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Who is Against Free Migration?:
Lobbying, the Non-Traded Sector and the Choice
between the Customs Union and the Common Market

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Who is against Free Migration? Lobbying, the Non-traded Sector and the Choice between the Customs Union and the Common Market*

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Abstract

While economists usually resort to redistribution between individuals of different skill levels and majority voting when explaining migration policies, the present political economy model of preferential trade and migration agreements suggests an alternative approach based on the following two observations. Firstly, in the presence of free trade in goods between the member states of the EU, migration between the member states mainly redistributes income between individuals employed in the traded and the non-traded sectors. Secondly, various episodes of restrictive migration legislation suggest that lobbying from vocal interest groups rather than majority voting shapes migration policies in the EU.

Keywords: Trade Negotiations, International Migration, Lobbying, European Enlargement

JEL Codes: D72, F15, F22

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1 Introduction

Economists usually resort to arguments based on redistribution between individuals of different skill levels when explaining immigration policies. Immigration is viewed as having different effects on native individuals of different skill levels either through direct wage competition, or indirectly through the public welfare system.¹ Immigration policy is then determined by majority voting, i.e., by the native individual with median skill level.² Various episodes of restrictive immigration legislation in the European Union (EU) suggest an alternative approach.

An illustrative episode of restrictive immigration legislation in the EU is the German *Entsendegesetz* (Posted Workers Act) of March 1996, which was followed at the European level by the EU Posted Workers Directive of December 1996. Basically, these two directives restrict free trade in labour services by obliging companies to employ temporary workers according to the conditions of the host country.³ As an official justification for host country control, the governments voiced concerns about potentially negative effects of free trade in labour services on the welfare of the general public. In particular, these legal measures were supposedly adopted in order to prevent welfare detrimental ‘wage dumping’. However, a closer look at the debate surrounding both the *Entsendegesetz* and the EU Posted Workers Directive suggests a different interpretation.⁴ Rather than concerns about the welfare of the general public, it was political pressure from special interests, mainly lobbies representing the construction sector, that led to host country control for temporary workers. Emphasising the asymmetry in observed trade and migration policies, Pelkmans (2001:167), for example, concludes: ‘Why competitive advantage in goods markets can ‘legitimately’ be based on [differences in economic development], but not in (this) services market (namely, construction) or in factor markets, can only be explained by political economy.’

The Posted Workers legislation of 1996 is clearly intended to limit immigration into sectors that make intensive use of low-skilled labour. However, mobility restrictions in the EU are

¹See Soellner (1999) for a theoretical analysis of how immigration affects natives through direct wage competition and Razin and Sadka (2001) for both a theoretical and empirical treatment of how immigration affects natives through the public welfare system.

²See, for instance, Benhabib (1996), Bilal, Grether and DeMelo (2003) or Ortega (2005).

³These conditions include among others minimum wages, minimum paid holidays, maximum working hours, non-discrimination, safety at the workplace.

⁴See Rotte and Zimmermann (1998) for a discussion of the *Entsendegesetz* and Pelkmans (2001) for a discussion of the EU Posted Workers Directive.

not confined to low-skill intensive sectors. Pelkmans (2001:170) notes that professionals such as dentists, physicians, accountants, lawyers, notaries and pharmacists use overly complicated diploma recognition procedures to limit immigration into their sectors. The Financial Times (2004a) reports how lobbying from craft guilds precluded a major reform of the German craft sectors⁵ that rely on formal skill requirements to limit entry, in particular of immigrants.⁶

An especially illustrative episode of restricting free migration in the EU emerged in the negotiations over the Eastern Enlargement. While the negotiating parties agreed on fully liberalising trade with each other,⁷ they were granted the right to impose migration restrictions for a transitional period of seven years.⁸ It was mainly political pressure from the Austrian and German governments that led to the inclusion of these provisions into the accession treaty. This is hardly surprising if the fact that Austria and Germany were expected to be the main destination countries for migrants from the acceding countries is taken into consideration. What is particularly striking, however, is that the governments' stances were heavily influenced by political lobbying from the construction sector and the craft sectors. A German Government Press Release (2001), for example, calls for the 'restriction of the freedom to provide services in specific areas, in particular in the construction and the craft sectors.' The ability of specific sectors to influence the Austrian and German governments' stances on migration becomes even more apparent in an additional provision of the negotiations treaty that applies only to these two countries. According to the European Commission (2003), 'Austria and Germany have the right to apply flanking national measures to address serious disturbance or the threat thereof, in specific sensitive service sectors on their labour markets, which could arise from the cross-border provision of services.'

Two common features emerge from these episodes. Firstly, attitudes toward immigration do not necessarily vary across individuals of different skill levels but rather across individuals of different sectoral affiliations. Most importantly, anti-immigration sentiments are pertinent in the

⁵The craft sectors include carpentry, masonry, plumbing, electrical installation, bakery among others. They provide in their wide majority goods or services that are non-tradeable internationally.

⁶According to the Financial Times (2004a) the formal educational requirement, the so called *Meisterbrief*, to set up a company requires 'years of extra training and costs up to 50,000 euro.'

⁷The 15 existing member states of the EU and the 10 acceding states agreed on eliminating all existing trade barriers between each other without any sectoral exemptions. However, safeguard mechanisms may be triggered in cases where an acceding state does not fully apply the *Acquis Communautaire*, say for example in the veterinary field.

⁸In the present paper, long phase-in periods are taken as a metaphor for the exclusion of free migration from a bilateral agreement.

non-traded sectors. Secondly, rather than by majority voting the migration related legislation in the above examples is determined by political lobbying from vocal interest groups.

To capture these stylised facts in a formal political economy model, the present paper focuses on the negotiations over the Eastern Enlargement of the EU. One of the most controversial issues in these negotiations was whether to introduce bilateral free trade only or whether to additionally introduce bilateral free migration. While the existing member countries of the EU favoured the introduction of bilateral free trade only, the acceding countries favoured the additional introduction of free migration. The present paper provides a rationalisation of these negotiating positions based on the non-traded sector and political lobbying. The logic underlying the formal political economy model is as follows. Bilateral free trade affects only individuals employed in the traded sectors. While individuals employed in the export sectors gain from bilateral trade liberalisation, individuals employed in the import competing sectors lose. Individuals employed in the non-traded sector are indifferent on the bilateral trade liberalisation issue. This is precisely the pattern of individual preferences Mayda and Rodrik (2005) find in their recent analysis of survey data.⁹ So long as there is a sufficient balance between export sectors and import competing sectors in each country, bilateral free trade is then viable even if traded sectors are organised into interest groups. Intuitively, the balance between export and import sectors ensures that there is a sufficient number of exporter interest groups pitted against the importer interest groups on the bilateral trade liberalisation issue. Since bilateral free trade equalises factor prices in the traded sectors, factor price differences and hence migration incentives persist only in the non-traded sector. This is consistent with the stylised fact that in OECD countries immigrants are mainly employed in the non-traded sector. OECD (2004:55), for instance, observes that ‘foreigners are generally over-represented in construction, hospitality and catering, as well as household services [...]’. The additional introduction of free migration eliminates any remaining factor price differences between the two countries. It drives down the factor price in the non-traded sector of the destination country while it drives up the factor price in the non-traded sector of the source country. If the non-traded sector in the potential destination is

⁹Strictly speaking, Mayda and Rodrik (2005) find that individuals employed in the import competing sectors are significantly less likely to be pro-trade than individuals employed in the non-traded sectors while there is no statistically significant difference between individuals employed in the exporting sectors and those employed in the non-traded sectors. The latter result is probably due to the specific wording of the survey question that is meant to elicit opinions on import restrictions and not on overall trade liberalisation.

organised into an interest group, it lobbies the government to reject the additional introduction of bilateral free migration. In the potential source country, the interest group representing the non-traded sector lobbies the government to endorse it. The additional introduction of bilateral free migration then depends on the details of the international negotiations process.

The political economy of migration policy is currently a very active area of research.¹⁰ While the major part of the literature uses the median voter model to analyse the endogenous formation of migration policies,¹¹ some contributions explore the use of pressure group models. Hanson and Spilimbergo (2001) and Facchini and Willmann (2005) apply the Grossman and Helpman (1994) model of endogenous trade policy formation to the analysis of the endogenous formation of multilateral migration policies. The present paper follows these contributions in using a pressure group model but differs from them in three important respects. Firstly, it applies the Grossman and Helpman (1995) (henceforth: GH (1995)) model of the negotiations over a Free Trade Agreement to the analysis of the endogenous formation of bilateral migration policies. Secondly, it extends the GH (1995) model to accommodate a non-traded sector. This synthesises two current topics of research. Facchini and Testa (2004) analyse the endogenous formation of bilateral migration policies, albeit in a median voter framework, without explicitly modelling a non-traded sector. Bowen and Wu (2004) analyse the economic effects of immigration in the presence of a non-traded sector but do not explicitly model the endogenous formation of migration policies. Thirdly, in the present paper bilateral trade and migration policies are determined simultaneously. The present paper may thus also contribute to the solution of the Bhagwati (1991) puzzle: In the light of the Mundell (1957) result of the equivalence of trade and migration flows, why are observed trade policies less restrictive than observed migration policies?

The remainder of the paper is organised as follows. Section 2 lays out the basic setup of the model. Using this basic setup, Section 3 analyses the economic effects from the formation of a Customs Union and from the introduction of free migration. Section 4 turns to political economy issues while Section 5 derives the main results using specific functional forms. Section 6 concludes.

¹⁰See, for instance, the survey of Facchini (2004).

¹¹See, for instance, Benhabib (1996), Bilal, Grether and DeMelo (2003) or Ortega (2005).

2 Model Setup

2.1 Policy Options

The model examines the trade and migration policy options of two small countries $J \in \{H, F\}$ that interact with each other and the rest of the world. In the status quo (SQ), the two economies under consideration apply most favoured nations tariffs and do not allow immigration.¹² They face the policy options of either forming a Customs Union (CU), i.e., eliminating trade barriers between each other and adopting a common external tariff, or forming a Common Market (CM), i.e., additionally introducing free migration. The qualitative features of the economies under consideration are similar. In the following description of production and demand structures, country superscripts are therefore dropped.

