C are denoted as t^i for $i \in \{B,C\}$; all tariffs are assumed not to be of a prohibitive magnitude. Expressing the terms of trade in each bilateral relationship as

AB: $p^{AB} \equiv P_X^B / P_Y^A$

AC: $p^{AC} \equiv P_X^C / P_Y^A$

and defining $\tau^i \equiv (1+t^i)$ for $i \in \{AB, AC, B, C\}$ allows the following relationship among the local relative prices to be derived utilising the fact that the law of one price necessitates that local prices in country A must be the same irrespective of the origin of the imports of good x:

$$p^B = p^{AB} / \tau^B \tag{1a}$$

$$p^C = p^{AC} / \tau^C \tag{1b}$$

$$p^A = \tau^{AB} p^{AB} = \tau^{AC} p^{AC} \tag{1c}$$

Production in each country is determined by selecting the point on the production possibilities frontier that represents equality between the local relative price and the marginal rate of transformation such that output is given as $Q_j^i \equiv Q_j^i(p^i)$, for $i \in \{A, B, C\}$ and $j \in \{x, y\}$. Consumption is a function of both local relative prices and tariff revenue and is given as $D_j^i \equiv D_j^i(p^i, R^i)$ for $i \in \{A, B, C\}$ and $j \in \{x, y\}$. Tariff revenue is denoted by R^i for $i \in \{A, B, C\}$ and is measured in units of the local export good in terms of domestic production prices. It is defined as:

$$R^B = \left[D_y^B\left(p^B, R^B\right) - Q_y^B(p^B) \right]\left[1/p^B - 1/p^{AB} \right] \equiv R^B\left(p^B, p^{AB}\right)$$

$$R^C = \left[D_y^C\left(p^C, R^C\right) - Q_y^C(p^C) \right]\left[1/p^C - 1/p^{AC} \right] \equiv R^C\left(p^C, p^{AC}\right)$$

$$R^A = \left[D_y^B\left(p^B, R^B\right) - Q_y^B(p^B)\right]\left[p^A - p^{AB}\right] + \left[D_y^C\left(p^C, R^C\right) - Q_y^C(p^C)\right]\left[p^A - p^{AC}\right] \equiv R^A\left(p^A, p^{AB}, p^{AC}\right)$$

Where the derivation of R^A follows from the fact that balanced trade must exist in both bilateral trading relationships such that the volume of imports of good *x* from country B must be equal to country B's imports of good *y*, and likewise for country C.

Thus, national consumption in each country can be defined as:

$$C_i^A\left(p^A, p^{AB}\right) \equiv D_i^A\left(p^A, R^A\left(p^A, p^{AB}\right)\right) \text{ for } i \in \{x, y\}$$

$$C_i^B\left(p^B, p^{AB}\right) \equiv D_i^B\left(p^B, R^B\left(p^B, p^{AB}\right)\right) \text{ for } i \in \{x, y\}$$

$$C_i^C\left(p^C, p^{AC}\right) \equiv D_i^C\left(p^C, R^C\left(p^C, p^{AC}\right)\right) \text{ for } i \in \{x, y\}$$

In order to determine equilibrium world prices it is necessary to express the trade balance condition. Accordingly, notation must be introduced for exports and imports. For country A, imports (M) of *x* and exports (E) of *y* are denoted as:

$$M^A\left(p^A, p^{AB}\right) \equiv C_x^A\left(p^A, p^{AB}\right) - Q_x^A(p^A)$$

$$E^A\left(p^A, p^{AB}\right) \equiv Q_Y^A\left(p^A\right) - C_Y^A(p^A, p^{AB})$$

Similarly, for countries B and C, imports of *y* are denoted as $M^B\left(p^B, p^{AB}\right)$ and $M^C\left(p^C, p^{AC}\right)$ respectively; and exports of x are denoted as $E^B\left(p^B, p^{AB}\right)$ and $E^C\left(p^C, p^{AC}\right)$ respectively.

The two equilibrium trading prices, $\tilde{p}^{AB}(\tau^{AB}, \tau^B)$ and $\tilde{p}^{AC}(\tau^{AC}, \tau^C)$, are those that satisfy the trade balance condition given as:

$$E^A\left(p^A\left(\tau^{AB}, \tilde{p}^{AB}, \tau^{AC}, \tilde{p}^{AC}\right), \tilde{p}^{AB}, \tilde{p}^{AC}\right) = M^B\left(p^B(\tau^B, \tilde{p}^{AB}), \tilde{p}^{AB}\right) + M^C\left(p^C(\tau^C, \tilde{p}^{AC}), \tilde{p}^{AC}\right)$$

