“COMPETITIVE LIBERALIZATION”:
A TOURNAMENT THEORY-BASED INTERPRETATION

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Abstract:
The current U.S. trade policy of “competitive liberalization” includes the following prominent features: stimulating a competition among trading partners for access to U.S. markets; the inclusion of provisions in trade agreements not directly related to market access; and a greater role for foreign and security policy in U.S. trade policymaking than in the past. I adapt the theory of rank-order tournaments to provide a rationalisation for these three features and explore their implications for the design and sequencing of preferential trade agreements. The role of trade diversion and its relationship to these features assumes a key role in this analysis.

Key words: competitive liberalization, trade policy, foreign policy, regionalism, preferential trade agreement, trade diversion, issue linkage.

¹ Contact information: SIAW-HSG, Department of Economics, Bodanstrasse 8, Sankt Gallen, Switzerland. Email address: simon.evenett@unisg.ch. This paper was presented at the “The Sequencing of Regional Economic Integration” conference that was held at the University of Notre Dame on 9-10 September 2005. I am grateful for the comments of a number of participants at that conference, in particular those of my discussants Marcelo Olarreaga and Robert Scollay. I plan on extending this paper markedly in the coming months. Comments on this draft are welcome and can be sent to me at the above email address.
1. **Introduction.**

Governments often pursue multiple objectives during negotiations of bilateral and regional trade agreements. These objectives can be market access-related, may concern other commercial matters, or can be motivated by foreign and security policy concerns. What are the implications for the design of preferential trade agreements of these objectives? In what ways does the discriminatory nature of such agreements influence how these objectives are met? What are the consequences for the size of market access offers of the pursuit of these objectives, in particular the non-market access-related objectives? To what extent are the economic outcomes and “political pain” associated with ratifying preferential trade agreements influenced by these different, and perhaps competing, objectives?

These questions have a special resonance given the United States’ current pursuit in trade negotiations of a strategy of “competitive liberalization”. According to the Office of the United States Trade Representative’s published report on its *2005 Trade Policy Agenda*:

> “Four years ago, the Bush Administration initiated a new strategy: to pursue reinforcing trade initiatives globally, regionally, and bilaterally…By pursuing multiple free trade initiatives, the United States has created a “competition for liberalization,” launching new global trade negotiations, providing leverage to spur new negotiations and solve problems, and establishing models of success in areas such as intellectual property, e-commerce, environment and labor, and anti-corruption” (page 1).

This statement establishes that, among other points, the trade policy of the United States attempts to stimulate a competition for access to its large national market. Moreover, the United States seeks to include policies not directly related to market access, such as labour and environmental standards, in trade agreements. The report goes on to provide examples of what it terms “innovative mechanisms” in the free trade agreements that the United States has
concluded in recent years with Chile, Singapore, Australia, Bahrain, and Morocco (see page 10).

The influence of U.S. foreign and security policy objectives on U.S. trade policymaking is described in the same report’s account of the launching of bilateral trade negotiations with the United Arab Emirates (UAE). The report notes that:

“…the UAE is America’s third largest export market in the Middle East, with an estimated $3.7 billion in exports in 2004 and approximately 500 U.S. firms with operations in the country. The UAE’s Jebel Ali port is the world’s fifth busiest harbour and the country is a regional shipping and business hub. The country is also a strong security partner, supporting U.S. efforts in Afghanistan, Iraq, and in the War on Terror, and working with the Administration on container security” (page 7).

The latter statement leads one to ask to what extent security policy concerns influenced the decision to launch trade negotiations with the UAE and whether the U.S. policymakers would take security policy considerations into account when evaluating a market access offer from a trading partner. The report also notes the U.S. President’s and 9/11 Commission’s shared view that the United States should expand trade with the Middle East with the ultimate goal of fostering peace (page 7).

The potential role of non-economic factors in shaping U.S. strategy towards negotiating free trade areas (FTAs) was also referred to in a statement by Ambassador Peter F. Allgeier, the Deputy U.S. Trade Representative, to Congress in 2003:

“Last October, President Bush announced the Enterprise for ASEAN Initiative (EAI) in recognition of this important region. The EAI offers the prospect of FTAs with individual ASEAN nations, leading to a network of FTAs in the region. The U.S.-Singapore FTA can serve as a foundation for these other possible FTAs. The ASEAN includes the largest Muslim country in the
world—Indonesia—as well as other countries with large Muslim populations, including Malaysia, the Philippines, and Brunei” (U.S. Senate 2003, page 35).

This statement does not specify precisely how the presence of a large Muslim population would affect the conduct of U.S. trade policy in the ASEAN region. One logical possibility is that the probability of launching FTA negotiations might be affected. Another hypothesis is that the market access demands made by the U.S. of a country with a large Muslim population may be less than those of a trading partner without a substantial Muslim population.

In this paper I adapt the theory of rank-order tournaments to examine how a competition for market access is influenced by foreign and security policy (or more generally, by non-commercial policy) considerations and draw out potential implications for the design and sequencing of preferential trade agreements. In doing so, I provide from a mercantilist perspective a rationalisation of the U.S. strategy of “competitive liberalization.” The adaption of tournament theory, much used in labour economics to analyse executive compensation matters and rivalry between employees\(^2\), to the trade context allows for the role of trade diversion and issue linkages\(^3\) to be discussed. Despite numerous searches of leading journals, in particular those related to international trade, I have not been able to find another application of tournament theory to the analysis of trade policy. If, in fact, none exist then this paper may well show how an existing theoretical tool can offer new perspectives on certain prominent aspects of trade policy formulation.