2.2 Production

The production structure consists of a standard specific factors model of international trade augmented by a non-traded sector. More specifically, sector 0 produces a freely traded numeraire good under constant returns to scale with the intersectorally mobile factor (M) alone. It is assumed that production in the numeraire sector is always positive and that the input-output coefficient is 1 which amounts to fixing the return to the mobile factor at 1. The remaining $n + 1$ non-numeraire sectors each use one sector-specific factor (S_i) and the intersectorally mobile factor M . Production takes place under constant returns to scale. n non-numeraire sectors produce n traded goods that may be subject to trade taxes. One non-numeraire sector produces a non-traded good whose price is determined by domestic supply and demand. M is interpreted as sector-unspecific labour and S_i as labour that, in the short term, is specific to sector i . While S_i is assumed to be immobile intersectorally, it is assumed to be mobile internationally.¹³ In taking this short term perspective, the present model follows Hillman and Weiss (1999) that propose the specific factors model with its short term rents and sectoral wage

¹²This seems a reasonable approximation of the immigration policy adopted by European countries after 1973. Boeri, Hanson and McCormick (2002:64), for instance, note that ‘in many continental European countries - namely Germany, France, Denmark, and Sweden - labour immigration was reduced to small numbers after the first oil price crisis 1973.’

¹³For instance, sector specificity may derive from the acquisition of skills that, in the short term, are not transferable across sectors but that are transferable internationally.

competition between natives and immigrants as the appropriate model to analyse the formation of attitudes toward immigration.

2.3 Demand

Individuals have identical preferences. Each individual maximises a quasi-linear utility function of the form $u = c_0 + \sum_{i=1}^{n+1} u_i(c_i)$, where c_0 is consumption of the numeraire good 0 and c_i is consumption of the non-numeraire good i , $i = 1, 2, \dots, n + 1$. The sub-utility functions $u_i(\cdot)$ are differentiable, increasing, and strictly concave. The numeraire sector absorbs all general equilibrium effects from price changes in sector i , effectively making demand in sector i independent from prices in the n remaining non-numeraire sectors. Demand for the non-numeraire goods is given by $d_i(p_i)$, where the demand function $d_i(\cdot)$ is the inverse of $u'_i(c_i)$. Consumption of the numeraire good is given by the difference between the individual's income and its expenditure on the non-numeraire goods.

2.4 Factor Ownership

Each individual in the population owns one unit of the intersectorally mobile factor M . Additionally, individuals own at most one type of specific factor. The fraction of the population that owns specific factor S_i is denoted by α_i . Two further assumptions on specific factor ownership simplify the analysis of the lobbying and migration decision considerably. Firstly, the lobbying decision is simplified by assuming that ownership of specific factor S_i is very concentrated in the population, i.e., α_i is assumed to be very small. Welfare of the group owning specific factor S_i is given by the sum of the group's mobile factor reward, its specific factor reward, rebated tariff revenue and consumer surplus. It can be shown that the relative weight of the specific factor reward in the group's welfare increases with the degree of concentration of ownership of specific factor S_i in the population.¹⁴ So long as ownership of specific factor S_i is sufficiently concentrated in the population, i.e., α_i is sufficiently small, the specific factor owners' welfare can be approximated by the specific factor reward $\pi_i(p_i)$. In other words, the lobbying decision in favour of or in opposition to a trade and migration policy regime is entirely determined by $\pi_i(p_i)$. Secondly, the migration decision is simplified by assuming that within the group owning

¹⁴See Appendix A.3.

specific factor S_i the specific factor is distributed uniformly. This ensures that the specific factor reward is also the only determinant of specific factor owners' welfare at the individual level.¹⁵ Individual specific factor owners hence base their migration decision entirely on the comparison of specific factor rewards in their home country and the potential destination country. They migrate if the specific factor reward in the potential destination country is higher than in the home country, while ignoring effects of migration on their individual welfare through consumer surplus and rebated tariff revenue.

3 Economic Effects of the Customs Union and Free Migration

This section analyses the effects of the CU and free migration on specific factor rewards $\pi_i(p_i)$, consumer surplus $CS_i(p_i) \equiv u_i[d_i(p_i)] - p_i d_i(p_i)$ and tariff revenue $T_i(p_i, t_i) = t_i[d(p_i) - x(p_i)]$, where before the formation of the CU the specific tariff rate t_i applies to all imports while after the formation of the CU it applies to imports from outside the CU only and is zero otherwise. For illustrative purposes, the analysis of the economic effects of the CU in the traded sectors is analysed separately from the economic effects of free migration in the non-traded sector.

3.1 The Customs Union in the Traded Sectors

Since the present paper's main focus is on migration policies rather than on trade policies, it is sufficient for the present purpose to consider the following simple special case of a CU.¹⁶ It is assumed that in the SQ tariffs on export goods are zero,¹⁷ while tariffs on import goods are positive. Algebraically, $t_i^{EX} = 0$ and $t_i^{IM} > 0$, where the superscripts denote export and import goods, respectively. Further, in the SQ an exporting industry in country H is an importing industry in country F and vice versa. Country H exports and country F imports in a fraction s of the industries and country H imports and country F exports in the remaining fraction $1 - s$. In other words, all industries are mirror images, with country H exporting in some industries

¹⁵See Appendix A.3.

¹⁶Rather than adding new insights to the literature on the viability of a bilateral trade agreement, the reason for considering a CU is a technical one. With a CU already in place the additional introduction of free migration affects the non-traded sector only (see Section 5.3 for the technical details).

¹⁷GATT rules prohibit export subsidies while export taxes are rarely used in reality.

and country F exporting in the others. The arithmetic mean of the specific tariff rate in country H and country F is then given by $t_i^{CU} = \frac{t_i^{IM}}{2}$, which is the harmonised external tariff rate the CU members are assumed to agree upon.¹⁸ World prices are normalised to one and it is assumed that the CU as a whole is an importer on world markets in all the industries so that the internal price in the CU is actually given by $p_i^{CU} = 1 + t_i^{CU}$.¹⁹ The CU tariff revenue is assumed to be distributed according to the countries' shares of importing industries in the SQ, i.e., country H receives the fraction $1 - s$ of the CU tariff revenue and country F receives the fraction s .²⁰

Suppose, firstly, that industry i is an importing industry. Since the CU-tariff is lower than the importing industry's SQ-tariff, the formation of the CU induces a price decrease in industry i . It can be shown that $d\pi_i(p_i)/dp_i = x_i(p_i) > 0$, where $x_i(p_i)$ denotes production in sector i .²¹ Hence, the formation of the CU and the implied price fall in industry i lead to a decrease in the specific factor reward $\pi_i(p_i)$. Under the standard concavity assumptions on $u_i(x_i)$ made in Section 2.3, the effect of the price fall in importing industry i on consumer surplus $CS_i(p_i)$ is positive.²² The effect of the CU on tariff revenue $TR_i(p_i, t_i)$ in industry i is ambiguous. On the one hand, the elimination of the tariff on imports from the CU partner country leads to a loss in tariff revenue. On the other hand, the price fall in sector i leads to an increased volume of imports and might thus lead to an increase in tariff revenue.²³ While the direction of the economic effects from the CU is unambiguous for factor rewards and consumer surplus, it is not possible to resolve the ambiguity for tariff revenue without specifying specific production and utility functions.

Suppose, secondly, that industry i is an exporting industry. The formation of the CU leads to an increase in the domestic price in industry i because the CU-tariff is positive while the tariff under the SQ is zero. Hence, the factor reward $\pi_i(p_i)$ increases and consumer surplus

¹⁸GATT Art. XXIV requires that 'the common tariff arrangements of the preferential group toward third-country "external" trade not be "on the whole" more restrictive than the "general incidence of" duties and regulations before the CU was formed.' See Jackson (1997:166).

¹⁹If the CU as a whole were an exporter on world markets at $p_i^{CU} = 1 + t_i^{CU}$, the internal price in the CU would fall below $1 + t_i^{CU}$. Two cases can be distinguished. (i) If the total CU supply equals or exceeds total CU demand at world prices, the internal price in the CU falls to 1. (ii) Otherwise the internal price in the CU is determined by the intersection of total CU supply and total CU demand, i.e., $p_i^{CU} \in (1, 1 + t_i^{CU})$.

²⁰This amounts to assuming that the CU tariff revenue in industry i accrues to the country that is importing good i in the SQ.

²¹See Appendix A.1.

²²See Appendix A.2.

²³The ambiguous effect of the CU on tariff revenue reflects the opposing forces of trade diversion and trade creation from preferential trade liberalisation.

$CS_i(p_i)$ decreases. There is no change in tariff revenue. Both before and after the formation of the CU industry i is an exporting industry. Since export duties are zero by assumption, tariff revenue is zero in both cases. The economic effects from the formation of the CU in industry i are summarised in Table 1.

