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A Positive Explanation of EU Enlargement

DANIEL BROU and MICHELE RUTA

BADIA FIESOLANA, SAN DOMENICO (FI)

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Daniel Brou[†]
Columbia University

Michele Ruta[‡]
Columbia University

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Abstract

Models of international unions suggest that large and rich countries reap little economic benefits from political integration with smaller and poorer countries. This paper challenges this view by presenting a formal study of economic influence by special interest groups in an international union. We first show that countries where more groups are organized to lobby gain from political integration on economic grounds. The reason is that a more organized country, under a political union, can affect policies in the other country to its advantage, something that a less organized country can do to a lesser extent. We then argue that richer countries will tend to have more organized interest groups before political integration and show that this will continue to be the case afterward. Hence, the model implies that there are costs and benefits of EU Enlargement to Eastern Europe in addition to those suggested by the existing literature.

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[†]Daniel Brou, Department of Economics, Columbia University, 1022 International Affairs Building, 420 West 118th Street, New York, NY 10027. E-mail address: db493@columbia.edu.

[‡]Michele Ruta, Department of Economics, Columbia University, 1022 International Affairs Building, 420 West 118th Street, New York, NY 10027. E-mail address: mr637@columbia.edu.

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1 Introduction

After the achievement of a single currency, the European Union's next leading project is the "big bang" enlargement to Eastern and Central Europe. Thirteen applicants have been considered for accession: Cyprus, Czech Republic, Estonia, Hungary, Poland, Slovenia, Latvia, Lithuania, Malta, Slovakia, Bulgaria, Romania and Turkey. Of these countries, the first ten are scheduled to enter in May 2004. The accession of Bulgaria and Romania should be delayed until 2007 to allow them more time to adopt the *acquis communitaire*, the 80,000 pages of EU rules and regulations that entering countries need to undertake before joining the European Union.[1]

Contrary to previous instances of enlargement, the Eastern enlargement process will change the face of the European Union. This is mainly for two reasons. First, incoming countries are much poorer than the European Union. Their average per capita GDP in purchasing parity terms is 8,755 Euros against an average of 22,645 Euros for the European Union. Second, entering countries have a population of 105 million people. Eastern enlargement will increase the size of the union's population by 20% and its GDP by only 5% (see figure 1).[2] If we consider preferences over policies to be somehow correlated with income, the current wave of enlargement will greatly alter, in a short period of time, the political equilibrium of the European Union. If this is the case, how can we explain Eastern enlargement?

A recent literature in political economy studies when it is convenient for countries to integrate politically (i.e. to form - or enlarge - an international union) or to disintegrate into smaller national entities.[3] Models of political integration, such as Bolton and Roland (1997) and Persson and Tabellini (2000), show that the benefits from integration are inversely related to the size of a country (its number of citizens) and to its income. The larger a country, the smaller the benefit from the economies of scale in the production of a common public good. On the other hand, the richer a country, the larger the redistribution effect (i.e. the amount of transfers to be made to the poorer region).

More recently, Alesina, Angeloni and Etro (2003) develop a model in which there is a tension between the heterogeneity of individual countries' preferences and the advantage of coordinating public goods provision. In this setting, integration (or enlargement of an existing union) occurs only when the loss of independent policymaking (i.e. the change in the median voter) is sufficiently small that it does not eliminate the gain from a rise in spillovers in public good provision.[4]

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[1] Turkey has not been given a fixed date of accession.

[2] Data are drawn from the Eurostat Yearbook (2002), are for the year 2000 and do not include Turkey.

[3] Early papers on the costs and benefits of political integration are Alesina and Spolaore (1997) and Casella and Feinstein (1990). For a recent survey of this literature see Ruta (2003). Similar questions have been addressed by the trade literature that deals with the political economy of regional free trade agreements (see for instance Baldwin, 1995) and by a large literature in political science (see Mattli, 1999).

[4] In the discussion that follows, enlargement can be thought of as the integration of an existing union with the entering country or countries. Thus we use the two terms interchangeably.

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These models predict that only richer Eastern and Central European countries - those more similar to current EU members - should be allowed to join the union. In other words, this political economy approach seems to provide an incomplete explanation of the actual Eastern enlargement process.

Some would argue that there are additional political reasons, such as stability in East and Central Europe, or historical reasons that motivate enlargement. These are surely important factors, but we believe there to be other economic implications of the East enlargement that the previous literature has not stressed. In this paper we consider one overlooked channel created by lobbying activity.