What is not new, of course, is the study of free trade agreements and customs unions, or more generally, “regionalism.” Nor is the study of linkages between trade policy and foreign and security policy new. Considerations of space preclude a detailed account of the

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\(^2\) Lazear and Rosen (1981) are credited with providing the first analysis of rank order tournaments. Nalebuff and Stiglitz (1983) and McLaughlin (1988) are leading papers in the theoretical development of tournament models. Lazear (1989) is a prominent application of tournament theory to inter-employee rivalry or what he refers to as “industrial politics.” Accessible accounts of tournament theory can be found in Gibbons (1992), Lazear (1995), and O’Keeffe, Viscusi, and Zeckhauser (1984).

\(^3\) In trade policymaking an issue linkage is said to have occurred when a non-market access-related matter or provision is combined with market access measures in a trade negotiation or agreement.
principal contributions in this regard. As far as the former is concerned readers are referred to the illuminating surveys by Baldwin and Venables (1995), Panagariya (2000), and Winters and Schiff (2003). Leading discussions of the latter matters can be found in Cooper (1987) and Hufbauer, Schott, and Elliott (1990). An important reference for U.S. trade politics is Destler (2005). An appendix of articles and other commentary on the U.S. policy of “competitive liberalization” can be found at the end of this paper.

The organisation of the remainder of this paper is as follows. In the next section I show how a model of rank-order tournaments can be adapted to better fit the circumstances of preferential trade negotiations and then outline a benchmark model, whose results will be referred to at several points in this paper. In section three I solve a model in which the tournament’s organiser (taken throughout this paper to be the United States) offers the prospect of two different preferential trade agreements to two of its trading partners (the contestants). The manner in which the tournament organiser structures specific provisions of those preferential agreements so as to supply incentives to the contestants is discussed. In section four I note that not all tournaments are alike and, from a market access maximising perspective, some tournaments are better than others. Closing remarks are offered in section five and caveats and matters associated with the generalisation of this class of models are discussed there.

2. Adapting models of rank-order tournaments to the analysis of preferential trade agreements.

Models of rank-order tournaments are used to evaluate the incentives created by reward systems that are based on relative, rather than absolute, performance. Such reward systems are typically found in situations where the number of “top slots” is limited, as they are in senior corporate positions and in sports and beauty contests. Moreover, in these settings absolute performance may be harder to assess than relative performance and the choices of
the contestants may only be observed imperfectly, if at all. One of the most important questions addressed in rank-order tournament theory is whether a relative reward system can elicit the same actions from contestants that would be optimal (from the perspective of the organiser of the contest) had their choices been perfectly observed.

In the canonical tournament model a firm runs a contest to see which of two workers is to be appointed "the boss" and which worker is to hold a subordinate employment position (Lazear 1995). Before the contest begins the firm announces the compensation levels of the boss and the subordinate. The firm cannot perfectly observe the worker’s effort level but knows that higher levels of effort tend to produce higher levels of output. Even if absolute output levels cannot be observed, it is assumed that relative output levels are seen by the firm. The firm awards the job of boss to the worker with the highest observed output level. In this contest workers believe that increasing their effort will raise the probability of winning the job of boss and the associated higher level of compensation. Effort, however, is increasingly painful and so workers trade-off the expected gain of more effort against the disutility of effort. This trade-off is taken into account when the firm decides which compensation levels maximises its expected profits, the latter being the difference between the total value of the expected output of the workers and the sum of the compensation paid to the boss and the subordinate. Such a tournament can, thus, be thought of as a two period game, with the firm setting remuneration levels in the first period\(^4\) and the contest occurring afterwards in the second period. When the workers (contestants) are symmetric and risk neutral these models are very tractable. Departures from either assumption are feasible but not trivial to model (McLaughlin 1988).

Arguably, some of the structure of the canonical tournament model needs to be changed so as to permit an analysis of certain aspects of preferential trade negotiations. To fix ideas consider a nation (the United States) that is organising a contest among its trading

\(^4\) It is an important feature of rank-order tournament models that the contest organiser can commit to schedule of prizes or remuneration announced in the first period.
partners for better access to its domestic market. The contestants make offers of enhanced market access to their own markets which are politically painful (as they threaten the interests of import-competing sectors), just like the worker who endures pain from effort in the traditional tournament model. Neither contestant nor the contest organiser knows precisely how non-trade considerations at the time of the contest, such as foreign and security policy, will affect the evaluation of the market access offers. The contest organiser announces before the contest that it will conclude a more favourable preferential trade agreement with the contestant whose market access offer, adjusted for foreign policy considerations, is judged most favourable. The losing contestant also receives a preferential trade agreement but with a lower payoff. The contest organiser values higher market access offers from the contestants but too finds it politically painful to offer greater access to its own market.

Although the features mentioned in the last paragraph are somewhat analogous to the two period tournament model, there are two clear differences and these relate to the rewards offered to the contestants. First, in the tournament model the firm makes financial payments to the workers, whereas in trade negotiations there are rarely direct payments between parties (with the possible exception of financing technical assistance and capacity building in the trade agreements with parties that are developing countries.) Instead, improvements in market access are thought to provide greater export opportunities and to the extent that exports actually increase these are valued by political leaders. One component of the prizes in this contest, then, derive from the degree of improved market access offered by the contest organiser (the United States) to the contestants (the trading partners of the United States).\(^5\)

Secondly, the increase in exports that can arise from a preferential trade agreement can have three possible sources: increases in demand that result from lower trade barriers, reductions in supply by import-competing firms located in the liberalising nation, and

\(^5\) As preferential trade agreements can include provisions that are not directly related to expanding market access, then the effects of these provisions can alter the size of the prizes offered to contestants. I will make more of this logical possibility in section 3.1. below.
reductions in the imports from other countries. In most analyses of the political economy of trade policy that assume policymakers take a mercantilist perspective only the second of these three sources is thought to be politically costly for the liberalising nation. This implies that the reduction in supply by import-competing firms “finances” only a fraction of the export gain to the other nation. Put alternatively, unlike the traditional tournament model where a dollar increase in a prize’s value has to be financed entirely by the firm, in a trade negotiating setting a dollar of additional market access can be financed by less than a dollar of politically-painful reductions in domestic production. As sectors of an economy are likely to differ in their own price elasticities of demand and in the potential from trade diversion, suggesting that the choices of sectors to include in a preferential trade agreement will determine in part the degree to which the prizes of better market access are in fact “paid for” by politically-costly reductions in the supply of domestic import-competing firms. I will amend the basic tournament model to take account of these two features.