Table 1: Economic effects from the CU

	Importing industry	Exporting industry
p_i	Decrease	Increase
$\pi_i(p_i)$	Decrease	Increase
$CS_i(p_i)$	Increase	Decrease
$TR_i(p_i, t_i)$	Ambiguous	Constant

3.2 Free Migration in the Non-Traded Sector

The induced change in sectoral demands is the only channel through which free migration in the non-traded sector may affect the traded sectors. However, the assumption of concentrated factor ownership eliminates this channel. The reason is that even if all the owners of specific factor S_i decide to migrate, they only constitute a negligible fraction α_i of the total population. Hence, the introduction of free migration in the non-traded sector does not affect tariff revenue. Further, it affects p_{NTS} only through shifts in domestic supply, where, for convenience, the subscript NTS rather than $n + 1$ is used to denote the non-traded sector. The direction of the effect of the domestic price on factor rewards and consumer surplus is as in the traded sectors. Algebraically, $\partial\pi_{NTS}(p_{NTS})/\partial p_{NTS} > 0$ and $\partial CS_{NTS}(p_{NTS})/\partial p_{NTS} < 0$. Migration of the factor specific to the non-traded sector leads to an outward shift of the domestic supply schedule in the destination country and to an inward shift in the source country. In the destination country, immigration thus leads to a decrease in p_{NTS} and an associated decrease in $\pi_{NTS}(p_{NTS})$, where $\pi_{NTS}(p_{NTS})$ denotes factor rewards to the *native* specific factors. The change in consumer surplus $CS_{NTS}(p_{NTS})$ associated with the decrease in p_{NTS} in the destination country is positive. In the source country, emigration leads to an increase in p_{NTS} and an associated increase in $\pi_{NTS}(p_{NTS})$,²⁴ while consumer surplus $CS_{NTS}(p_{NTS})$ decreases. The economic

²⁴Note that for the source country the increase in factor rewards from free migration can be split into the increase for the migrants and the staying specific factors. In the absence of migration costs, specific factors migrate until factor rewards are equalised across countries. In the migration equilibrium factor rewards are then equal for the migrants and the specific factors staying in the source country. Splitting the increase in factor rewards into the increase for the migrating and the staying specific factors is then equivalent to considering $\pi_{NTS}(p_{NTS})$, i.e., the joint factor reward to the migrating and the staying specific factors.

effects from the introduction of free migration in the non-traded sector are summarised in Table 2.

Table 2: Economic effects from free migration

Variable	Destination Country	Source Country
p_{NTS}	Decrease	Increase
$\pi_{NTS}(p_{NTS})$	Decrease	Increase
$CS_{NTS}(p_{NTS})$	Increase	Decrease

4 Political Economy

The political process is modelled as a two-stage game. In the first stage, the domestic political equilibrium in country $J \in \{H, F\}$ is determined through the interaction of domestic lobbies and the government. In the second stage, the equilibrium trade and migration policy regime is determined in bilateral negotiations. The two-stage game is solved through backwards induction taking into account that in the first stage the domestic lobbies anticipate the bilateral negotiations in the second stage. Before deriving the solution to the two-stage game in Section 4.2, Section 4.1 analyses the political process in one country as if it were a one-stage game. This illustrates the interaction between domestic interest groups and the government.

4.1 Domestic Political Equilibrium

In the domestic political process, lobby groups representing specific factor owners offer the government campaign contributions that are contingent on the adoption of their preferred trade and migration policy regime. This is modelled as a menu auction *à la* Bernheim and Whinston (1986), where the government represents the auctioneer and the lobby groups represent the bidders. The government maximises an objective function of the type $G_r = \sum_i^{n+1} C_{ir} + aW_r$, where $C_{ir} \geq 0$ denotes lobby i 's nonnegative campaign contribution contingent on the adoption of trade and migration policy regime $r \in R$, $R \equiv \{SQ, CU, CM\}$, and a denotes the weight the government places on average welfare W .²⁵ Each lobby has complete information on the other lobbies' gross payoffs π_{ir} .

A Nash Equilibrium in this menu auction is completely characterised by Definition 1.

²⁵See Appendix A.3 for the algebraic details.

Definition 1 $(\{C_i\}_{i=1}^n, \tilde{r})$ is a Nash Equilibrium if and only if

(i) $C_{ir} \geq 0$ for all $i, r \in R$

(ii) $\tilde{r} \in \underset{r \in R}{\operatorname{argmax}} [\sum_i^n C_{ir} + aW_r]$

(iii) for no lobby i there exists C'_{ir} and $r'_i \in R$ such that

(a) $C'_{ir'_i} + \sum_{j \neq i} C_{jr'_i} + aW_{r'_i} \geq C'_{ir} + \sum_{j \neq i} C_{jr} + aW_r, r \in R$

and

(b) $\pi_{ir'_i} - C'_{ir'_i} > \pi_{i\tilde{r}} - C_{i\tilde{r}}$.

Condition (i) simply states that contribution schedules are feasible under the nonnegativity constraint on C_{ir} . Condition (ii) follows from payoff maximisation on the part of the government. If condition (iii) were not satisfied for some lobby i , then lobby i would have an incentive to deviate from $C_{i\tilde{r}}$ given the contribution schedules of the other lobbies and the government's objective function since it disposes of an alternative contribution schedule that would leave it with higher profits net of contributions.

There is, typically, a large number of contingent contribution offers and government choices that satisfy the four conditions in Definition 1. Bernheim and Whinston (1986) focus their discussion on a particular subclass of Nash Equilibria with appealing properties, which they label Truthful Nash Equilibria. In essence, in Truthful Nash Equilibria, lobbies submit contribution schedules that reflect the change in gross payoffs from a change in the trade and migration policy regime. The notion of truthfulness is made more precise in the following definitions.

Definition 2 C_{ir} is said to be a truthful contribution schedule relative to \tilde{r} if and only if for all $r \in R$ $C_{ir} = \max [0, \pi_{ir} - (\pi_{i\tilde{r}} - C_{i\tilde{r}})]$.

In words, if lobby i submits a truthful contribution schedule relative to \tilde{r} , its contribution offer for all $r \neq \tilde{r}$ is either such that its net payoff under regime r is equal to its net payoff under regime \tilde{r} , or it is zero. When its contribution offer is zero, its net payoff under regime r is smaller than under regime \tilde{r} . In this case, equalisation of net payoffs between regimes r and \tilde{r} requires a negative contribution offer for r , which is impossible under the nonnegativity constraint on C_{ir} .

Definition 3 $(\{C_i\}_{i=1}^{n+1}, \tilde{r})$ is said to be a Truthful Nash Equilibrium if and only if it is a Nash Equilibrium and $\{C_i\}_{i=1}^{n+1}$ are truthful contribution schedules relative to \tilde{r} .

An appealing property of Truthful Nash Equilibria in menu auctions is that the selected outcome maximises the joint payoff of the bidders and the auctioneer. In the present context, this means that the trade and migration policy regime selected in a Truthful Nash Equilibrium maximises the joint payoff of the lobbies and the government, where the joint payoff under regime r is given by $P_r \equiv \sum_i^{n+1} \pi_{ir} + aW_r$.²⁶ With respect to the selected trade and migration policy regime, the menu auction framework *à la* Bernheim and Whinston (1986) is thus equivalent to a framework without campaign contributions in which the government maximises the reduced form objective function $P_r \equiv \sum_i^{n+1} \pi_{ir} + aW_r$. This is stated more formally in Lemma 1.

Lemma 1 *Let \tilde{r} denote the trade and migration policy regime selected in all Truthful Nash Equilibria of the menu auction. \tilde{r} is identical to the trade and migration policy regime selected by a government maximising a reduced form objective function $P_r \equiv \sum_i^{n+1} \pi_{ir} + aW_r$ in a framework without campaign contributions.*

Since Lemma 1 only requires the evaluation of specific factor returns and average welfare under the various trade and migration policy regimes, it simplifies the determination of the regime selected in the domestic political process considerably. The remainder of the paper therefore focuses on Truthful Nash Equilibria of the menu auction and applies Lemma 1 to determine the trade and migration policy regime chosen in the domestic political process. By focusing on Truthful Nash Equilibria it is implicitly assumed that lobbies are able to coordinate in the sense that they can communicate but cannot make binding commitments. Bernheim and Whinston (1986) show that in this environment of unlimited but non-binding pre-play communication no Nash Equilibria other than the Truthful Nash Equilibria survive.²⁷ Truthful Nash Equilibria are thus the only Coalition Proof Nash Equilibria in the sense of Bernheim, Peleg and Whinston (1987).

4.2 International Political Equilibrium

Instead of explicitly modelling the bargaining process in the bilateral negotiations, it is assumed that the adoption of a trade and migration policy regime requires that the regime chosen in the domestic political process be the same in the two countries. Algebraically, the adoption of \tilde{r} in

²⁶See Theorem 2 in Bernheim and Whinston (1986) for a formal proof.

²⁷See Theorem 3 in Bernheim and Whinston (1986).

the bilateral negotiations requires that $\tilde{r} = \tilde{r}^H = \tilde{r}^F$. The international political equilibrium is then determined by backwards induction. The lobbies in one country anticipate the bilateral negotiations in the second stage and therefore make their contribution offers conditional on their expectations of the domestic political process in the other country. The political process in the first stage can either be modelled as a game in which countries move simultaneously or as a game in which they move sequentially.

4.2.1 Simultaneous Game

The interaction between domestic lobbies and the government when lobbies do not anticipate the bilateral negotiations in the second stage has been discussed in Section 4.1. The insights from this discussion can be used to solve the game in which governments move simultaneously in the first stage of the game and lobbies anticipate the bilateral negotiations in the second stage. With lobbies anticipating the bilateral negotiations in the second stage, the interaction between domestic lobbies and the government remains essentially unchanged. The key difference between the one-stage game and the two-stage game is that the menu auction in country $I \in \{H, F\}$ reduces to a menu auction over *achievable* regimes given the expectations about the regime selected by the government of country $J \neq I$. If the domestic lobbies in country I expect the government in country J to select $\tilde{r}^J = SQ$, then their set of achievable regimes is a singleton and is given by $R^I | (\tilde{r}^J = SQ) = \{SQ\}$. If they expect $\tilde{r}^J = CU$ then $R^I | (\tilde{r}^J = CU) = \{SQ, CU\}$ and if they expect $\tilde{r}^J = CM$ then $R^I | (\tilde{r}^J = CM) = \{SQ, CM\}$. Similarly, $R^J | (\tilde{r}^I = SQ) = \{SQ\}$, $R^J | (\tilde{r}^I = CU) = \{SQ, CU\}$ and $R^J | (\tilde{r}^I = CM) = \{SQ, CM\}$. Using Lemma 1, the Truthful Nash Equilibrium outcome of the two-stage game is then defined as follows.