In order to incorporate WTO negotiations into the model, the framework developed by Bagwell and Staiger (1999, 2002) is initially applied before being adapted to incorporate PTAs. According to Bagwell and Staiger, the sole purpose of trade agreements is to alleviate the negative effects of terms-of-trade externalities that arise from the imposition of tariffs by countries with market power. The WTO facilitates this by mediating trade agreements involving reciprocal tariff reductions that leave world relative prices unchanged. Such agreements allow liberalisation to take place up until the level of politically optimal tariffs, i.e. those tariffs imposed independently of a country's ability to manipulate its terms of trade. Utilising this approach involves specifying government preferences by the following general functions:

$$\text{A: } W^A(p^A(\tau^{AB},\tau^{AC},\tilde{p}^{AB},\tilde{p}^{AC}),\tilde{p}^{AB},\tilde{p}^{AC}) \tag{2a}$$

$$\text{B: } W^B(p^B(\tau^B,\tilde{p}^{AB}),\tilde{p}^{AB}) \tag{2b}$$

$$\text{C: } W^C(p^C(\tau^C,\tilde{p}^{AC}),\tilde{p}^{AC}) \tag{2c}$$

Thus, each government's welfare is determined by the local and bilateral relative prices implied by domestic and foreign tariffs. The only restriction placed on government preferences is that, holding local prices constant, terms-of-trade improvements, i.e. a rise in the relative price of the export good, engender higher welfare:

$$\text{A: } \frac{\partial W^A(p^A,\tilde{p}^{AB},\tilde{p}^{AC})}{\partial \tilde{p}^{AB}} < 0 \text{ and } \frac{\partial W^A(p^A,\tilde{p}^{AB},\tilde{p}^{AC})}{\partial \tilde{p}^{AC}} < 0 \tag{3a}$$

$$\text{B: } \frac{\partial W^B(p^B,\tilde{p}^{AB})}{\partial \tilde{p}^{AB}} > 0 \tag{3b}$$

$$\text{C: } \frac{\partial W^C(p^C,\tilde{p}^{AC})}{\partial \tilde{p}^{AC}} > 0 \tag{3c}$$

Essentially this representation of government preferences incorporates both the domestic redistribution and traditional optimal tariff motivations for protectionism. Moreover, it does not specify the exact mechanism through which domestic redistribution affects government welfare. In this way, the Bagwell and Staiger model of government preferences is sufficiently general to assimilate elements from previous

models such as the lobbying models of Grossman and Helpman (1994, 1995), the median-voter model of Mayer (1984), and myriad political economy models of trade protection associated with Hillman (1982), Findlay and Wellisz (1982) and Brock and Magee (1978) amongst others.

Given the preferences defined above, unilateral tariff setting yields the following first-order conditions:

$$\text{A: } \left(\frac{\partial W^A}{\partial p^A}\right)\left(\frac{dp^A}{d\tau^{AB}}\right)+\left(\frac{\partial W^A}{\partial \tilde{p}^{AB}}\right)\left(\frac{d\tilde{p}^{AB}}{d\tau^{AB}}\right)=\left(\frac{\partial W^A}{\partial p^A}\right)\left(\frac{dp^A}{d\tau^{AC}}\right)+\left(\frac{\partial W^A}{\partial \tilde{p}^{AC}}\right)\left(\frac{d\tilde{p}^{AC}}{d\tau^{AC}}\right)=0 \quad (4a)$$

$$\text{B: } \left(\frac{\partial W^B}{\partial p^B}\right)\left(\frac{dp^B}{d\tau^B}\right)+\left(\frac{\partial W^B}{\partial \tilde{p}^{AB}}\right)\left(\frac{d\tilde{p}^{AB}}{d\tau^B}\right)=0 \quad (4b)$$

$$\text{C: } \left(\frac{\partial W^C}{\partial p^C}\right)\left(\frac{dp^C}{d\tau^C}\right)+\left(\frac{\partial W^C}{\partial \tilde{p}^{AC}}\right)\left(\frac{d\tilde{p}^{AC}}{d\tau^C}\right)=0 \quad (4c)$$

By letting:

$$\lambda^{AB} \equiv \left(\partial \tilde{p}^{AB}/\partial \tau^{AB}\right)\Big/\left(dp^A/d\tau^{AB}\right) < 0$$

$$\lambda^{AC} \equiv \left(\partial \tilde{p}^{AC}/\partial \tau^{AC}\right)\Big/\left(dp^A/d\tau^{AC}\right) < 0$$

$$\lambda^{B} \equiv \left(\partial \tilde{p}^{AB}/\partial \tau^{B}\right)\Big/\left(dp^B/d\tau^{B}\right) < 0$$

$$\lambda^{C} \equiv \left(\partial \tilde{p}^{AC}/\partial \tau^{C}\right)\Big/\left(dp^C/d\tau^{C}\right) < 0$$

(4a), (4b) and (4c) can be rewritten as:

$$\text{A: } \left(\frac{\partial W^A}{\partial p^{AB}}\right)+\lambda^{AB}\left(\frac{\partial W^A}{\partial p^{AB}}\right)=\left(\frac{\partial W^A}{\partial p^{AC}}\right)+\lambda^{AC}\left(\frac{\partial W^A}{\partial p^{AC}}\right)=0 \quad (5a)$$

$$\text{B: } \left(\frac{\partial W^B}{\partial p^B}\right)+\lambda^{B}\left(\frac{\partial W^B}{\partial \tilde{p}^{AB}}\right)=0 \quad (5b)$$

$$\text{C: } \left(\frac{\partial W^C}{\partial p^C}\right)+\lambda^{C}\left(\frac{\partial W^C}{\partial \tilde{p}^{AC}}\right)=0 \quad (5c)$$