The following notation and model structure is used to formalise the ideas described above. The United States (denoted USA) is assumed to organise a competition for two of its trading partners (whose associated variables are have subscripts C1 and C2 respectively). Before the competition begins the USA announces that it will take foreign and security policy considerations into account when it evaluates market access offers at the end of the second period, but acknowledges that it does not know what foreign policy contingencies will arise before making its evaluation. The trading partner with the highest foreign policy-adjusted market access offer will then conclude a preferential trade agreement with the USA that delivers an increase of utility worth \( W_1 > 0 \). The other trading partner, who is said to lose the contest, also enters into a preferential trade agreement with the USA that alters its utility by \( W_2 \). The USA and its two trading partners are assumed to be risk neutral. The assumptions on the two trading partners are symmetric.
In the second period of the game, each contestant \( i \) \((i=1,2)\) will choose a market access offer \( m_{ci} \) given the announced "prizes" \( W_1 \) and \( W_2 \) and the uncertainty concerning the evaluation of its market access offer. Contestant \( i \) is assumed to have the following objective function:

\[
U_{ci} = P_{ci} W_1 + \left[1 - P_{ci}\right] W_2 - r^* c^* \left( \frac{m_{ci}}{\lambda^*} \right)
\]

where

- \( P_{ci} \) is the probability that contestant \( i \) will win the most lucrative prize. Further details on the determinants of this probability are given later in this section.

- \( r^* \) is a parameter that indicates the respective weight given by nation \( i \)’s policymakers to increases in overseas market access (the prizes) and to the political pain associated with making offers to improve access to own markets.

- \( \lambda^* \) is a parameter that indicates how much of the market access offer \( m_{ci} \) actually incurs pain to policymakers in nation \( i \). It is assumed that \( \lambda^* > 1 \).

- \( c^* \left( \frac{m_{ci}}{\lambda^*} \right) \) is a strictly convex function relates the market access offer \( m_{ci} \) to the amount of political pain endured in making that offer.

The contestants know that unanticipated foreign and security concerns of the USA will influence the contest organiser’s evaluation of their market access offers \( m_{ci} \) \((i=\{1,2\})\). Let \( e_{ci} \) denote the USA’s evaluation of trading partner \( i \)’s offer and assume that this evaluation comprises the sum of two components, the non-random market access offer \( m_{ci} \) and a random element \( \varepsilon_{ci} \). Specifically, for \( i=\{1,2\} \) assume

\[
e_{ci} = m_{ci} + \varepsilon_{ci}
\]

Random variable \( \varepsilon_{ci} \) is assumed to be symmetric with zero mean. Each draw of \( \varepsilon_{ci} \) is assumed to an independent one. Therefore, \( P_{ci} \) is the probability that \( [m_{ci} + \varepsilon_{c1}] > [m_{c2} + \varepsilon_{c2}] \)
and is a function of the difference $[m_{c1} - m_{c2}]$. Moreover, this formulation implies that each contestant takes as a parameter in its optimisation problem the market access offer of the other contestant. It will be useful to denote the derivative of $P_{c1}(m_{c1} - m_{c2})$ with respect to $m_{c1}$ by $g_{c1}(m_{c1} - m_{c2})$. (For every other function, however, the derivative of a function $f(x)$ will be denoted by $f'(x)$ or, when the arguments of a function are unimportant to the discussion in question, by $f'$.)

In the first period of the game the USA chooses $W_1$ and $W_2$. The USA’s objective function is assumed to be:

$$U_{USA} = e_{c1} + e_{c2} - re\left(\frac{W_1 + W_2}{\lambda}\right)$$

where

- $e_{c1}$ are the adjusted market access offers (defined in [2] above).
- $r$ is a parameter that indicates the respective weight given by American policymakers to increases in adjusted market access offers and the political pain associated with offering greater market access to its trading partners.
- $\lambda$ is a parameter that indicates how much of the prizes $W_1$ and $W_2$ actually incurs pain on American policymakers. It is assumed that $\lambda > 1$.
- $e\left(\frac{W_1 + W_2}{\lambda}\right)$ is a strictly convex function relates the prizes offered to the amount of political pain endured in the market opening associated with these prizes.

In this setup, then, foreign and security policy considerations introduce noise into the evaluation of market access offers. The parameters $r$ and $r'$ capture the relative weight given by politicians within and outside the USA, respectively, to export interests (which benefit from greater access to other countries’ markets) and to import-competing interests. Later I will examine how the market access offers contained in the preferential trade agreements proposed by the USA depends on these domestic political parameters. The parameters $\lambda$ and
λ* pick up the extent to which interests other than import-competing firms effectively “contribute” to the market access gains contained in the USA’s preferential trade agreements. It will be interesting to see the extent to which the reciprocal trade liberalisation offered in the USA’s preferential trade agreements depends on the manner in which market access expansions are “financed,” especially as one source of financing (trade diversion) can affect the interests of parties not participating in the competition for better access to the USA’s market. Furthermore, I will examine how changes in the amount of foreign and security policy noise (which the probability density function \( g_{c1}(m_{c1} - m_{c2}) \) picks up) affects the structure of the preferential trade agreements offered by the USA. However, before turning to these matters, it will be useful to consider a benchmark case when foreign policy considerations do not influence the evaluation of market access offers and when, in fact, market access offers are observed perfectly.