Definition 4 \tilde{r} is a Truthful Nash Equilibrium outcome of the two-stage game if and only if

- (i) $\tilde{r} \in \underset{r}{\operatorname{argmax}} P_r^I$, where $r \in \{R^I | \tilde{r}^J = \tilde{r}\}$ and
- (ii) $\tilde{r} \in \underset{r}{\operatorname{argmax}} P_r^J$, where $r \in \{R^J | \tilde{r}^I = \tilde{r}\}$.

To illustrate the solution of the two-stage game, it is helpful to consider the following simple example. Suppose in country H the joint payoffs to the lobbies and the government under the three trade and migration policy regimes are given by $P_{SQ}^H = 0$, $P_{CM}^H = 1$ and $P_{CU}^H = 2$ while in country F they are given by $P_{SQ}^F = 0$, $P_{CU}^F = 1$ and $P_{CM}^F = 2$. This is summarised in the

following payoff matrix.

Table 3: Payoff matrix

H\F	SQ	CU	CM
SQ	(0, 0)	(0, 0)	(0, 0)
CU	(0, 0)	(2, 1)	(0, 0)
CM	(0, 0)	(0, 0)	(1, 2)

Application of Definition 4 shows that in this simple example any of the three trade and migration policy regimes may be selected in a Truthful Nash Equilibrium. One way of overcoming the problem of multiple Truthful Nash Equilibria is to model the first stage as a game in which countries move sequentially.

4.2.2 Sequential Game

Modelling the first stage as a game in which countries move sequentially overcomes the problem of multiple Truthful Nash Equilibria only at the price of conferring agenda-setting power on one of the negotiating countries. Although this is a stark assumption that might not be valid in more general settings, it seems a reasonable approximation of the negotiations over the Eastern Enlargement of the EU. Arguably, the existing member countries of the EU set the agenda for the negotiations by selecting the CU as their preferred trade and migration policy regime. The acceding countries then saw themselves confronted with the choice between the SQ and the CU. They agreed to the CU not because it was their preferred trade and migration policy regime but because their preferred regime, the CM, was simply not on the agenda. In the words of Poland's foreign minister, Włodzimierz Cimoszewicz, 'his country accepted demands from the 15 existing EU members on allowing labour restrictions during often tortuous accession negotiations "not because we believed it was right but because we saw it was necessary."' ²⁸

If countries move sequentially in the first stage of the game, the equilibrium trade and migration policy regime is effectively determined in a three-stage game. Suppose country $I \in \{H, F\}$ moves in stage 1a and country $J \neq I$ moves in stage 1b. As in Section 4.1, the trade and migration policy regime in country I is determined in a menu auction over the set of *achievable* regimes. The key difference to Section 4.1 is that the domestic lobbies in country I anticipate the best response of the domestic lobbies in country J . This allows them to select the Truthful

²⁸See Financial Times (2004b).

Nash Equilibrium of the three-stage game that yields the highest payoff to them. A Truthful Nash Equilibrium outcome of the three-stage game is then defined as follows.

Definition 5 \tilde{r} is a Truthful Nash Equilibrium outcome of the three-stage game if and only if

- (i) $\tilde{r} \in \underset{r}{\operatorname{argmax}} P_r^I$, where $r \in \{R^I | \tilde{r}^J = \tilde{r}\}$,
- (ii) $\tilde{r} \in \underset{r}{\operatorname{argmax}} P_r^J$, where $r \in \{R^J | \tilde{r}^I = \tilde{r}\}$ and
- (iii) there does not exist \tilde{r}' that satisfies (i) and (ii) such that $P_{\tilde{r}'}^I > P_{\tilde{r}}^I$.

To illustrate the solution of the three-stage game, it is helpful to resort to the simple example in Section 4.2.1. It is easily verified that in this example any of the three trade and migration policy regimes satisfies conditions (i) and (ii) of Definition 5. Suppose now that $I = H$ and $J = F$, i.e., domestic lobbies in country I move first. Then only $\tilde{r} = CU$ additionally satisfies condition (iii) of Definition 5. In other words, if country H has the power to set the agenda, the CU is selected in any Truthful Nash Equilibrium of the three-stage game. This corresponds roughly to the situation during the negotiations over the Eastern Enlargement of the EU, with country H representing the existing member countries of the EU and country F representing the acceding countries. While the example in Section 4.2.1 builds on an assumed constellation of the joint payoffs to the lobbies and the government in country H and country F , it is possible to derive this constellation in a formal economic model.

5 The Model with Specific Functional Forms

Consider the model with specific functional forms. Production in the $n+1$ non-numeraire sectors is assumed to be inelastic.²⁹ More specifically, supply in the non-numeraire sectors is given by $X_i^J = S_i^J$, where $J = H, F$ and $i = 1, \dots, n+1$. The total reward to factor S_i is then given by $\pi_i^J(p_i^J) = p_i^J S_i^J$. It follows that the marginal and average factor reward is $\pi_i^J(p_i^J)/S_i^J = p_i^J$. The specific factor in sector i earns a higher reward in the country with the higher price. This means that, with free migration of specific factors between countries, specific factors migrate

²⁹ Assuming inelastic supply functions in the $n+1$ non-numeraire sectors is equivalent to assuming that each non-numeraire good is produced under constant returns to scale with the specific factor S_i only. Strictly speaking, the example in this section therefore slightly departs from the above specific factors framework. The main difference is that with inelastic supply functions there is no increase in production efficiency from free migration. However, assuming inelastic supply functions allows to derive analytical results without qualitatively altering the implications from a specific factors framework.

until product prices are equalised between countries. The subutility functions $u_i(x_i)$ are assumed to be quadratic yielding linear sectoral demands of the form $d_i(p_i) = D - bp_i$.³⁰ Following the structure of Section 3, Section 5.1 first analyses the transition from the SQ to the CU in the traded sectors. Section 5.2 then proceeds to analyse the transition to free migration in the non-traded sector. Section 5.3 combines the insights from sections 5.1 and 5.2 to analyse the transition from the SQ to the CM.

5.1 The Customs Union in the Traded Sectors

The aggregate endowment in any single traded sector over the two countries is normalised to 1. More specifically, endowments in the n traded sectors in country H are

$$S_i^H = \begin{cases} \theta & \text{in a fraction } s \text{ of the traded sectors} \\ (1 - \theta) & \text{in a fraction } 1 - s \text{ of the traded sectors} \end{cases},$$

where $s \geq \frac{1}{2}$ and $\theta > \frac{1}{2}$. Endowments in the n traded sectors in country F mirror endowments in country H , i.e.,

$$S_i^F = \begin{cases} (1 - \theta) & \text{in a fraction } s \text{ of the traded sectors} \\ \theta & \text{in a fraction } 1 - s \text{ of the traded sectors} \end{cases}.$$

Before the formation of the CU tariffs on export goods are zero, while tariffs on import goods are set according to the tariff-setting rule in Grossman and Helpman (1994). Under the assumption that all traded sectors are politically organised and that factor ownership is highly concentrated in the population, this rule reduces to $t_i^J = \frac{S_i^J}{ab}$, where t_i^J denotes country J 's specific tariff in sector i .³¹ In words, the tariff rate is higher the larger the size of the sector, the lower the government's weight on average welfare and the lower the demand elasticity. World prices are normalised to one. It can be shown that under the parameter restriction,

$$\theta > D - b > \frac{1}{2} \frac{(1 - \theta)}{a} + \frac{1}{2}, \quad (\text{R1})$$

³⁰The subutility functions take the form $u_i(c_i) = \frac{D}{b}c_i - \frac{1}{2b}(c_i)^2$.

³¹See Appendix A.4.

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sectors with specific factors endowment θ export before the formation of the CU, while sectors with specific factors endowment $(1 - \theta)$ import.³² From the above assumptions on specific factor endowments in countries H and F , it follows that an exporting industry in country H is an importing industry in country F and vice versa. The arithmetic mean of the specific tariff in country H and country F is then $t_i^{CU} = \frac{(1-\theta)}{2ab}$, which is the harmonised external tariff that the CU members are assumed to agree upon. The above parameter restriction further ensures that the CU as a whole is an importer on world markets so that the internal price in the CU is given by $p_i^{CU} = 1 + t_i^{CU} = 1 + \frac{(1-\theta)}{2ab}$.³³ The case described by the above parameter restriction is summarised for one good in Figure 1, in which, for notational simplicity, it is assumed that country H has endowment θ and country F has endowment $(1 - \theta)$.

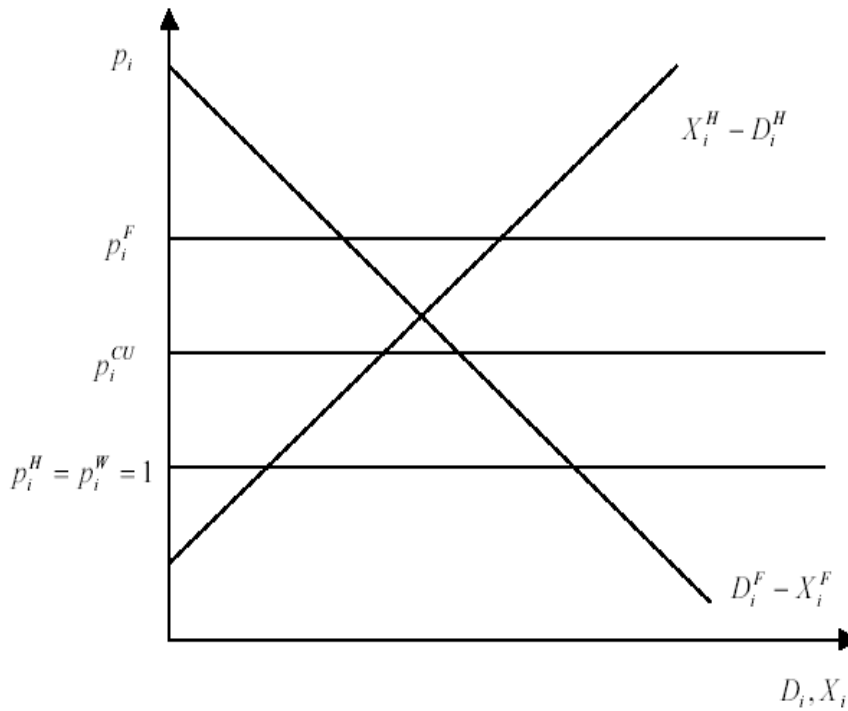


Figure 1: The CU (traded sectors)

Notice that, in Figure 1, country F 's import demand is positive at p_i^F and country H 's export supply is positive at $p_i^H = p_i^W = 1$. In other words, country F imports good i , while

³²See Appendix A.5.