The Nash equilibrium tariffs are a set of four tariffs $\left(\tilde{\tau}^{AB},\tilde{\tau}^{AC},\tilde{\tau}^{B},\tilde{\tau}^{C}\right)$ which simultaneously satisfy (5a), (5b) and (5c). Bagwell and Staiger (1999, 2002) show that the Nash equilibrium tariffs between two countries are inefficient; however, this result also applies to the *N* country case. For ease of exposition Bagwell and Staiger's logic is reproduced below for only two countries; in this case countries A and B. Firstly, note that locus of efficient tariff combinations is defined as all points of tangency between the iso-welfare functions of the two governments:

$$\left.\frac{d\tau^{AB}}{d\tau^{B}}\right|_{dW^{A}=0}=\left.\frac{d\tau^{AB}}{d\tau^{B}}\right|_{dW^{B}=0} \tag{6}$$

Note that either side of (6) can be rewritten as:

$$\text{A: } \left.\frac{d\tau^{AB}}{d\tau^{B}}\right|_{dW^{A}=0}=-\left(\frac{\dfrac{\partial\tilde{p}^{AB}}{\partial\tau^{B}}}{\dfrac{dp^{A}}{d\tau^{AB}}}\right)\left(\frac{\tau^{AB}\dfrac{\partial W^{A}}{\partial p^{A}}+\dfrac{\partial W^{A}}{\partial\tilde{p}^{AB}}}{\dfrac{\partial W^{A}}{\partial p^{A}}+\lambda^{AB}\dfrac{\partial W^{A}}{\partial\tilde{p}^{AB}}}\right) \tag{7a}$$

$$\text{B: } \left.\frac{d\tau^{AB}}{d\tau^{B}}\right|_{dW^{B}=0}=-\tau^{B}\left(\frac{\dfrac{dp^{B}}{d\tau^{B}}}{\dfrac{\partial\tilde{p}^{AB}}{\partial\tau^{AB}}}\right)\left(\frac{\dfrac{\partial W^{B}}{\partial p^{B}}+\lambda^{B}\dfrac{\partial W^{B}}{\partial\tilde{p}^{AB}}}{\dfrac{\partial W^{B}}{\partial p^{B}}+\tau^{B}\dfrac{\partial W^{B}}{\partial\tilde{p}^{AB}}}\right) \tag{7b}$$

From (4a) and (4b) it is clear that the Nash equilibrium tariffs cause $\left[d\tau^{AB}/d\tau^{B}\right]\Big|_{dW^{A}=0}=\infty$ and $\left[d\tau^{AB}/d\tau^{B}\right]\Big|_{dW^{B}=0}=0$; i.e. the reaction functions of the two governments are not tangential and thus the Nash equilibrium does not lie on the efficiency locus as defined by (6).

Bagwell and Staiger (1999, 2002) then argue that a reciprocal trade agreement, i.e. one that maintains world relative prices, leads to welfare improvements for both countries (providing they are sufficiently symmetric). Consider reciprocal tariff reductions such that $d\tilde{p}^{AB}=0$. The impact of a small amount of such reciprocal liberalisation on government welfare is given as:

A: $$-\left(\frac{\partial W^A}{\partial p^A}\right)\left(\frac{\partial p^A}{\partial \tau^{AB}}\right)d\tau^{AB} \quad (8a)$$

B: $$-\left(\frac{\partial W^B}{\partial p^B}\right)\left(\frac{\partial p^B}{\partial \tau^B}\right)d\tau^B \quad (8b)$$

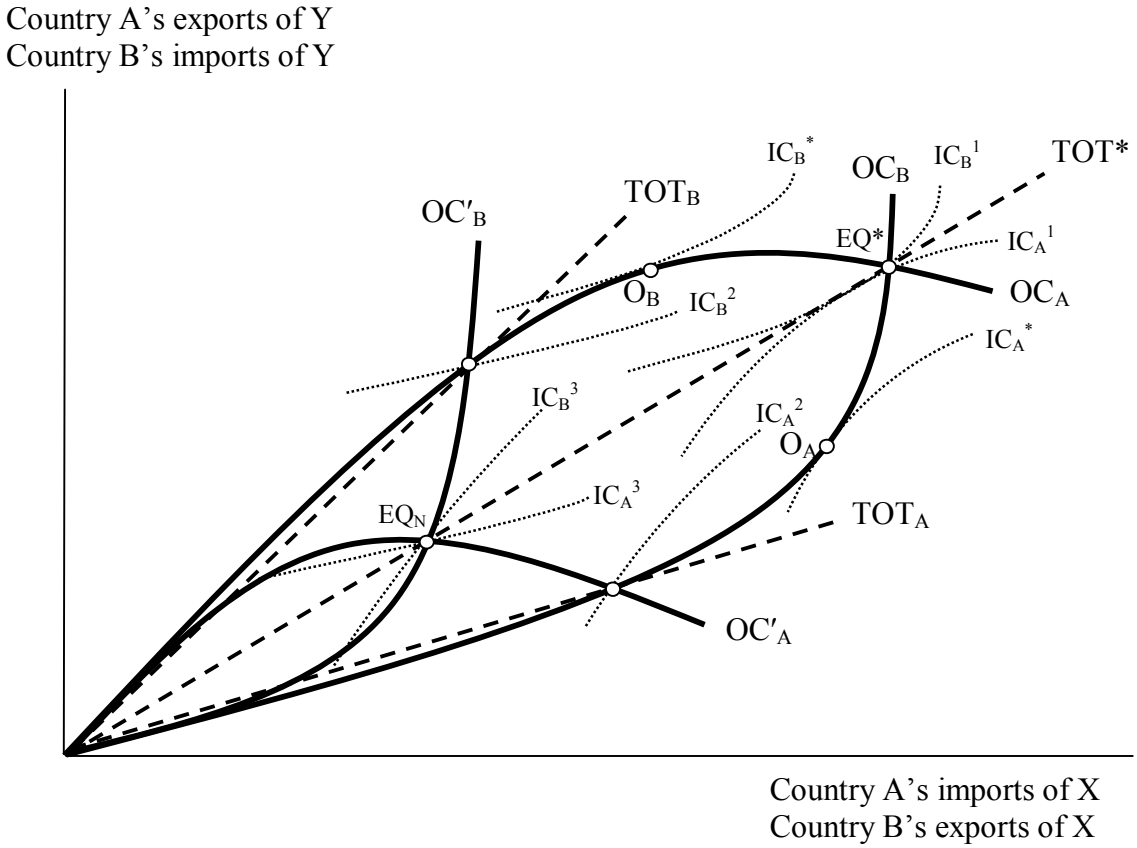
Starting at the Nash equilibrium, these are strictly positive until the point where:

$$\min\left[-\frac{\partial W^A}{\partial p^A}, \frac{\partial W^B}{\partial p^B}\right] = 0 \quad (9)$$

Thus the welfare of both governments is improved by reciprocal tariff reductions up until the point defined by (9). If both countries are symmetric then the eventual tariff combination will be the political optimum, i.e. the point on the efficiency locus that corresponds with the original terms of trade, and which is determined solely by the political motivations for protection in either country. In the special case where governments are only concerned with national welfare maximisation, i.e. where $\lambda = 0$, a reciprocal tariff agreement would produce free trade.

To add further clarity to the exposition, the symmetric version of the Bagwell and Staiger model is illustrated utilising offer curves, shown in figure 1 below.

Figure 1: Tariff setting behaviour prior to a reciprocal trade agreement

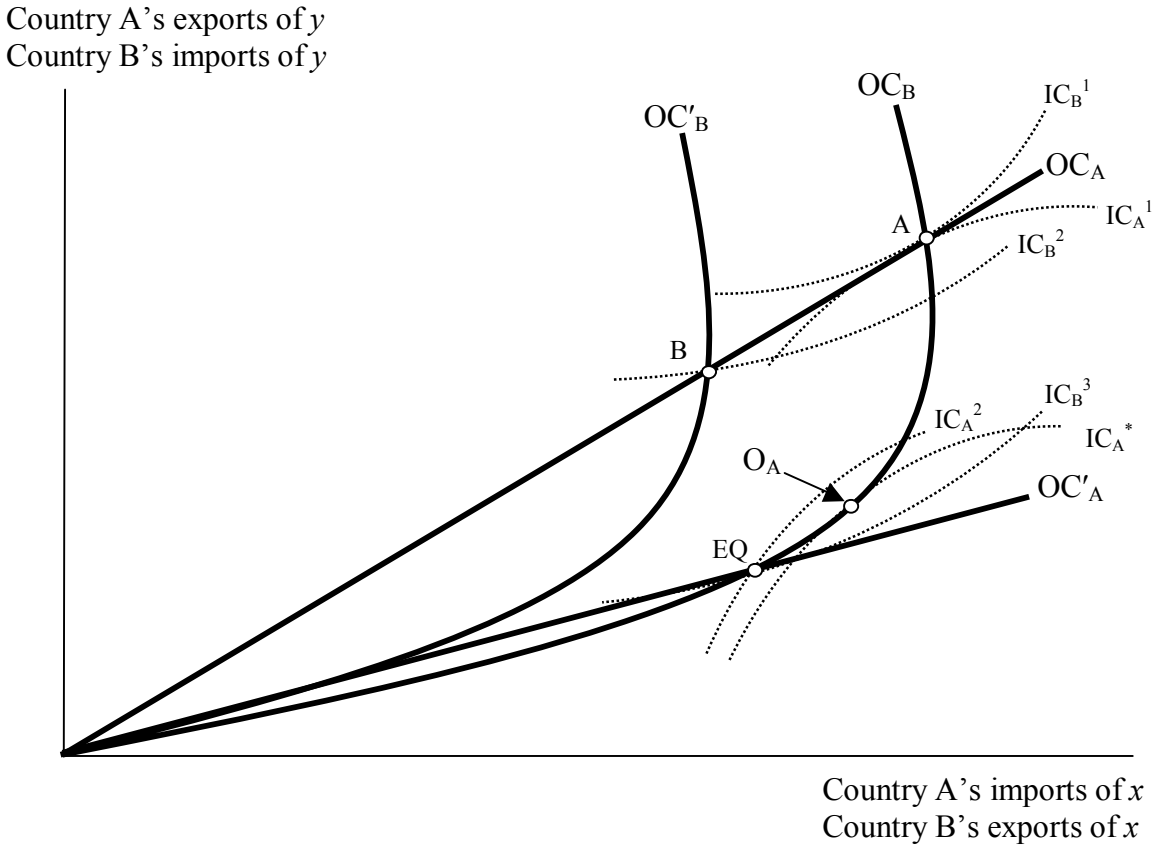


OC_A records the quantities of good *y* that country A is willing to supply for export and the quantities of good *x* that it imports in return, for all possible relative prices. Similarly, OC_B records the quantities of good *x* that country B is willing to supply for export and the quantities of good *y* that it imports in return, for all possible relative prices. The terms of trade are determined by the slope of the line that connects the origin to the point of intersection of the offer curves OC_A and OC_B, i.e. EQ*. Given a country B offer curve of OC_B, the government of country A can do better than OC_A from a national welfare perspective; it can impose an 'optimal' tariff in order to shift the offer curve such that it intersects OC_B at point O_A, which engenders the highest possible indifference curve, IC_A*. However, in the Bagwell and Staiger (1999, 2002) model, governments are also politically motivated to impose tariffs for domestic redistribution purposes. Consequently, the offer curve that prevails is OC'_A, which lies further to the left than that which would prevail for traditional optimal tariff reasons alone. This causes a shift in the terms-of-trade line from TOT* to TOT_A, which is favourable for country A but unfavourable for country B. Similarly, given a country A