2.1. A deterministic benchmark case.

In the absence of noise in the evaluation of market access offers, what is the optimal amount of market access that the USA could extract out of a trading partner? As the USA can observe each trading partner’s market access offer perfectly, it does not need information on another trading partner’s market access offer to determine what the optimal offer of each country should be. From the participation constraint \([PC]\) of a trading partner, the USA knows that the market access offers \( W \) and \( m_{ci} \) that it and its trading partner makes, respectively, makes must satisfy:

\[
W - r^* c^* \left( \frac{m_{ci}}{\lambda^*} \right) \geq 0
\]

The USA would then choose that \( W \) which ensured the associated \( m_{ci} \) maximised its objective function, namely,
From which the following first order condition for $m_{C_1}$ can be obtained:

\[ 1 - \frac{r^* c^* \dot{c}^*}{\lambda \lambda^*} = 0 \]

Given that the functions $c$ and $c^*$ are strictly convex and with appropriate assumptions on $c'(0)$ and $c''(0)$ there will be a single interior value of $m_{C_1}$ that solves [6]. It will be interesting to see which, if any, rank-order tournaments for market access result in equilibrium levels of $m_{C_1}$ that solve [6].

3. **A model of “competitive liberalization”: equilibrium and comparative statics.**

3.1. **Determining the optimal level of market access offers.**

I will now solve the two period model of competition for access to the USA’s market whose structure was described in the last section. As is customary, I will work backwards solving the contestant’s second period choices first. Given $W_1$ and $W_2$, and the market access offer of trading partner 2, $m_{C_2}$, the first contestant chooses $m_{C_1}$ to maximise:

\[ \text{max}_{m_{C_1}} P_{C_1} W_1 + [1 - P_{C_1}] W_2 - r^* c^* \left( \frac{m_{C_1}}{\lambda^*} \right) \]

yielding the following first order condition:

\[ g_{C_1} [W_1 - W_2] - \frac{r^* c^*}{\lambda^*} = 0 \]

As is well know in the tournament models, if $g_{C_1}$ is “too” positive then the second order condition for the maximum breaks down. With a symmetric probability density function for
the random variable \([\varepsilon_{c1} - \varepsilon_{c2}]\), if this problem occurs at all it does so in the interval where \(m_{c2} > m_{c1}\) and, critically, not when the solution to [8] is such that \(m_{c1} = m_{c2}\).

Denote the reaction function for contestant 1 by \(m_{c1} = \phi(m_{c2})\). In common with similar tournament models, it can be shown that \(\phi(0) > 0\) and \(\phi' = \frac{g [W_1 - W_2]}{g [W_1 - W_2] + c}\), so that

\[
\phi' = \begin{cases} 
\in (0,1) & m_{c1} > m_{c2} \\
0 & m_{c1} = m_{c2} \\
< 0 & m_{c1} < m_{c2}
\end{cases}
\]

Given the symmetry assumptions, for each value of \(m_{c1}\) the second contestant too has a “single peaked” reaction function. Consequently, a symmetric Nash equilibrium for the second period of the tournament can be established, where \(m = m_{c1} = m_{c2} > 0\). From the first order condition [8] the equilibrium value of \(m\) satisfies the following expression, which in turn becomes the incentive compatibility [IC] constraint for the contestants:

\[g(0)[W_1 - W_2] - \frac{r^*c^*\left(\frac{m}{\lambda^*}\right)}{\lambda^*} = 0\]

Under the symmetric Nash equilibrium each contestant wins the prize \(W_1\) with probability one-half. This implies that the participation constraint [PC] of each contestant is in equilibrium given by:

\[\frac{1}{2}[W_1 + W_2] - r^*c^*\left(\frac{m}{\lambda^*}\right) = 0\]

Taken together the [IC] and [PC] imply:

\[W_1 = r^*c^*\left(\frac{m}{\lambda^*}\right) + \frac{r^*c^*\left(\frac{m}{\lambda^*}\right)}{2g\lambda^*}\]

\[W_2 = r^*c^*\left(\frac{m}{\lambda^*}\right) - \frac{r^*c^*\left(\frac{m}{\lambda^*}\right)}{2g\lambda^*}\]
Denoting the elasticity of a function $f$ with respect to an argument $x$ by $E_{f,x}$, the last two expressions can be rearranged as follows:

\[ W_1 = r^* c^* \left[ 1 + \frac{E_{c^*,m}}{2gm} \right] \tag{13} \]

\[ W_2 = r^* c^* \left[ 1 - \frac{E_{c^*,m}}{2gm} \right] \tag{14} \]

As function $c^*$ is strictly convex, $E_{c^*,m} > 1$ and therefore $W_2 < 0$ if $E_{c^*,m} > 2gm$. I will return to the implications of the latter observation. At the moment, suffice it to say that once the value of $m$ is determined, then $W_1$ and $W_2$ are determined by [13] and [14], respectively.

The USA chooses the optimal value of $m$, the equilibrium market access offer of its trading partners, in the first period by maximising its expected utility subject to satisfying the contestants’ participation constraints [PC]. The USA’s optimisation problem is therefore:

\[
\max_m \text{Exp} \left[ e_{c_1} + e_{c_2} - rc \left( \frac{W_1 + W_2}{\lambda} \right) \right] = 2m - rc \left( \frac{2r^* c^* \left( \frac{m}{\lambda^*} \right)}{\lambda} \right) \tag{15}
\]

This yields the following first order condition for $m$:

\[
2 \left( 1 - \frac{rc^* r^*}{\lambda \lambda^*} \right) = 0 \tag{16}
\]

which can be rearranged to give the following condition relating the average level of political pain felt in the USA and in the contestant countries to the elasticities of that pain to the market access offers:

\[
\frac{m}{rc} \left[ \frac{m}{r^* c^*} \right] = E_{c,m} \cdot E_{c^*,m} \tag{17}
\]

Comparing expressions [6] and [16] reveals that the optimal level of $m$ is the same in this tournament as it is in the benchmark case (when no foreign or security considerations
applied.) While this property of tournaments with symmetric and risk neutral contestants has long been established in the theoretical literature, its implications in the context of trade policymaking may be less well known. Even though foreign and security policy concerns can influence decision-making by trade officials, a competition for access to the USA’s market can be structured in such a way as to supply incentives to the USA’s trading partners to put forth the optimal market access offers. Adopting this structure for the competition for access to the USA’s markets may well have been a way for U.S. trade officials to accommodate greater demands in recent years to take foreign and security policy considerations into account without losing their capacity to lever open the markets of trading partners.