³³See Appendix A.5.

country F exports it at the ex-ante domestic prices. Since at p_i^{CU} country H 's export supply is smaller than country F 's import demand, the CU, as a whole, is an importer of good i on world markets.

Under parameter restriction (R1) and the above assumptions on functional forms and the harmonised external tariff, it is possible to evaluate a sector's share in the aggregate change in factor rewards and its share in the change in average welfare implied by the transition from the SQ to the CU. It can be shown that³⁴

$$\Delta_{CU} (\pi_i^J) = \begin{cases} \frac{(1-\theta)\theta}{2ab} & \text{if } S_i^J = \theta \\ -\frac{(1-\theta)^2}{2ab} & \text{if } S_i^J = (1-\theta) \end{cases}, \quad (1)$$

$$\Delta_{CU} (W_i^J) = \begin{cases} \frac{(1-\theta)}{2ab} \left(\theta - D + b + \frac{(1-\theta)}{4a} \right) & \text{if } S_i^J = \theta \\ \frac{(1-\theta)}{2ab} \left(D - b - \theta + \frac{(1-\theta)}{4a} \right) & \text{if } S_i^J = (1-\theta) \end{cases}, \quad (2)$$

where $\Delta_{CU}(\cdot)$ denotes the difference between the CU and the SQ value of a variable. The share of traded sector i in country J 's change in the joint payoff to the lobbies and the government dP_i^J is then given by

$$\Delta_{CU} (P_i^J) = \begin{cases} \frac{(1-\theta)}{2ab} \left[\frac{1+3\theta}{4} + a(\theta - (D-b)) \right] > 0 & \text{if } S_i^J = \theta \\ \frac{(1-\theta)}{2ab} \left[-\frac{3(1-\theta)}{4} - a(\theta - (D-b)) \right] < 0 & \text{if } S_i^J = (1-\theta) \end{cases}. \quad (3)$$

It can further be shown that the transition from the SQ to the CU yields the following aggregate welfare change over the two participating countries

$$\Delta_{CU} (W^J) \equiv \sum_J \sum_{i=1}^n \Delta W_i^J = \frac{n}{b} \left(\frac{(1-\theta)}{a} \right)^2, \quad (4)$$

which is strictly positive. This means that the CU under consideration is strictly welfare beneficial for the two participating countries as a whole. An international negotiation process that maximises the joint welfare of the two countries would thus always lead to the adoption of the CU. However, the negotiation process outlined in Section 4 might lead to an inefficient negotiation outcome, in the sense that it does not maximise the joint welfare of the two negotiating countries. It can be shown that if s exceeds a critical threshold \bar{s} , the government with the

³⁴See Appendix A.6.

larger share of import competing industries rejects the transition from the SQ to the CU.³⁵ Since the adoption of the CU requires the consent of both negotiating governments, the CU is rejected and the SQ is maintained for $s > \bar{s}$. Note that \bar{s} depends critically on the level of the harmonised external tariff. McMillan (1993) documents that countries forming preferential trade agreements often find ways around GATT Art. XXIV and harmonise the external tariff on a higher level than assumed here. While $t_i^{CU} = \frac{(1-\theta)}{2ab}$ should therefore be viewed as a lower bound on the politically optimal harmonised external tariff, the insight that the CU is viable for s sufficiently low is robust to assuming a higher level of the harmonised external tariff. To see this, note that for any $t_i^{CU} > \frac{(1-\theta)}{2ab}$, import industries stand to lose less from the CU and export industries stand to gain more than with $t_i^{CU} = \frac{(1-\theta)}{2ab}$. Since this *increases* the critical threshold \bar{s} above which the CU becomes unviable, the necessary condition for the viability of the CU is relaxed. The insight that the CU is viable for s sufficiently low remains essentially unchanged, however.

To summarise, under parameter restriction (R1) and the above assumptions on functional forms and the harmonised external tariff, the transition from the SQ to the CU is unambiguously welfare beneficial for the two participating countries as a whole. Under the political process outlined in Section 4 the transition to this welfare beneficial CU might, however, be rejected. In particular, this is the case when the distribution of import and export industries across countries is very asymmetric.

5.2 Free Migration in the Non-Traded Sector

Endowments in the non-traded sector are $S_{NTS}^H = (1 - \theta_{NTS}) S_{NTS}$ in country H and $S_{NTS}^F = \theta_{NTS} S_{NTS}$ in country F , where $\theta_{NTS} > \frac{1}{2}$. Domestic prices in the non-traded sector before the introduction of free migration are then given by $p_{NTS}^H = \frac{D - (1 - \theta_{NTS}) S_{NTS}}{b}$ in country H and $p_{NTS}^F = \frac{D - \theta_{NTS} S_{NTS}}{b}$ in country F . Under free migration, specific factors migrate from country F to country H until domestic prices are equalised.³⁶ Equalisation of domestic prices occurs when migration has equalised the stocks of the specific factor S_{NTS} between countries. Under free migration, the price of the non-traded good is then given by $p_{NTS}^{FM} = \frac{D - S_{NTS}/2}{b}$, where the

³⁵ See Appendix A.7.

³⁶ Remember that average and marginal specific factor rewards are given by $\pi_{NTS}^J (p_{NTS}^J) / S_{NTS}^J = p_{NTS}^J$.

superscript FM denotes free migration in the non-traded sector.

The economic effects of free migration in the non-traded sector with inelastic supply functions are summarised in Figure 2.

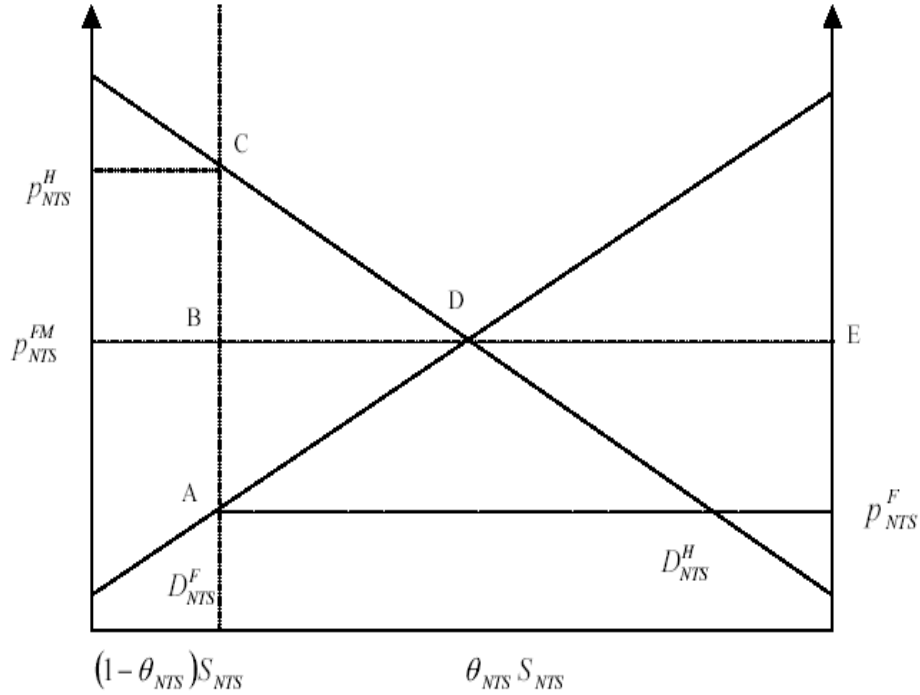


Figure 2: Free migration (in the non-traded sector)

It is apparent from Figure 2 that there is a welfare gain for both countries under free migration.³⁷ In country H , the welfare gain stems from the increase in consumer surplus (area $p_{NTS}^{FM}DCp_{NTS}^H$) that outweighs the decrease in the specific factor reward (area $p_{NTS}^{FM}BCp_{NTS}^H$). In country F , the welfare gain stems from the increase in the specific factor reward (area p_{NTS}^FABE) that outweighs the decrease in consumer surplus (area p_{NTS}^FADE). Government F always prefers free migration in the non-traded sector to the SQ, since the increase in the specific factor reward outweighs the decrease in consumer surplus, and the specific factor reward receives a higher weight than consumer surplus in the domestic political process outlined in Section 4.1.³⁸ Government H 's stance on free migration in the non-traded sector depends

³⁷Notice that this result does not depend on inelastic supply functions but is a general property of the specific factors model under consideration.

³⁸In the present context, applying Lemma 1 yields the reduced form government objective function $P_r = \pi_{NTS,r} + aW_{NTS,r}$, where $r \in \{SQ, FM\}$. Replacing $W_{NTS,r}$ by its elements and rearranging yields $P_r = (1 + a)\pi_{NTS,r} + a(1 + CS_{NTS,r})$. Hence, specific factor rewards receive the weight $1 + a$ in the domestic

on the relative size of the change in factor rewards and consumer surplus and the weight the government places on consumer surplus.