offer curve of OC_A, the government of country B will impose a tariff to induce a downwards movement of their offer curve from OC_B to OC'_B, which again bypasses that which would prevail for traditional optimal tariff reasons alone. The terms of trade in this instance are shifted from TOT* to TOT_B which is beneficial to country B but detrimental to country A. The Nash equilibrium that results from unilateral tariff setting is shown by the intersection of OC'_A and OC'_B, i.e. EQ_N. This equilibrium generates the same terms of trade, i.e. TOT*, as the initial free trade equilibrium but is associated with lower indifference curves, IC_A^3 and IC_B^3. In essence this is the inefficiency that trade agreements endeavour to correct according to Bagwell and Staiger (1999, 2002). A reciprocal agreement neutralises the terms-of-trade motivation for protection by mediating tariff reductions that maintain the same world price. Therefore, trade agreements facilitate an equilibrium at some point between EQ_N and EQ*, which engenders higher indifference curves for both countries. The position of the equilibrium is determined by the politically optimal tariff levels for either country, i.e. the tariff levels imposed independently of the terms-of-trade motivation for protection.

Under asymmetric conditions, a reciprocal trade agreement will produce a tariff combination different to that of the political optimum. Reciprocal liberalisation will occur up until the point where one country achieves its preferred local price first; thus the eventual tariff combination will not lie on the efficiency frontier. Indeed, Johnson (1953/54), Mayer (1981) and Kennan and Riezman (1988) argued that sufficient asymmetry will completely eliminate any scope for trade agreements, i.e. the stronger country will prefer the non-cooperative tariff outcome to any alternative outcome that could be obtained via negotiation. The specific form of asymmetry that is of relevance to the remainder of this paper is that of differing market power between the two countries. A country's market power is reflected in the curvature of the offer curve of its trading partner: the straighter the offer curve of country B, the less the market power of country A, and vice versa. The less market power a country has, the less ability it has to influence the world price and hence the more muted is the terms-of-trade motivation for protectionism. The extreme case is shown in figure 2 below in which it has been assumed that country B has negligible market power in its dealings with country A.

Figure 2: Tariff setting behaviour under asymmetric conditions



Point A in figure 2 represents the initial, free trade position associated with tangential indifference curves of IC_A^1 and IC_B^1. Given that country B has an infinitesimally small level of market power, any imposition of tariffs unambiguously leads to the deterioration of national welfare as is shown by the movement from OC_B to OC'_B and the corresponding shift from IC_B^1 to IC_B^2. However, country A has virtually complete market power such that its offer curve is a straight line and thus singularly determines the terms-of-trade. Consequently, country A can increase its welfare by imposing tariffs, which will improve its terms of trade at the expense of country B welfare. Again, the level of tariffs imposed will be greater than that required to reach the 'optimal' point from a national welfare perspective, i.e. O_A. The offer curve OC'_A that maximises government welfare, fully dictates the terms of trade. The equilibrium trade levels are determined by the intersection of the two offer curves at point EQ.

Under the conditions described above, there is little scope for a reciprocal trade agreement as country B's lack of market power precludes it from affecting the world

price and thus it has nothing it can offer country A to induce it to reduce its tariff rate. It is at this point that the present paper diverges from the Bagwell and Staiger (1999, 2002) framework in order to extend their model to explain coalition forming in WTO negotiations.

3. Extending the model to explain coalition forming

Extending the model to incorporate more than two countries necessitates consideration of four further factors: PTA's; MFN; SDT; and coalition forming. Accordingly, the remainder of this section investigates four possible scenarios relating to the nature of negotiated tariff liberalisations. In the first scenario country A negotiates a bilateral PTA with Country B before also negotiating a bilateral PTA with Country C. Initially these agreements are modelled as complying with WTO Article 24, however, given the controversy surrounding the application of Article 24, in the second scenario the Kemp-Wan criterion is then utilised as an alternative method of regulating the agreements. In the third scenario country A makes a bilateral trade agreement with country B which is subject to the MFN clause such that it must also extend its tariff concessions to country C, which, because of SDT, does not have to reciprocate the concession. In the final scenario countries B and C negotiate as a collation and make a collective trade agreement with country A. In all of these scenarios the welfare of the three governments is investigated so that a taxonomy of the scenarios with respect to their individual desirability from any one country's viewpoint can be established.