It would be incorrect, however, to infer from this last finding that foreign and security policy considerations do not influence the optimal design of preferential trade agreements that the USA concludes with its trading partners. The probability \( g(0) \), that is, the probability that foreign and security policy considerations will not be taken into account during the contest, plays an important role in the incentive compatibility constraint \([9]\) and in determining the values of \( W_1 \) and \( W_2 \) in \([13]\) and \([14]\). A fall in \( g(0) \) can be also interpreted as an increase in the likelihood that discretion will be used by USA policymakers, discretion that may be motivated by foreign and security policy considerations.

Decreases in \( g(0) \) require, for a given optimal choice of \( m \), a greater spread in the payoffs \( W_1 \) and \( W_2 \). Injecting more foreign and security policy influence over trade policymaking in the USA (the contest organiser) would require the USA to treat the losing trade partner more harshly than before and to treat the winning trade partner even better. This outcome could be accomplished in a number of ways. For example, a decrease in \( g(0) \) could result in the preferential trade agreement signed by the losing trade partner having either more American sectors completely exempted from liberalisation, lengthier transition periods before
implementation of better access to the USA's market, and less constraints on the use of market-closing safeguard, anti-dumping, and countervailing duty measures.

Another way in which the USA can heighten the difference in outcomes \([W_1 - W_2]\) is for the preferential trade agreement with the winning trade partner to include more American sectors where the lowering of trade barriers will induce reductions in exports from the contest’s losing party. More generally, the sectors that the USA chooses to include in preferential trade agreements (and so the size of the prizes) will not be solely determined by internal American political considerations; in fact, it will be influenced by the need to create strong incentives for trading partners to put forward bold market access offers of their own, which in turn is influenced by the fact that USA's foreign and security policy considerations shapes decisions made on trade policy. Put another way, a prediction of the tournament theory approach is that the USA’s foreign and security policy objectives will influence the structure and content of the preferential trade agreements that the USA signs in so far as changes in those features alter the relative rewards faced by trading partners.

Another noteworthy aspect of the solution to this contest for market access is that, under certain conditions, the net payoff to the losing contestant \(W_2\) can be negative. Specifically, the payoff to the losing trading partner \(W_2 < 0\) if \(E_{C,m} > 2gm\). This condition is likely to be satisfied precisely when \(g(0)\) is low, that is, precisely when the USA retains more discretion to take into account of unanticipated foreign and security policy considerations. What possible interpretations are there for \(W_2 < 0\) in the context of preferential trade negotiations such as these? First, recall that impact of the preferential trade agreement that the losing trade partner does sign with the USA is only one part of the net welfare impact of participating in this market access contest. As noted earlier, this losing trade partner may suffer a reduction in exports to the USA when the preferential trade agreement between the USA and the winning trade partner is implemented. In principle, the losses from the
implementation of the latter agreement may more than offset the gains from the former agreement, however other factors may contribute to negative values of \( W_2 \).\(^6\) For example, the USA might want to sequence the implementation of the two preferential trade agreements, as the greater the difference in time between their implementation the longer the losing trade partner has to endure any export reductions created by the implementation of the USA’s agreement with the winning trade partner and the longer the losing trade partner has to wait for any benefits of its own preferential trade agreement with the USA. One implication of this latter argument is that the common practice of estimating the welfare effect of a country’s preferential trade agreement with a major market, like the USA, will provide information on only one of the components of the total change in a country’s utility ex-post from participating in a competition for market access.

A second implication of an outcome where \( W_2 < 0 \) seems at first perverse, yet it too may well be rationalised in terms of current priorities of U.S. trade policymakers. Recall that \( W_2 \) enters the USA’s objective function. If \( W_2 < 0 \) then it would seem that the USA is deriving political benefits—not pain—from its treatment of the losing trading partner. The political pain associated with the giving better market access to the loser can be partially, or even fully offset\(^7\), by the including provisions in the preferential trade agreement that U.S. political leaders value, such as labour and environmental standards. However, if these non-market access measures are to supply the necessary incentives to the USA’s trading partners they

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\(^6\) A note of caution is warranted here. The model solved in this section is one where all the benefits and costs of market access offers and the like are experienced at the same time. Arguably, a model of sequencing should take account of the timing of the costs and benefits. Having said that, if the value of the market access offers in this section’s model are interpreted as the present discounted value of a future stream of market access improvements, then the USA may set different implementation dates for the preferential trade agreements to be signed with the contestants, so giving the appearance of sequencing preferential liberalisation. In principle, the USA could alter the timing as well as the sectoral coverage so as to generate the incentives necessary to motivate its trading partners to offer to open their markets.

\(^7\) If one introduces an additional step in the model and allows each contestant to reject a preferential trade agreement that is offered to it after the conclusion of the contest, then presumably there are limits to the extent to which non-market access measures can reduce the total benefits of the preferential trade agreement signed by the losing contestant. In this case one can still rationalise \( W_2 < 0 \) for the losing contestant, but the notion that political pain in the USA is reduced by setting \( W_2 < 0 \) requires further elaboration.
must also be measures that foreign policymakers dislike (as $W_2$ enters positively in the latter’s objective function). On this view, then, the USA would choose to include precisely those non-market access measures that are controversial abroad while being valued at home. This may well account for why some non-market access measures, such as labour and environmental standards, are currently given more prominence by U.S. trade officials than others. Moreover, since the inclusion of these measures in preferential trade agreements can be used to reduce $W_2$, and *ceterius paribus* increase the spread $[W_1 - W_2]$, then the relative mix between market access and non-market access commitments in U.S. preferential trade agreements may vary systematically across trading partners. To summarise, tournament theory may also provide a rationalisation for the emphasis and differential use of certain issue-linkages in the current U.S. policy of “competitive liberalization.” If this perspective is correct, then these issue-linkages are used to differentiate between U.S. trade partners, not to help them develop market economies etc, as is often claimed.