Interestingly, attitudes of special interest groups toward enlargement differ between Eastern and Western Europe. On the East side some groups, notably the lobby of farmers, oppose joining the EU. On the West side several lobbies strongly favor enlargement: an editorial on the Financial Times of November 2001 argued that *"enlargement remains a priority for the elite, not the ordinary voter."*[5] How can we explain these opposing attitudes toward the East enlargement of the EU?

We present a formal study of economic influence by special interest groups in an international union.[6] We develop a framework that deals with the choice of integration of two regions or countries in a setting in which there is a strategic interaction between interest groups and politicians both at the domestic and at the international level. We consider two distinct regimes: political separation, under which each government sets policy independently, and political integration, where a union (or federal) government sets policy for the entire political union.

Available data suggest that far more special interest groups are active in the European Union than in candidate countries. As can be seen in figure 1, the number of registered trade and business associations is disproportionately larger in the EU relative to candidate countries (1,396 and 130 respectively).[7] These data confirm Olson's intuition that, *"stable societies with unchanged boundaries tend to accumulate more collusion and organizations for collective action over time"*. We study how this difference in lobbying structure between current EU members and applicants may affect citizens' preferences for political integration in Europe.

In our modeling strategy we borrow from the recent political economy literature on trade policy (mainly Grossman and Helpman, 1994 and Mitra, 1999). However, as in Persson and Tabellini (2000) we adapt the analysis to consider the provision of both global and local public goods. In the first part of the paper we give the main insights in a setting in which there is a given number

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[5] As a matter of fact, even special interests that would be expected to oppose enlargement (such as labor unions) did not do so.

[6] Ruta (2003) employs a similar model to show that lobbying can induce a misallocation of competencies between different levels of government in an international union. Cheikbossian (2001) studies rent-seeking activities in a union in a more simplified setting where lobbies' behavior is not microfounded. He finds that lobbying expenditures are increasing in international spillovers and in differences between member countries.

[7] The number of registered trade and business associations is admittedly a rough indicator. However, Greenwood (2003) finds that 70% of registered EU level special interest groups are identified as 'formal business associations'.

of organized groups that make political contributions in order to influence policy. Since political integration itself could modify the lobbying structure of countries forming a union, in the second part we show that these results carry over when the number of lobbies is endogenously determined.

We find that both organized and unorganized groups in a more organized country (i.e. a country with a higher share of lobbies to total population) receive more favorable policies under integration than under separation, while the opposite occurs to groups in a less organized country. The intuition of this result is that political integration, from the perspective of the more organized country, reduces the level of competition among lobbies. The difference in lobbying structure between the European Union and the accession countries favors organized EU groups, who can influence policies in their favor to a larger extent, as well as the unorganized groups, because their representation in an enlarged union is increased.

We then look at the welfare implications of political integration. We identify a new channel created by lobbying activity. This is in addition to the two channels already studied in the literature: redistribution and common provision of global public goods (or the internalization of international spillovers). The "lobbying channel" of political integration has a positive welfare effect for the more organized country (i.e. the EU) and a negative one for the less organized (i.e. Eastern and Central European countries). The overall decision on integration depends on the interplay between these three effects.

Endogenizing the number of lobbies provides new insights. First, we show that a country with lower costs of organizing will have more active interest groups before political integration. We argue that groups in the EU face lower costs of organization than those in Eastern Europe because more advanced economies have better institutions and infrastructure. Second, we show that a change in political regime affects the incentives for collective action. Political integration reduces competition for groups in the richer country and induces more groups to become organized. As in the exogenous lobby case, unorganized and organized groups in the rich country receive more favorable policies under integration, while the opposite occurs to groups in the poorer country.

An interesting implication of our analysis is that the existence of the lobbying effect of political integration implies that the loss of political independence from participating in an international union is larger for Eastern and Central European countries than for existing EU members. Therefore, as also suggested in Brou and Ruta (2003) and Wallner (2003), the benefits for current EU members and the costs for Eastern and Central European countries of EU enlargement might be higher than those found in the existing empirical literature.[8]

The paper is organized as follows. Section 2 presents the model with exogenous lobbies. In section 3 we consider the case of endogenous lobby formation. Section 4 has concluding remarks. Technical results and an extension of the model are presented in the appendices.

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[8]See for example Baldwin, Francois and Portes (1997).

2 The model

In the economy there are only two countries (or regions), A and B. The two countries have similar political and economic environments, but they differ in two respects: country A is richer, and it is also more organized in the sense that it has a higher proportion of lobbies (organized groups that can pay contributions to the government).[9] There are two sets of public goods: local (or targeted) public goods and global public goods. The first have only few beneficiaries, but their costs are dispersed over the entire population. In accordance with the actual functioning of the European Union, we allow for a very broad interpretation of these local public goods, including traditional targeted policies such as direct transfers, but also less obvious policies like trade barriers, laws, regulations and any other policy that can favor a particular group.[10] The global public good benefits every citizen equally. Classic examples include defense, antitrust regulation and enforcement of the law. Interest groups pay contributions in order to influence the political process to their advantage.