3.1 Scenario 1: A PTA adhering to Article 24

Article 24 says: "if a free trade area or customs union is created, duties and other trade barriers should be reduced or removed on substantially all sectors of trade in the group. Non-members should not find trade with the group any more restrictive than before the group was set up" (WTO, 2006). For the purposes of the present model, this is interpreted as requiring that liberalisation between countries A and B is conducted such that tariffs levied on country C's exports, i.e. τ^{AC}, are held constant. Furthermore, utilising the Bagwell-Staiger framework entails that countries A and B reduce their bilateral tariffs, t^{AB} and t^{B}, in a reciprocal manner so as to maintain their bilateral

terms of trade, i.e. p^{AB}. The welfare effects for all three governments can now be assessed.

Firstly, in order for the liberalisation between countries and A and B to be regarded as reciprocal, the following condition must hold:

$$\frac{\partial p^{AB}}{\partial \tau^{AB}} d\tau^{AB} = \frac{\partial p^{AB}}{\partial \tau^{B}} d\tau^{B} \tag{14}$$

In the present case it is assumed that, given its relatively larger size, country A has a greater degree of market power than country B such that:

$$\frac{\partial p^{AB}}{\partial \tau^{AB}} > \frac{\partial p^{AB}}{\partial \tau^{B}} \tag{15a}$$

Thus, from (14), it is clear that a reciprocal trade agreement between countries A and B will necessitate a greater degree of liberalisation on the part of country B than on the part of country A. Consequently, the direct welfare effects for the governments of countries A and B of a PTA between them can be expressed as:

$$dW_1^A = \left(\frac{\partial W^A}{\partial p^A}\right)\left(\frac{\partial p^A}{\partial \tau^{AB}}\right) d\tau^{AB}$$

$$dW_1^B = \left(\frac{\partial W^B}{\partial p^B}\right)\left(\frac{\partial p^B}{\partial \tau^{B}}\right) d\tau^{B}$$

Where $d\tau^B > d\tau^{AB}$

However, countries A and B do not exist in a vacuum; changes in bilateral trade volumes between A and B necessarily affect country C. Given that the bilateral trading price between A and B remains unaffected by liberalisation, and the restrictions on τ^{AC} imposed by WTO Article 24, equation (1c) can be modified as follows:

$$p^A = \tau^{AB}\overline{p}^{AB} = \overline{\tau}^{AC} p^{AC} \tag{9}$$

Thus, it is clear that, given (9), any reduction in τ^{AB} engenders a proportionate reduction in the value of p^{AC}, i.e. country C's terms of trade. According to the assumptions made regarding government preferences, this results in a deterioration in the welfare of the government of C of:

$$dW_1^C = \frac{\partial W^C}{\partial \tilde{p}^{AC}} dp^{AC}$$

Moreover, the deterioration in country C's terms of trade is concomitantly an improvement in country A's terms of trade. Thus, country A's welfare change given in (?) must be expanded to include the indirect effect on government welfare generated by the terms-of-trade improvement:

$$dW_1^A = \left(\frac{\partial W^A}{\partial p^A} \right) \left(\frac{\partial p^A}{\partial \tau^{AB}} \right) d\tau^{AB} + \frac{\partial W^A}{\partial p^{AC}} dp^{AC}$$

From this it is possible to establish the equilibrium tariffs that will prevail.

At this juncture it is important to recognise that there will now be diminished scope for a PTA between country A and country C. To see why consider again the reciprocity condition that underpins bilateral liberalisation:

$$\frac{\partial p^{AC}}{\partial \tau^{AC}} d\tau^{AC} = \frac{\partial p^{AC}}{\partial \tau^C} d\tau^C$$

In this instance, as country A has already undertaken a PTA with country B, it is less trade dependent upon country C and can therefore be assumed to have a greater degree of market power in its dealings with C in comparison with the power it could command in its initial dealings with B:

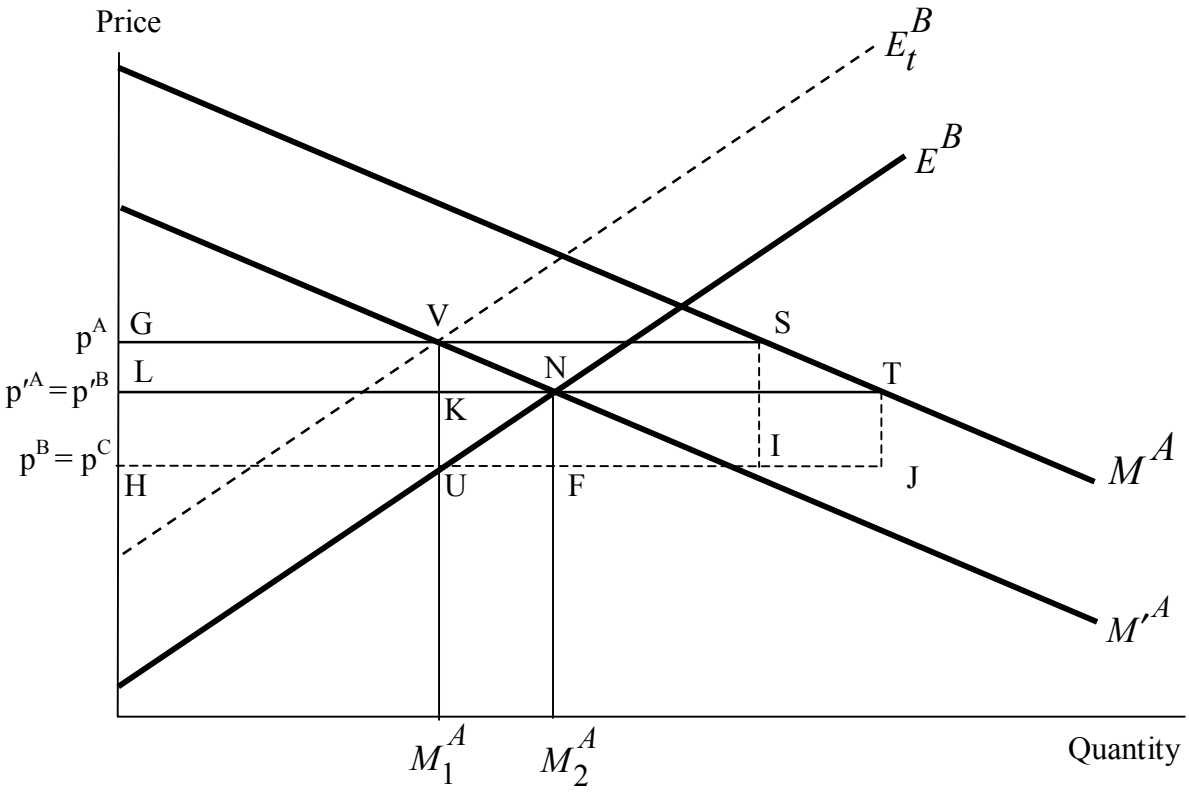
$$\frac{\partial p^{AC}}{\partial \tau^{AC}} > \frac{\partial p^{AB}}{\partial \tau^{AB}} > \frac{\partial p^{AB}}{\partial \tau^B} > \frac{\partial p^{AC}}{\partial \tau^C}$$