3.2. **Comparative static results.**

I turn now to the effects of changes in the relative weights given by politicians to export and import-competing interests, as captured by parameters $r$ and $r^\star$. The associated comparative static results may shed some light on the extent to which domestic political factors shape preferential trade agreements. Total differentiation of the first order condition [16] and use of the expressions of for $W_1$ and $W_2$ result in the following findings for changes in parameter $r$:

$$\frac{dm}{dr} = -\left[ \frac{m}{r\Phi} \right] < 0 \quad \text{where} \quad \Phi = [E_{rc.m} + E_{r^\star c^\star,m}] > 1$$

$$\frac{d[W_1 + W_2]}{dr} = \left[ \frac{2r^\star c^\star}{\lambda^\star} \right] \frac{dm}{dr} < 0$$

---

*It is the relative mix, not the presence or absence, of different provisions in preferential trade agreements involving the USA that is being referred to.*
\[
\frac{d[W_1-W_2]}{dr} = \left[ r^* \frac{e^{r^*}}{g\lambda^{r^*2}} \right] \frac{dm}{dr} < 0
\]

\[
\frac{dW_i}{dr} < 0, \text{ as optimal } m \text{ has fallen.}
\]

\[
\frac{dW_2}{dr} = [W_1-W_2] \frac{dm}{dr} \left[ g - \frac{E_{e,m}}{2m} \right].
\]

Increases in parameter \( r \) depress the level of market access offers made by all parties to the contest, including the USA. Moreover, the larger market access concession made by the USA, namely \( W_1 \), falls too. Using the envelope theorem one can show that the overall welfare of the USA falls. This serves as a reminder of the constraint that the preferences of U.S. political leaders place on the extent to which “competitive liberalization” can prise open foreign markets.

Unlike parameter \( r \), changes in parameter \( r^* \) directly affect the incentive compatibility constraints and the participation constraints of the contestants as well as influencing the optimal market access offer \( m \). Here, it can be shown that:

\[
\frac{dm}{dr^*} = \left[ -m \frac{1 + E_{e,m}}{r^* \Phi} \right] < 0
\]

\[
\frac{d [W_1+W_2]}{dr^*} = 2e^{r^*} \left[ 1 + E_{e,m} E_{m,r} \right]
\]

\[
\frac{d [W_1-W_2]}{dr^*} = \frac{e^{r^*}}{g} \left[ 1 + E_{e,m} E_{m,r} \right]
\]

What is interesting about this case is that an increase in the weight on import-competing interests in the USA’s trading partners can lead to greater market access offers \([W_1+W_2]\) by the USA, even though less foreign market access \( m \) is offered in return. When the degree of foreign political pain is not too responsive to its own market access offers, it is optimal for the USA to mitigate the reduction in \( m \) by increasing \([W_1+W_2]\). However, when the political pain
in these trading partners is sufficiently responsive to market access offers $m$, then those offers fall by enough so that the USA cuts back on its market access offer too.

What happens if U.S. trade negotiators can identify more sectors of their economy where import-competing firms supply decisions are less responsive to changes in world prices, or where the potential for trade diversion from non-contestants to the contestants is greater? Both of these changes would increase $\lambda$ as the share of any market access gains that contestants subsequently enjoy has come relatively speaking less at the “expense” of import-competing firms. The comparative static results from changing $\lambda$ are below:

$$\frac{dm}{d\lambda} = \left[ \frac{m}{\lambda} \right] \left[ 1 - \frac{E_{c,\lambda}}{\Phi} \right] > 0$$

$$\frac{d\left[W_1 + W_2\right]}{d\lambda} > 0$$

$$\frac{d\left[W_1 + W_2\right]}{d\lambda} = -\left[W_1 + W_2\right] + \left[ \frac{2}{g} \right] \left[W_1 - W_2\right] \frac{dm}{d\lambda}$$

$$\frac{d\left[W_1 - W_2\right]}{d\lambda} > 0$$

$$\frac{dW_1}{d\lambda} > 0$$, as the optimal $m$ has risen.

$$\frac{d\left[\frac{W_1}{\lambda}\right]}{d\lambda} = -W_1 + \left[ g \left[W_1 - W_2\right] \left[ 1 + \frac{E_{c,\lambda}}{2gm} \right] \right] \frac{dm}{d\lambda}$$

$$\frac{dW_2}{d\lambda} = \left[ \lambda r^* c^* \right] \left[ 1 - \frac{E_{c,\lambda}}{2gm} \right]$$

$$\frac{dU_{USA}}{d\lambda} = \left[ \frac{2}{\lambda \lambda^*} \right] > 0$$

Shifting the burden of financing market access concessions to sources that do not create political pain enables the USA to make a more generous market access offer $\left[W_1 + W_2\right]$ to its
trading partners, which the latter reciprocate (in terms of a higher \( m \)). However, the political pain endured in the USA to make the higher offer of \( \left[ W_{1} + W_{2} \right] \), which is actually equal to \( \left[ \frac{W_{1} + W_{2}}{\lambda} \right] \), may go down if parameter \( g \) is small enough and when the initial financing parameter \( \lambda \) is high. Even when the total value of political pain endured by the USA rises, it is more than compensated by greater market access abroad, and so \( U_{\text{USA}} \) rises.