Evaluation of the change in factor rewards and average welfare in the non-traded sector of country H results in the following expressions³⁹

$$\Delta_{FM}(\pi_{NTS}^H) = (1 - \theta_{NTS}) S_{NTS}^2 \frac{\frac{1}{2} - \theta_{NTS}}{b} \text{ and} \quad (5)$$

$$\Delta_{FM}(W_{NTS}^H) = \frac{1}{2b} \left(\theta_{NTS} - \frac{1}{2} \right)^2 S_{NTS}^2. \quad (6)$$

Given $\Delta_{FM}(\pi_{NTS}^H)$ and $\Delta_{FM}(W_{NTS}^H)$, it is possible to evaluate $\Delta_{FM}(P_{NTS}^H)$, the share of the non-traded sector in country H 's change in the joint payoff to the lobbies and the government from the transition to free migration:⁴⁰

$$\Delta_{FM}(P_{NTS}^H) = \frac{1}{b} S_{NTS}^2 \left(\theta_{NTS} - \frac{1}{2} \right) \left[(\theta_{NTS} - 1) + \frac{a}{2} \left(\theta_{NTS} - \frac{1}{2} \right) \right]. \quad (7)$$

Straightforward algebra yields that $\Delta_{FM}(P_{NTS}^H)$ is strictly positive if the following inequality is satisfied:

$$\theta_{NTS} > 1 - \frac{a}{2(a+2)}. \quad (R2)$$

For a given a , the government in country H endorses free migration in the non-traded sector if θ_{NTS} is sufficiently large. In words, given the weight it places on average welfare, country H 's government endorses free migration if the endowment with the factor specific to the non-traded sector is sufficiently asymmetric across countries. The intuition for this result is as follows. When θ_{NTS} is large, before free migration, production in the non-traded sector in country H is small relative to demand. This implies that the lobby representing the non-traded sector in country H is small relative to the consumption of the non-traded good. Hence, with a large θ_{NTS} , the increase in consumer surplus from free migration outweighs the campaign contributions against free migration in the domestic political process.

political process whereas consumer surplus receives the weight a .

³⁹See Appendix A.8.

⁴⁰See Appendix A.9.

For a given θ_{NTS} , the government in country H endorses free migration if a is sufficiently large. In words, given the endowments of the two countries, country H 's government endorses free migration in the non-traded sector if the weight it places on average welfare is sufficiently large. It can be shown that, for $a = 0$, the share of the non-traded sector in country H 's change in the joint payoff to the lobbies and the government $\Delta_{FM}(P_{NTS}^H)$ is always negative, while it is always positive for $a \rightarrow \infty$.⁴¹ The intuition for this result is as follows. If the government of country H maximises specific factor rewards ($a = 0$), $\Delta_{FM}(P_{NTS}^H)$ is negative because free migration reduces specific factor rewards in country H . If the government maximises average welfare ($a \rightarrow \infty$), $\Delta_{FM}(P_{NTS}^H)$ is always positive since free migration increases average welfare in country H .

The *sign* of $\Delta_{FM}(P_{NTS}^H)$ depends only on θ_{NTS} and a . The absolute *size* of $\Delta_{FM}(P_{NTS}^H)$ depends additionally on S_{NTS} , i.e., the aggregate size of the non-traded sector over the two countries.⁴² This can be explained by the fact that there are two ways of varying the size of the non-traded sector in country H , $S_{NTS}^H = (1 - \theta_{NTS}) S_{NTS}$, either by varying θ_{NTS} or by varying S_{NTS} . Varying θ_{NTS} changes the relative size of the change in the specific factor rewards and consumer surplus from free migration, and may thus change the sign of the change in the joint payoff to the lobbies and the government, $\Delta_{FM}(P_{NTS}^H)$. Varying S_{NTS} preserves the relative size of the change in the specific factor rewards and consumer surplus from free migration and does not, therefore, affect the sign of the change in the joint payoff to the lobbies and the government, $\Delta_{FM}(P_{NTS}^H)$. It does, however, affect the absolute size of the change in the specific factor rewards and consumer surplus from free migration thus amplifying $\Delta_{FM}(P_{NTS}^H)$.

To summarise, under the above assumptions free migration in the non-traded sector is welfare beneficial for both the destination and the source country. While the source country's government always endorses free migration, anti-immigration lobbying from specific factors in the destination country might lead the destination country's government to adopt an anti-immigration stance. However, the more welfare beneficial immigration is, the more favourable the government's stance toward immigration in the destination country is. The reason for this is that, under the above assumptions, anti-immigration lobbying in the destination country de-

⁴¹See Appendix A.10.

⁴²According to equation (7), the absolute size of $\Delta_{FM}(P_{NTS}^H)$ increases quadratically with S_{NTS} .

creases with the size of the welfare gain. The larger the price decrease resulting from immigration is, the larger the welfare gain. In turn, the more asymmetric the endowment with the factor specific to the non-traded sector, i.e., the larger θ_{NTS} is, the larger the price decrease. But when θ_{NTS} is large, production in the destination country's non-traded sector is small in relation to demand. Then, even though campaign contributions per unit of specific factor are large, *total* campaign contributions against immigration are small in relation to the destination country's welfare gain. So long as θ_{NTS} is sufficiently large and hence *total* campaign contributions are sufficiently small relative to the welfare gain, the destination country's government endorses free migration in the non-traded sector.⁴³

5.3 The Common Market (the Customs Union Combined with Free Migration in All Sectors)

In the two preceding sections, the viability of the CU and the viability of free migration in the non-traded sector were analysed separately. The present section analyses the viability of a CM, i.e., a CU combined with free migration in both the traded sectors and the non-traded sector. Observe that, in the traded sectors, the additional introduction of free migration results in the same equilibrium as results from the introduction of a CU only. To see this, observe, firstly, that in a CU prices are equalised between countries and thus no further incentives to migrate remain. Secondly, note that for two small countries the intra-CU prices in the traded sectors are pinned down at world prices plus the CU tariff. In the traded sectors, the introduction of the CM hence results in the same distribution of specific factors across countries and the same intra-CU prices as the introduction of the CU without migration. The equilibrium in the non-traded sector is not affected by the introduction of the CU but only by the introduction of free migration.⁴⁴ The change in the joint payoff to the lobbies and the government implied by the transition from the SQ to the CM is then simply the sum of the change from the transition to the CU in the traded sectors and the transition to free migration in the non-traded sector.

Algebraically, $\Delta_{CM}(P^I) = \sum_{i=1}^n \Delta_{CU}(P_i^I) + \Delta_{FM}(P_{NTS}^I)$, where $\Delta_{CM}(P^I) \equiv P_{CM}^I - P_{SQ}^I$.

⁴³This is in contrast to the results obtained for trade liberalisation in Grossman and Helpman (1995) who find that anti-liberalisation lobbying increases with the size of the welfare gain from trade liberalisation.

⁴⁴Neary (1996) analyses a specific factors model that includes a non-traded sector in which part of the adjustment to liberalisation in the traded sectors is borne by the non-traded sector. In the present model, these general equilibrium type of effects are absorbed by the numeraire sector.

The viability of the CM depends on the constellation of P_{SQ}^I , P_{CU}^I and P_{CM}^I in both countries. The constellation of P_{SQ}^I , P_{CU}^I and P_{CM}^I , in turn, depends crucially on the model parameters s , θ_{NTS} , a and S_{NTS} . To illustrate this, it is helpful to consider the parameter constellations that support the constellation under the three trade and migration policy regimes that is used in the example in Section 4.2.1, i.e., the parameter constellations that support $P_{SQ}^H < P_{CM}^H < P_{CU}^H$ and $P_{SQ}^F < P_{CU}^F < P_{CM}^F$.

Consider, firstly, the parameter for the asymmetry in import and export industries, s . It has been shown in Section 5.1 that $P_{CU}^H > P_{SQ}^H$ for all $s \geq 1/2$ but $P_{CU}^F < P_{SQ}^F$ for $s > \bar{s}$. Since under the constellation of joint payoffs to the lobbies and the government used in the example in Section 4.2.1 $P_{CU}^F > P_{SQ}^F$, the asymmetry in import and export industries s has to be sufficiently low, i.e., $s < \bar{s}$. Consider, secondly, the parameter for the asymmetry in the endowment with the factor specific to the non-traded sector, θ_{NTS} , and the parameter for the weight governments place on average welfare, a . It has been shown in Section 5.2 that $P_{CM}^F > P_{CU}^F$ for all $\theta_{NTS} > \frac{1}{2}$ but $P_{CU}^H < P_{CM}^H$ for $\theta_{NTS} + \frac{a}{2(a+2)} > 1$. Since under the constellation of joint payoffs to the lobbies and the government used in the example in Section 4.2.1 $P_{CU}^H > P_{CM}^H$, the parameters θ_{NTS} and a must satisfy the condition $\theta_{NTS} + \frac{a}{2(a+2)} < 1$. Consider, thirdly, the parameter for the size of the non-traded sector, S_{NTS} . It has been shown in Section 5.2 that the *sign* of $\Delta_{FM}(P_{NTS}^H)$ depends only on the parameters θ_{NTS} and a while its *size* depends additionally on the parameter S_{NTS} . If $\Delta_{FM}(P_{NTS}^H) < 0$ and S_{NTS} is sufficiently large, then $P_{CM}^H < P_{SQ}^H$. Since under the constellation of joint payoffs to the lobbies and the government used in the example in Section 4.2.1 $P_{CM}^F > P_{SQ}^F$, the aggregate size of the non-traded sector over the two countries must not exceed a critical threshold \bar{S}_{NTS} .⁴⁵ The parameter constellations supporting the constellation of joint payoffs to the lobbies and the government in country H and country F used in the example in Section 4.2.1 are summarised in Table 4.

Table 4: Parameter constellations supporting $P_{SQ}^H < P_{CM}^H < P_{CU}^H$ and $P_{SQ}^F < P_{CU}^F < P_{CM}^F$

Parameter	Restriction
s	$s < \bar{s}$
θ_{NTS}, a	$\theta_{NTS} + \frac{a}{2(a+2)} < 1$
S_{NTS}	$S_{NTS} < \bar{S}_{NTS}$

⁴⁵ \bar{S}_{NTS} is defined implicitly as the aggregate size of the non-traded sector over the two countries that satisfies $\sum_{i=1}^n \Delta_{CU}(P_i^H) = \Delta_{FM}(P_{NTS}^H)$.

Who is Against Free Migration?