The two countries can choose to be politically integrated in an international union or to be separated. Political integration implies that governments A and B cede the right to choose policy to a supranational (i.e. federal) government.

We begin by describing the case in which there are no lobbies. This provides the benchmark for the rest of the analysis. We then introduce the distinction between organized and non-organized groups and derive equilibrium policies under separation and under union.

2.1 The benchmark: separation with no lobbies

In country $i = A, B$ there is a set M_i of groups of individuals with measure m_i. For simplicity we assume that each group has the same size normalized to unity and that all individuals in the generic group j have the same preferences, given by the quasi-linear utility function:

$$W_i^j = c_i^j + H\left(g_i^j\right) + F\left(G_i\right) \tag{1}$$

where c^j is consumption of the private good and g^j is the local public good that benefits each individual belonging to group j. For simplicity we assume no externalities on other groups. The function $H\left(.\right)$ is increasing and concave.

G is a global public good. This public good is non rival and excludable across, but not within, countries. If the two countries are separate, the global public good must be provided separately in each country, foregoing the economies of scale associated with common provision. The function $F\left(.\right)$ is also increasing and concave.

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[9]There are different ways through which an interest group can influence the government. Contributions can be interpreted either as campaign payments or as lobbying expenditures to provide political support to the government.

[10]Alesina, Angeloni and Schuknecht (2002) find that the involvement of the EU institutions in these policy areas has largely increased in the past 30 years.

We assume that preferences in the two countries are the same.[11] Moreover we assume that all individuals in the same country have the same income $y_i^j = y_i$. This allows us to abstract away from issues arising from differences between groups and to focus on differences across countries. Taxation is proportional and converting income into any of the j public goods is costless.

A benevolent government will solve the following problem:

$$\max_{g_i, G_i} \int_{j \in M_i} W_i^j dj \tag{2}$$

subject to the resource constraint

$$G_i + \int_{j \in M_i} \left(g_i^j + c_i^j \right) dj = \int_{j \in M_i} y_i dj \tag{3}$$

where $g_i \equiv \left(g_i^j \right)$ and W_i^j is given by equation 1.

The first-order conditions are the following:

$$H_g \left(g_i^{j*} \right) - 1 = 0 \tag{4}$$

for each group j in country i and

$$m_i F_G \left(G_i^* \right) = 1 \tag{5}$$

Where g_i^* is the equilibrium allocation vector of local public good provisions in the benchmark case. Note that the marginal benefit for each group equals the marginal social cost (of unity). With a benevolent government each group receives the "amount" of targeted public good that gives to the group the same marginal benefit as any other group. G_i^* is the equilibrium amount of the global public good in the case of two separated political entities. Local and global public goods satisfy the Samuelson condition that aggregate marginal benefit equals the marginal cost of provision.

2.2 Separation with lobbies

Grossman and Helpman (1994) have developed a model of lobbying based on the menu auction approach by Bernheim and Whinston (1986), which has been used to study trade as well as other policies. Here we follow Persson and Tabellini (2000) in applying this framework to local public goods.[12]

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[11] See Alesina, Angeloni, Etro (2003) for a model with heterogeneity in preferences.

[12] The Grossman-Helpman (1994) approach deals with the incentives of lobbies to influence the government. A large part of the literature on lobbying focuses instead on the incentives of special interests to gather information and provide it to the policy maker. For a recent discussion of both approaches see Grossman and Helpman (2001). In this paper we do not consider the informational role of lobbies.

We assume that in country i there is a subset N_i of groups with measure n_i that are organized to influence the government to their advantage and that the government is "semi-benevolent" in the sense that it gives some weight to the general interest, but can also be influenced by lobbies through contributions. Moreover, we assume that under political separation lobbies in one country cannot influence policies in the other country.[13]

The game has two stages:

1. Every lobby j, with $j \in N_i$, non cooperatively and simultaneously presents a contribution schedule $C_i^j(g_i, G_i)$ to the government, giving a binding promise of payment conditional on the chosen policy.