Consequently, country C has to offer more in terms of tariff liberalisation to entice country A to participate in a second PTA than if it were to have been involved in the first PTA. Moreover, a second PTA would maintain the diminished terms of trade between countries A and C caused by the initial PTA. There is thus significant first mover advantage for the smaller countries in striking a PTA deal with country A under these conditions. However, it is important to note that the second PTA would lead to a terms of trade deterioration for country B. Consequently, country B will attempt to impede a PTA between country A and country C.

3.2 Scenario 2: A PTA adhering to the Kemp-Wan criterion

The use of Article 24 as a demarcation criterion between desirable and undesirable PTAs has been challenged by numerous authors, such as McMillan (1993), Bhagwati (1991) and Dam (1970) amongst others. The primary focus for such criticism stems from the use of tariffs as the principal variable of concern. Three fundamental problems are associated with the use of tariffs. Firstly, the impact of tariffs on welfare is less direct that that of trade volumes and thus it is widely argued that the latter is a more appropriate deciding variable than the former. Secondly, the full assessment of changes in tariff rates entails a level of measurement detail that is impractical. Thirdly, the exact decision-making criterion, in terms of tariff changes, has been left too vague in the wording of the text of Article 24 to be useful. Accordingly, McMillan (1993) has advocated the use of the framework devised by Kemp and Wan (1976) as the correct test of the desirability of any particular PTA. The crux of the Kemp-Wan proposition is that, given appropriate compensatory lump-sum payments between partners in a PTA, it is possible to select a tariff vector such that all countries, both party and non-party to the PTA, are at least as well off as before the PTA was instated. This hypothesis is illustrated diagrammatically below in figure. 3, which shows the effects of a PTA between countries A and B from country A's perspective.

Figure 3: The Kemp-Wan proposition (adapted from Panagariya, 2000, p.?)



From figure 3 above it can be seen that, prior to the formation of a PTA between country A and country B, country A imports GV from country B and VS from country C (note that the export supply curve for country C is not shown). Country A collects tariff revenue of area GHUV from country B and area VUIS from country C. Now assume that a PTA conforming to the Kemp-Wan proposition is agreed between countries A and B in which, for ease of exposition, country A eliminates all tariffs between itself and country B. The Kemp-Wan proposition dictates that the demand for imports from country C must be maintained. Consequently, M'^A, i.e. country A's post PTA import demand from B, can be derived by subtracting VS from every point on M^A. The equilibrium between this and E^B, i.e. country B's post PTA export supply curve, engenders a price of p'^A in countries A and B, which, for country A, results in imports of LN (>GV) from country B and NT (=VS) from country C. As the price in country C is held constant at p^C, the tariff that country A applies to imports from country C falls from UV to FN. Accordingly, the PTA has no effect upon the welfare of country C.

The welfare effect for country A is ambiguous. The area representing tariff revenue collected from country C changes from VUIS to NFJT, which entails a loss of revenue equivalent to area GLKV. This loss in tariff revenue is redistributed to country A's consumers and thus the effect on country A's national welfare from this is neutral. However, a revenue transfer effect occurs via the scrapping of tariffs between country A and country B. Country A loses area GHUV in tariff revenue, area LHUK of which can be considered a transfer to the exporting firms of country B. It gains area GLNV in trade creation, thus the net effect on country A of the PTA is determined by the difference between area VKN and area LHUK.

Country B necessarily gains from the PTA by area LHUN. LHUK represents the tariff revenue transfer from country A and UNK represents the gain from new trade. The net gain to the union of countries A and B is the area UNV. Clearly, if appropriate intra-union transfers are utilised, a Kemp-Wan conforming PTA can make the parties involved unambiguously better off without harming non-contracting countries.