In this model \( \lambda \) is treated as a parameter and not a choice variable of the USA. However, the above comparative static results shown that the organisers of market access contests have a clear incentive to structure rewards to contestants (and therefore, to structure preferential trade agreements) in such a way that as little of the market access concessions it makes are financed by reductions in the production of import competing firms. Displacing the sales of goods shipped from non-contestants is one such source of financing and this model suggests that the contest organiser, the USA, has a strong incentive to structure preferential trade agreements to take advantage of opportunities for trade diversion. The point here is not the preferential trade agreements can generate trade diversion (I have not shown this, but others certainly have), rather it is that the organiser of a competition for market access has an incentive to structure preferential trade agreements so as to increase trade diversion. This amounts to getting non-contestants to finance more of the market access improvements enjoyed by contestants, highlighting the inherent beggar-thy-neighbour incentives associated with a policy of "competitive liberalization."

In a more elaborate model than the one presented here the implications of the above findings for the incentive to participate in contests could be explored. In such a model it would be interesting to explore how the capacity to engage in trade diversion depended on the number of contestants and non-contestants. It is often said that there is presently a chase for preferential access to the U.S. market and a tournament model may well be able to provide a rationalisation for this claim.
The final point to be made here is that the expression for the derivative \[ \frac{d}{d\lambda} \left( \frac{W_1 + W_2}{\lambda} \right) \] implies that, it is in precisely the situations when foreign and security considerations are taken seriously and therefore where more discretion is introduced into trade policymaking, that finding ways to increase \( \lambda \) will reduce the political pain of associated with preferential trade liberalisation in the country organising the market access competition. In these circumstances with both contestants offering more market access, the attraction to politicians in the organising country of a policy of "competitive liberalization" which combines plenty of opportunities for trade diversion while preserving lots of discretion in trade policymaking for non-trade considerations becomes clearer.

Moreover when parameter \( g \) is small, increases in parameter \( \lambda \) require the preferential trade agreements offered to the contestants to be restructured in a way to reduce the ex-post benefits \( W_2 \) to the losing contestant. Therefore, these two features of "competitive liberalization" interact in identifiable ways. One can interpret this finding as implying that, in such circumstances, there will be greater use of issue-linkages, more sectoral exemptions, and a longer time period between the implementation of the preferential trade agreements for the winning contestant and the losing contestant.

The contestants can, of course, finance their market access offers to the USA in more than one way too. What happens if parameter \( \lambda^* \) changes? The relevant comparative static results are:

\[
\frac{dm}{d\lambda^*} = \left[ \frac{m}{\lambda^*} \right] \left[ 1 - \frac{E_{\lambda^*,\lambda^*}}{\Phi} \right] > 0
\]

\[
\frac{d}{d\lambda^*} \left[ \frac{m}{\lambda^*} \right] = \left[ \frac{m}{\lambda^*} \right] \left[ E_{m,\lambda^*} - 1 \right]
\]
\[
\frac{d}{d\lambda^*}\left[W_1 + W_2\right] = \left[\frac{2gm}{\lambda^*}\right]\left[W_1 - W_2\right]E_{m,\lambda^*}^{-1}
\]

\[
\frac{d}{d\lambda^*}\left[W_1 - W_2\right] = \left[\frac{W_1 - W_2}{\lambda^*}\right]E_{e,m}^{-1}\left[E_{m,\lambda^*}^{-1} - 1\right]
\]

\[
\frac{dU_{USA}}{d\lambda^*} = \left[\frac{2m}{\lambda^*}\right] > 0
\]

A higher value of \(\lambda^*\) raises the politicians' utility in the USA, not least because the contestants offer more access to their markets. The responsiveness of the latter to changes in \(\lambda^*\), however, plays an important role in determining whether the contestants and the contest organiser end up incurring more political pain as result. When \(E_{m,\lambda^*} < 1\), all parties to the market access competition endure less political pain from the ensuring preferential trade liberalisation. It is worth noting, however, that the contestants are always held to their participation constraints and so their utility does not increase. This implies that any reductions in the political pain in the contestants will be offset by an identical reduction in the market access benefits offered by the USA. Relatedly, the USA has a clear incentive to encourage its trade partners who wish to engage in a competition for market access to exploit as many opportunities for trade diversion against non-contestants as possible (so raising parameter \(\lambda^*\)).

The purpose of this section was to explore the equilibrium and comparative static properties of a well-known tournament model that has been adapted to include specific features of preferential trade agreements and associated negotiations. This adaptation required dropping financial payments from the contest's organiser to the contestants, replacing them with partial financing of market access offers. A rationale for the current U.S. policy of “competitive liberalization” was offered, as it was shown that contests for market access can be structured in such a way to allow for discretion in the exercise of foreign and security policy while eliciting the optimal offers to open markets abroad from foreign governments. The impact of foreign and security policy on the content and sequencing of preferential trade
agreements was discussed, and an incentive to deliberately include controversial non-market access measures in preferential trade agreements was identified. It was also shown that the organiser of the competition for market access has an interest in strengthening the beggar-thy-neighbour components of the resulting preferential trade agreements. A tournament-theory perspective on "competitive liberalization" points to importance of comparing and contrasting the content and consequences of groups of preferential trade agreements, and the contests that surround them, and not to focus on exclusively on any one preferential trade agreement. When assessed separately from others, a preferential trade agreement that appears to be welfare-improving for a given country, may well have been part of a package, or even a sequence, of preferential trade agreements than on net reduces the welfare for the country in question.