In words, a low asymmetry in the distribution of import and export industries, a low asymmetry in the endowment with the factor specific to the non-traded sector, a low weight on average welfare and a small size of the non-traded sector support the constellation of joint payoffs under the three trade and migration policy regimes that is used in the example in Section 4.2.1. Since the joint payoff to the lobbies and the government corresponds to the reduced form government objective function defined in Lemma 1 this can be rephrased as follows. Both governments prefer the CM over the SQ but while the CM is also government F 's most preferred regime, government H 's most preferred regime is the CU. It has been shown in Section 4.2 that under this constellation of joint payoffs the lobbies and the government, the equilibrium trade and migration policy regime emerging from the bilateral negotiations depends on the order of play in the first stage of the game. If the countries move simultaneously in the first stage, then any of the three trade and migration policy regimes might emerge as the equilibrium regime from the bilateral negotiations. If the countries move sequentially in the first stage, then the first mover's most preferred trade and migration policy regime emerges from the bilateral negotiations. In particular, if country H moves first, then the CM is rejected and the CU emerges from the bilateral negotiations. In other words, although both governments prefer the most comprehensive type of liberalisation, the CM, over the SQ, the CM is rejected in the bilateral negotiations because of the availability of a less comprehensive type of liberalisation, the CU. It has been shown in Section 5.2 that the CM as the most comprehensive type of liberalisation is also the most welfare beneficial, not only for the two countries as a whole but also for each country separately. Hence, the rejection of the CM in the bilateral negotiations cannot be the result of welfare considerations of the negotiating governments but can be attributed to the governments' sensitivity to political pressure from organised interest groups. In particular, political pressure from the lobby representing the non-traded sector in country H , the destination country of migrants under the CM, skews the government's stance in this country toward the CU.

The constellation of the joint payoffs to the lobbies and the government in country H under the three trade and migration policy regimes may be thought of as prevailing in the existing member countries of the EU in the context of the Eastern Enlargement. All the governments in the existing member countries preferred a CM with the acceding countries to the SQ. In contrast,

when confronted with the alternative between the CM and the CU, government stances were not uniform. In countries that expected sizeable wage decreases from immigration from the acceding countries and in which the non-traded sectors were nonetheless large and politically well organised,⁴⁶ as for example in Germany and Austria, governments preferred the CU to the CM. In other existing member countries, such as the UK and Ireland, that either expected smaller wage decreases from immigration or in which the non-traded sectors were politically less organised, governments preferred the CM to the CU. The governments in the acceding countries uniformly preferred the CU to the SQ and the CM to the CU. Their stance therefore corresponds to the constellation of joint payoffs to the lobbies and the government in country F . As argued in Section 4.2.2, it is reasonable to assume that the existing member countries of the EU set the agenda for the negotiations by selecting the CU as their preferred trade and migration policy regime. Then, the above example provides an explanation of why the CM was rejected in the negotiations over the Eastern Enlargement even if all negotiating governments preferred it to the SQ.

6 Conclusions

The brief discussion of migration policies in the EU in the introductory section led to the following observations. Firstly, anti-immigration sentiments seem to be pertinent mostly in the non-traded sectors. Secondly, restrictive policies in the EU seem to be the result of political pressures from organised interest groups rather than the result of political opposition to free migration from the median voter. The main achievement of the present paper is to replicate these two stylised facts in a formal political economy model. The underlying mechanism is factor price equalisation through trade in the traded sectors so that incentives to migrate remain only in the non-traded sector. Specific factor owners in the non-traded sector of the potential destination country, who are the potential losers from immigration, are represented by an organised interest group. Since, in the model, the government does not only take into account the welfare of the general electorate but also campaign contributions, the organised interest group representing the

⁴⁶In terms of model parameters, this corresponds to a limited degree of asymmetry: $\theta_{NTS} > 1/2$ to allow for a decrease in wages from immigration but $\theta_{NTS} + \frac{\alpha}{2(\alpha+2)} < 1$ to allow for a large and politically well organised non-traded sector.

non-traded sector succeeds in skewing the policy outcome toward restrictive migration policies.

Further, the present paper provides a positive explanation of the Eastern Enlargement of the EU. It is argued that the distribution of importing and exporting sectors between the existing member countries and the acceding countries was sufficiently symmetric to make the governments of both groups of countries prefer the CU over the SQ. While the acceding countries' governments perceived benefits from additionally introducing free migration, the existing member countries' governments perceived political losses from expected immigration flows. The latter governments' agenda setting power then allowed them to implement their preferred regime, the CU, in the international negotiations.

The present paper finally suggests an explanation for Bhagwati's (1991) puzzle of why observed migration policies are more restrictive than observed trade policies. In the formal model, the underlying mechanism is that trade flows are bidirectional, in the sense that, in any given country, there are both exporting and importing sectors, while migration flows are unidirectional, in the sense that, in any given country, there is either emigration or immigration. Factors employed in exporting sectors gain from trade liberalisation while factors employed in importing sectors incur losses. Factors employed in sectors facing emigration gain from the liberalisation of migration while factors employed in sectors facing immigration lose. The liberalisation of trade thus generates both winners and losers in any given country, while liberalisation of migration generates exclusively winners in the potential emigration country and exclusively losers in the potential immigration country. In any given country, exporter interests are pitted against importer interests on the trade liberalisation issue. In the potential immigration country, however, there is no pro-immigration interest group pitted against the interest group representing factors employed in the sectors potentially facing immigration.

References

- [1] Bernheim, B. D. and M. D. Whinston (1986), 'Menu auctions, resource allocation, and economic influence,' *The Quarterly Journal of Economics* 101(1): 1-31.
- [2] Bernheim, B. D., B. Peleg and M. D. Whinston (1987), 'Coalition-proof Nash equilibria I: Concepts,' *Journal of Economic Theory* 42(1): 1-12.

- [3] Benhabib, J. (1996), 'On the political economy of immigration,' *European Economic Review* 40: 1737-1743.
- [4] Bhagwati, J. (1991), 'Free traders and free immigrationists: Strangers or friends?' Russell Sage Foundation Working Paper #20.
- [5] Bilal, S., J.-M. Grether and J. de Melo (2003), 'Attitudes towards immigration: A trade theoretic approach,' *Review of International Economics* 11(2): 253-67.
- [6] Boeri, T., G. Hanson and B. McCormick (2002) (eds.), *Immigration and the Welfare System*, Oxford University Press: Oxford.
- [7] Bowen, H. P. and J. P. Wu (2004), 'Traded goods, non-traded goods, and sector-specific employment,' mimeo.
- [8] European Commission (2003), 'Enlargement of the European Union: Guide to the negotiations,' available at <http://europa.eu.int/comm/enlargement/negotiations/chapters/negotiationsguide.pdf>.
- [9] Facchini, G. (2004), 'The political economy of international trade and factor mobility,' *Journal of Economic Surveys* 18(1): 1-31.
- [10] Facchini, G. and C. Testa (2004), 'Why join a common market,' mimeo, University of Illinois at Urbana Champaign.
- [11] Facchini, G. and G. Willman (2005), 'The political economy of international factor mobility,' *Journal of International Economics*, forthcoming.
- [12] Financial Times (2004a), 'Entrepreneurs held back by German trades curbs,' January 16th.
- [13] Financial Times (2004b), 'EU stance on labour market restrictions irks Poland,' February 24th.
- [14] German Government Press Release (2001), 'Bundeskanzler: Flexible Uebergangsfristen bei Arbeitnehmerfreizuegigkeit nach EU-Osterweiterung fuer Deutschland existenziell,' available at http://www.bundesregierung.de/top/dokumente/Artikel/ix_26847.htm.

- [15] Grossman, G. and E. Helpman (1994), 'Protection for sale,' *American Economic Review* 84: 833-850.
- [16] Grossman G. and E. Helpman (1995), 'The politics of free trade agreements,' *American Economic Review* 85: 667-690.
- [17] Hanson, G. and A. Spilimbergo, 'Political economy, sectoral shocks, and border enforcement,' *Canadian Journal of Economics* 34(3): 612-638.
- [18] Hillman, A. and A. Weiss (1999), 'Beyond international factor movements: Cultural preferences, endogenous policies and the migration of people: An overview,' in: R. Faini, J. DeMelo and K. Zimmermann (eds.), *Migration: The Controversies and the Evidence*, Cambridge University Press: Cambridge.
- [19] Jackson, J. H. (1997), *The World Trading System: Law and Policy of International Economic Relations*, Second Edition, MIT Press: Cambridge (MA).
- [20] Mayda, A. M. and D. Rodrik (2005), 'Why are some people (and countries) more protectionist than others,' *European Economic Review* 49: 1393-1430.
- [21] McMillan, J. (1993) 'Does regional integration foster open trade? Economic theory and GATT's Article XXIV,' in: K. Anderson and R. Blackhurst (eds.), *Regional Integration and the Global Trading System*, Harvester Wheatsheaf: London (292-310).
- [22] Mundell, R. M. (1957), 'International trade and factor mobility,' *American Economic Review* 47: 321-35.
- [23] Neary, J. P. (1996), 'Theory and policy of adjustment in an open economy,' in: D. Greenaway (ed.), *Current Issues in International Trade*, Macmillan.
- [24] OECD (2004), *Trends in International Migration: SOPEMI 2003 Edition*, OECD: Paris.
- [25] Ortega, F. (2005), 'Immigration quotas and skill upgrading,' *Journal of Public Economics*, forthcoming.
- [26] Pelkmans, J. (2001), *European Integration: Methods and Economic Analysis*, Pearson Education Limited: Essex (2nd edition).

- [27] Razin, A. and E. Sadka (2001), *Labor, Capital and Finance: International Flows*, Cambridge University Press, Cambridge.
- [28] Rotte, R. and K. Zimmermann (1998), ‘Das Entsendegesetz: Suendenfall oder Loesung des Arbeitslosigkeitsproblems?’ *Staatwissenschaften und Staatspraxis* 9(2): 191-208.
- [29] Soellner, F. (1999), ‘A note on the political economy of immigration,’ *Public Choice* 100: 245-51.