In the context of the current model, the Kemp-Wan proposition can be regarded as entailing Bagwell and Staiger style bilateral reductions in τ^{AB} and τ^{B} whilst the terms of trade of country C, i.e. p^{AC}, are held constant. Consequently, equation (1c) can be rewritten accordingly:

$$p^{A} = \tau^{AB}\overline{p}^{AB} = \tau^{AC}\overline{p}^{AC} \tag{10}$$

Clearly, any reduction in τ^{AB} entails a reduction in τ^{AC}. The welfare effects of the PTA for countries A and B are therefore, identical to the direct effects given in equations (?) and (?) of scenario 1:

$$dW_2^A = \left(\frac{\partial W^A}{\partial p^A}\right)\left(\frac{\partial p^A}{\partial \tau^{AB}}\right)d\tau^{AB}$$

$$dW_2^B = \left(\frac{\partial W^B}{\partial p^B}\right)\left(\frac{\partial p^B}{\partial \tau^B}\right)d\tau^B$$

By construction, country C experiences no change in welfare.

3.3 Scenario 3: An agreement between countries A and B extended to country C via MFN

The third scenario involves countries A and B making a bilateral accord within normal WTO negotiations such that any tariff liberalisation is extended to all members under the MFN clause. Furthermore, the SDT status of country C means that it does not have to reciprocate the concession. Thus, any reduction in country A's tariffs engendered by a trade deal with country B causes the import demand of country A from both countries B and C to increase and thus, conforming to the principle of reciprocity entails a greater degree of liberalisation by country A than if the MFN stipulation were not imposed. This point is elucidated below.

Consider the reciprocity condition as given in (?):

$$\frac{\partial p^{AB}}{\partial \tau^{AB}} d\tau^{AB} = \frac{\partial p^{AB}}{\partial \tau^{B}} d\tau^{B}$$

The MFN clause means that country A's tariffs can be written as $\tau^{AB} = \tau^{AC} = \tau^{A}$. Moreover, given that it is assumed that Thus, the reciprocity condition can be rewritten as:

$$\frac{\partial p^{AB}}{\partial \tau^{AB}} d\tau^{AB} = \frac{\partial p^{AB}}{\partial \tau^{B}} d\tau^{B}$$

3.4 Scenario 4: Countries B and C form a coalition during multilateral negotiations

The final scenario entails countries B and C forming a coalition in which they negotiate collectively with country A. In the previous scenario country C was able to free ride on the agreement between country A and B via the combination of MFN and the SDT it was entitled to. In this scenario, country C elects not to free ride by offering tariff concessions to country A in tandem to those offered by country B. Essentially this involves the smaller countries using their collective market power during negotiations such that the offer curve of country A becomes more curved, i.e. this

causes a change from a situation similar to that depicted in figure 2 to one more akin to that depicted in figure 1. The benefit of this tactic is simple: greater market power induces greater liberalisation by country A during reciprocal trade negotiations. To elucidate this point consider the reciprocity condition that prevails during coalition-based negotiation:

$$\frac{\partial p^{AB}}{\partial \tau^{AB}} d\tau^{AB} = \frac{\partial p^{AC}}{\partial \tau^{AC}} d\tau^{AC} = \frac{\partial p^{AB}}{\partial \tau^{B}} d\tau^{B} = \frac{\partial p^{AC}}{\partial \tau^{C}} d\tau^{C}$$

Writing the world price as $p*$ and the tariffs levied by country A and the coalition as τ^{A} and τ^{BC} respectively allows the reciprocity condition to be rewritten as:

$$\frac{\partial p*}{\partial \tau^{A}} d\tau^{A} = \frac{\partial p*}{\partial \tau^{BC}} d\tau^{BC}$$

By negotiating collectively countries B and C raise the amount of market power that can be brought to the table during talks with country A. In this instance, as countries B and C represent the entire market for country A's exports, it is reasonable to conclude that country A and the union of countries B and C have equal market power such that:

$$\frac{\partial p*}{\partial \tau^{A}} = \frac{\partial p*}{\partial \tau^{BC}}$$

Thus, the principle of reciprocity as defined in (?) ensures that trade negotiations will entail symmetric tariff reductions. The welfare effects of such liberalisation for each country are given as:

$$dW_4^{A} = \left(\frac{\partial W^{A}}{\partial p*}\right)\left(\frac{\partial p*}{\partial \tau^{A}}\right) d\tau^{A}$$

$$dW_4^{B} = \left(\frac{\partial W^{B}}{\partial p*}\right)\left(\frac{\partial p*}{\partial \tau^{BC}}\right) d\tau^{BC}$$

$$dW_4^{C} = \left(\frac{\partial W^{C}}{\partial p*}\right)\left(\frac{\partial p*}{\partial \tau^{BC}}\right) d\tau^{BC}$$

Where $d\tau^{A} = d\tau^{BC}$

Liberalisation will continue until the point where one country has achieved its domestic price objective.

3.5 Comparing the welfare effects between scenarios

4. Conclusions

As Baldwin (2006) notes, history has shown that adjustments to multilateral negotiating outcomes following shifts in the balance of power, such as that which occurred through enhanced EU clout during the Uruguay trade round, can take years to come into effect. However, it seems, that with the proliferation of PTAs, the developed countries no longer value multilateral outcomes enough to make the necessary adjustments to incorporate the demands of developing country coalitions.

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