4. Some other formulations of "competitive liberalization."

It is important to appreciate that not every form of competition for access to a large economy’s market elicits the same level of offers from contestants. In the last section a critical assumption was the number of preferential trade agreements eventually implemented equals the number of contestants. Suppose instead that the two contestants compete for a single free trade agreement with the USA, which is awarded to the contestant with the highest foreign policy-adjusted market access offer. Taking every other aspect of the model as before, in the symmetric Nash equilibrium the USA maximises the following expression by choosing the equilibrium market access offer $m$:

$$m - rc \left( \frac{2r^* c^* (m)}{\lambda^*} \right)$$

The principal difference is that the USA now only expects to benefit from better access in only one of the contestants’ market and this affects the resulting first order condition:
Comparing expressions [16] and [19] and recalling the strictly convex nature of the functions $c$ and $c^*$, it is clear that the optimal market access offer $m$ is lower in the latter case. It can also be shown that the organising country’s utility is lower when only one preferential trade agreement is on offer. And, of course, in this latter model the optimal market access offer falls short of the benchmark case too. Not every contest, then, is alike.

One objection to the above argument is that if only one preferential trade agreement is essentially signed then the political pain felt in the organising country should only be felt with respect to the market access improvements offered to the winning contestant. Modifying the model in this manner is possible, so long as one includes the possibility that the losing contestant might end up essentially rewards the winning country, perhaps through the latter’s exporters displacing the former’s exporters after the preferential trade agreement with the USA comes into effect. Thus, the losing country’s utility is assumed to fall by $W_2$ and the winning contestant’s utility rises by the same amount (in absolute value). In such a setting, under the symmetric Nash equilibrium, the objective function of the country organising the market access contest becomes:

$$m - rc\left(\frac{W_1}{\lambda}\right)$$

where $W_1$ is recovered from the new participation constraint of the contestants:

$$\frac{1}{2}[W_1 + W_2] + \frac{1}{2}[-W_2] = \left[\frac{1}{2}W_1\right] = r^* c^*\left(\frac{m}{\lambda}\right)$$

It is straightforward to show that the optimal market access offer $m$ in this setting is the same as the case when the USA offered a prize to the losing country. When only one preferential trade agreement is offered with no other form of reward available and the contestants expect

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9 The models considered here have three equations (the USA’s first order condition and the participation and incentive compatibility constraints of the contestants) and three endogenous variables ($m$, $W_1$, and $W_2$). Eliminating $W_2$ would create problems for solving this system of equations.
to win this prize with a probability less than one, then the value of the prize $W_1$ must be large enough to cover the participation constraint.

One goal of this short section was to examine the incentives created by competitions for market access that involve small departures from model set up described in section 2. These departures also indicate which assumptions in the original model were needed to ensure that that model delivered the optimal level of market access offers established in the benchmark case.

5. Concluding remarks.

Although there is a growing interest in the sequencing of preferential trade agreements, the overwhelming tendency in both theoretical and empirical economic research has been to analyse preferential trade agreements separately. The latter approach has provided useful insights upon which policy recommendations have been made. However, it should be recognised that countries may have more than one preferential trade agreement in mind when they devise their national trade policies. For example, a country may expect to conclude numerous preferential trade agreements with trading partners and so may ask itself whether this fact alone increases the set of strategies available to its trade policymakers. Other countries may realise that the type of preferential trade agreement that they are likely to conclude with a given trading partner may depend on the actions of third parties, in which case the relative size of a negotiating offer may be just as important as its absolute magnitude. We need to assess these logical possibilities and their consequences for the contents and sequence of preferential trade liberalisation as well as the economic and political economy effects of such trade strategies. As the statements quoted at the beginning of this paper make clear, some of the elements of alluded to above have found themselves into the trade policy of the United States, strengthening the case for moving beyond assessing preferential trade
agreements in isolation. In this paper I have taken a modest step towards in this direction, but arguably much more economic research can be done here.

In this paper I have adapted a rank-order model of tournaments, where relative performance and relative rewards play a critical role, to analyse some of the features of the U.S. policy of “competitive liberalization.” Although I have incorporated features of trade negotiations into a standard two contestant tournament model, I make no claims to have developed the latter class of theories. The value added of my analysis, if any, is in the application of an existing set of theoretical tools to a new setting. I would argue that even the relatively straightforward model employed here has generated a quite a rich set of results that shed light on the incentives created by a competition for better access to a large foreign market. For instance a rationale, based on mercantilist preferences, was found for the adoption of a certain type of market access competition which accommodates an obligation on trade policymakers to take non-trade policy considerations into account, such as foreign and security policy concerns. Moreover, the model examined here can account for why controversial non-market access measures are included in preferential trade agreements. This model also indicates the ways in which trade diversion and foreign and security policy considerations can influence the contents and sequence of preferential trade agreements. Furthermore, the analysis presented here has implications for both the likely global implications of a large economy organising a contest for access to its markets and for assessing the costs and benefits for a country that engages in such a contest.

Unsurprisingly the straightforward framework employed here does not take account of a number of factors that might be of interest. For example, issue linkages, trade diversion, and the sequencing of preferential trade agreements were not explicitly modelled here. Instead, their effects on the magnitude and composition of the prizes in the contest for market access were inferred. I would argue that rank-order tournament theory places considerable emphasis on the overall magnitude of these prizes (not their composition) and on whether they are fully
financed by the contest organiser, and much can be learnt from analysing these features alone. Even so, extensions to embed more international trade features would serve at a minimum to establish the robustness of the findings presented here and, more importantly, may offer additional insights of their own.

There is one asymmetry in the model presented in the main body of this paper (sections 2 and 3) that may be worth further thought. That is, participants to the contest all value market access gains in a linear manner and market access concessions in a non-linear manner. Given the actual politics of trade reform these assumptions may be appropriate, but I make no claim to have established that and perhaps other theoretical formulations ought to be explored. There is also plenty of room for extending the model here to include risk-averse parties and to allowing asymmetries between those parties, although the existing models that do so are markedly more complex than the one presented here. All of these factors and no doubt others some I have overlooked ought to be borne in mind in assessing of the political economy and other implications of this paper.
References.


Appendix. List of articles and commentary which make reference to “competitive liberalization.”

A. Academic articles.


http://www.brookings.edu/views/papers/200506bown.pdf


http://www.fordschool.umich.edu/rsie/workingpapers/Papers526-550/r528.pdf


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