A Appendix

A.1 To show that $d\pi_i(p_i)/dp_i = x_i(p_i) > 0$

Notice that the factor reward function can be written as

$$\pi_i(p_i, M_i^0(p_i)) = p_i x_i(S_i, M_i^0(p_i)) - M_i^0(p_i),$$

where $M_i^0(p_i)$ denotes the specific factor reward maximising amount of the mobile factor allocated to sector i at price p_i . By the envelope theorem

$$\frac{d}{dp_i} \pi_i(p_i, M_i^0(p_i)) = \frac{\partial}{\partial p_i} \pi_i(p_i, M_i^0(p_i)) \text{ so that}$$

$$\frac{d}{dp_i} \pi_i(p_i, M_i^0(p_i)) = x_i(S_i, M_i^0(p_i)).$$

A.2 To show that $dCS_i(p_i)/dp_i = -d_i(p_i) < 0$

Notice that the consumer surplus function can be written as

$$CS_i(p_i, d_i(p_i)) = u_i(d_i(p_i)) - p_i d_i(p_i),$$

where $d_i(p_i)$ denotes the consumer surplus maximising demand for good i at price p_i . By the envelope theorem $\frac{d}{dp_i} CS_i(p_i, d_i(p_i)) = \frac{\partial}{\partial p_i} CS_i(p_i, d_i(p_i))$ so that

$$\frac{d}{dp_i} CS_i(p_i, d_i(p_i)) = -d_i(p_i).$$

A.3 Aggregate welfare, average welfare and welfare of the group owning specific factor S_i

If population size is normalised to one, the algebraic expressions for aggregate welfare and average welfare in the economy coincide and are given by

$$W(\mathbf{p}, \mathbf{t}) = 1 + \sum_{i=1}^{n+1} \pi_i(p_i) + \sum_{i=1}^n T_i(p_i, t_i) + \sum_{i=1}^{n+1} CS_i(p_i),$$

where the first term on the right-hand side denotes the aggregate factor reward to the intersectorally mobile factor M , $\pi_i(p_i)$ denotes the factor reward to specific factor S_i , and $T_i(p_i, t_i)$ and $CS_i(p_i)$ denote tariff revenue and consumer surplus in sector i , respectively. Welfare of the group owning specific factor i is then given by

$$W_i(\mathbf{p}, \mathbf{t}) = \pi_i(p_i) + \alpha_i [1 + T(\mathbf{p}, \mathbf{t}) + CS(\mathbf{p})]$$

For $\alpha_i \rightarrow 0$, $W_i = \pi_i(p_i)$, i.e., for very concentrated factor ownership, the group's welfare gross of lobby contributions can be approximated by the specific factor reward $\pi_i(p_i)$. If the specific factor is distributed uniformly within the group owning specific factor S_i , welfare of an individual member of this group is given by

$$w_i(\mathbf{p}, \mathbf{t}) \equiv \frac{W_i}{\alpha_i} = \frac{\pi_i(p_i)}{\alpha_i} + [1 + T(\mathbf{p}, \mathbf{t}) + CS(\mathbf{p})].$$

For $\alpha_i \rightarrow 0$, the relative weight of the specific factor reward in the expression for the individual's factor owner's welfare approaches infinity.

A.4 To show that tariff-setting rule in Grossman and Helpman (1994)

reduces to $t_i^J = \frac{S_i}{ab}$

The tariff setting rule in Proposition 2 of Grossman and Helpman (1994) is given by

$$\frac{t_i^V}{1 + t_i^V} = \frac{I_i - \alpha_L}{a + \alpha_L} \left(\frac{z_i}{e_i} \right),$$

where z_i denotes the ratio of output to imports, e_i is the elasticity of import demand and t_i^V denotes the *ad valorem* tariff in sector i . For $\alpha_L = 0$ (very concentrated factor ownership) and $I_i = 1$ (all the industries represented by a lobby) this reduces to

$$\frac{t_i^V}{1 + t_i^V} = \frac{1}{a} \left(\frac{z_i}{e_i} \right).$$

By noting that for $p_i^W = 1$ the *ad valorem* tariff t_i^V may be replaced by the specific tariff t_i^S and substituting $X_i/m_i(p_i)$ for z_i and $-m'_i \cdot p_i/m_i(p_i)$ for e_i

$$\frac{t_i^S}{1 + t_i^S} = \frac{1}{a} \frac{X_i/m_i(p_i)}{-m'_i \cdot p_i/m_i(p_i)}$$

is obtained. Since $m_i(p_i)$ cancels out, $-m'_i(p_i) = b$, $1 + t_i^S = p_i$ and $X_i = S_i$ this can be written as

$$t_i^S = \frac{S_i}{ab}.$$

A.5 To show that under parameter restriction R1 (ia) sectors with production θ export, (ib) sectors with production $(1 - \theta)$ import before the formation of the CU and (ii) the CU as a whole is an importer on world markets

Assume for notational simplicity that production in sector i is θ in country H and $(1 - \theta)$ in country F .

(ia) $\theta - (D - b) > 0 \Leftrightarrow \theta > (D - b)$ (country H exports)

(ib) $D - bp_i^F - (1 - \theta) > 0$ (country F imports)

(ii) $2D - 2bp_i^{CU} - 1 > 0$ (CU is importer on world markets)

Note that (ib) is redundant: Whenever (ia) and (ii) are satisfied this implies that (ib) is satisfied. To see this, note in a first step that if the left-hand side of (ib) is larger than the left-hand side of (ii), then the binding constraint is (ii). Thus subtract the left-hand side of (ii) from the left-hand side of (ib) to obtain $\theta - (D - b)$. Note in a second step that this term is larger than zero whenever (ia) is satisfied.

A.6 Derivation of equations (1) and (2)

With inelastic supply, the change in the specific factor reward can be written as the product of the price change from the CU and production quantities:

$$\Delta_{CU} (\pi_i^J) = \begin{cases} t^{CU} \theta & \text{if } S_i^J = \theta \\ -t^{CU} (1 - \theta) & \text{if } S_i^J = (1 - \theta) \end{cases} .$$

Substitute the expression for the common external tariff $t^{CU} = (1 - \theta) / 2ab$ into $\Delta_{CU} (\pi_i^J)$ to obtain equation (1). To derive equation (2) evaluate additionally the change in consumer surplus and the change in tariff revenue from the CU. The change in consumer surplus can be written as the change in the area under the demand curves resulting from the price change:

$$\Delta_{CU} (CS_i^J) = \begin{cases} t^{CU} [D - b(1 + 2t^{CU})] + \frac{t^{CU}}{2} b t^{CU} & \text{if } S_i^J = \theta \\ -t^{CU} \left[(D - b(1 + 2t^{CU})) + \frac{t^{CU}}{2} b t^{CU} \right] & \text{if } S_i^J = (1 - \theta) \end{cases} .$$

The change in tariff revenue is the difference between tariff revenue in the CU and tariff revenue in the SQ. It can be written as:

$$\Delta_{CU} (TR_i^J) = \begin{cases} 0 & \text{if } S_i^J = \theta \\ t^{CU} [2(D - b(1 + t^{CU})) - 1] - 2t^{CU} [D - b(1 + 2t^{CU}) - (1 - \theta)] & \text{if } S_i^J = (1 - \theta) \end{cases}$$

Substitute the expression for the common external tariff $t^{CU} = (1 - \theta) / 2ab$ into $\Delta_{CU} (\pi_i^J)$, $\Delta_{CU} (CS_i^J)$ and $\Delta_{CU} (TR_i^J)$ and add up $\Delta_{CU} (\pi_i^J)$, $\Delta_{CU} (CS_i^J)$ and $\Delta_{CU} (TR_i^J)$ to obtain equation (2).

A.7 To show that $\Delta_{CU} (P^F) < 0$ if $s > \bar{s}$

Evaluating $\Delta_{CU} (P^F)$ at $s = \frac{1}{2}$ yields $\Delta_{CU} (P^F) = \frac{n(1-\theta)}{8ab} (3\theta - 1) > 0$. Evaluating $\Delta_{CU} (P^F)$ at $s = 1$, i.e., maximum asymmetry in the distribution of import and export industries between countries, yields

$$\Delta_{CU} (P^F) = \frac{n(1-\theta)}{2ab} \left[-\frac{3(1-\theta)}{4} - a(\theta - (D - b)) \right] < 0.$$

Since $\Delta_{CU}(P^F)$ is a linear function of s , there exists a separating $\bar{s} \in (\frac{1}{2}, 1)$ for which the change in the joint payoff to the lobbies and the government in country F is zero. For a marginally larger s , the change in the joint payoff to the lobbies and the government is negative. According to Lemma 1, government F always prefers the SQ to the CU in the traded sectors for such an s . Because the transition from the SQ to the CU in the traded sectors requires the consent of both negotiating governments, the CU in the traded sectors is rejected in the international negotiations.

A.8 Derivation of equation (5) and equation (6)

Use the expressions for p_{NTS}^H and p_{NTS}^{FM} in combination with the assumption of inelastic supply to evaluate the change in profits given in equation (5). Use the expressions for p_{NTS}^H and p_{NTS}^{FM} in combination with the assumption of linear demand to evaluate the change in consumer surplus. Take the sum of the change in profits and the change in consumer surplus to obtain the change in welfare given in in equation (6).

A.9 Derivation of equation (7)

Take the sum of the expressions for the change in profits and the change in consumer surplus given in equations (5) and (6) to obtain the change in the joint payoff to the lobbies and the government in country H .

A.10 To show that the share of the non-traded sector in the change in the joint payoff to the lobbies and the government in country F from free migration is always negative for $a = 0$ and always positive for $a \rightarrow \infty$

For $a = 0$ parameter restriction (R2) reduces to $\theta > 1$ which violates the definition of θ . For $a \rightarrow \infty$ parameter restriction (R2) reduces to $\theta > 1/2$ (by Hopital's rule) which by definition of θ is always satisfied.