2. The government sets g_i and G_i so as to maximize a weighted sum of social welfare and contributions:

$$W_{GOV}^i(g_i, G_i) = \eta \int_{j \in M_i} W_i^j(g_i, G_i)\, dj + (1 - \eta) \int_{j \in N_i} C_i^j(g_i, G_i)\, dj \qquad (6)$$

where $0 \leq \eta \leq 1$ is a measure of government benevolence.[14]

We derive an equilibrium in truthful strategies.[15] This is equivalent to maximizing the following weighted sum:

$$W^i = \eta \int_{j \notin N_i} W_i^j(g_i, G_i)\, dj + \int_{j \in N_i} W_i^j(g_i, G_i)\, dj \qquad (7)$$

In other words, the equilibrium coincides with the solution to a planning problem in which the non-organized groups receive a lower weight than the organized ones to an extent that depends on the government's benevolence.

The government budget constraint is given by:

$$t_i m_i y_i = \int_{j \in M_i} g_i^j dj + G_i \qquad (8)$$

Where t_i is the proportional tax rate. Contributions do not enter the government budget constraint. We could interpret this in one of two ways: the contributions are strictly for private consumption of the politicians or they are simply redistributed in a lump sum fashion to all citizens.

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[13] This is a standard assumption, see for example Grossman and Helpman (1995). Allowing foreign lobbies to affect the home government would not change the nature of our results, provided that it is easier for home special interests to lobby the home government than for foreign groups. There are several reasons why this might be the case. First, politicians often view gifts from foreign sources as a sort of tainted money. Second, foreign lobbies have weaker connections with the government, the bureaucrats and the media.

[14] We consider the measure of government benevolence to be the same for each country. We discuss this point later.

[15] For now we assume that such an equilibrium exists. In appendix 2 we show that the conditions that we derive under this assumption constitute necessary conditions for the existence of an equilibrium.

From the government budget constraint we can derive an expression for the tax rate and, recalling that $c_i^j = (1 - t_i) y_i$, we can substitute it directly into the utility function of the representative agent in group j:

$$W_i^j (g_i, G_i) = y_i - \frac{1}{m_i} \left(\int_{j \in M_i} g_i^j dj + G_i \right) + H \left(g_i^j \right) + F (G_i) \tag{9}$$

Substituting this expression into equation 7 and maximizing we obtain the first-order conditions that define equilibrium allocations under separation:

$$H_g \left(\widetilde{g}_{iS}^{j,L} \right) - 1 = - (1 - \lambda_i) (1 - \eta) \leq 0 \tag{10}$$

for $j \in N_i$

$$H_g \left(\widetilde{g}_{iS}^{j,N} \right) - 1 = \lambda_i (1 - \eta) / \eta \geq 0 \tag{11}$$

for $j \notin N_i$, and

$$m_i F_G \left(\widetilde{G}_{iS} \right) = 1 \tag{12}$$

Where the parameter λ_i is the share of the population organized in lobbies and $0 \leq \lambda_i = \int_{j \in N_i} \frac{1}{m_i} dj = \frac{n_i}{m_i} \leq 1$.

On the left-hand side of the first-order conditions we have the utilitarian benchmark derived in the previous subsection, therefore the right-hand side measures deviations from the social optimum. Two results can be drawn. First, groups that can pay contributions receive more and unorganized groups receive less of the local public goods relative to the social optimum, $\widetilde{g}_i^L > g_i^* > \widetilde{g}_i^N$.[16] Second, lobbying activity does not affect the provision of the global public good. Lobbies have no incentive to influence the government's provision of G since it coincides with their optimal choice and there is no conflict between different groups on the provision of the global public good.

2.3 Political integration

In this section we study the equilibrium policies that emerge in a union with a politically motivated government. In the union there is a set $M = M_A \cup M_B$ of groups with measure $m = m_A + m_B$. Again, we define the share of organized groups in A as $\lambda_A = \frac{n_A}{m_A}$ and similarly for country B, $\lambda_B = \frac{n_B}{m_B}$.

We assume that countries A and B have different income levels. Country A is richer than B, $y_A > y_B$. Taxation in the union is proportional and converting income into any public good is costless.

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[16]This follows from the fact that $H_g \left(\widetilde{g}_{iS}^{j,L} \right) < H_g \left(\widetilde{g}_{iS}^{j,N} \right)$ and the assumptions on $H(.)$.

The key assumption is that $\lambda_A > \lambda_B$. In other words, country A (the rich country) has a higher share of organized groups (i.e. groups that pay contributions) when compared to country B. Rough data for the European Union and Eastern European countries support this assumption (see Figure 1). There are several reasons why this is the case. First of all, as we will show in section 3, this may be the result of the fact that a more developed country has better organizational abilities (or a better technology for collective action) because, for instance, it has more advanced institutions and better infrastructure. This provides a reason why it is easier in a more advanced economy to overcome the problems related to the formation of an organized group and motivates Olson's intuition as stated in the introduction. A related argument is historical and specific to Europe. Most of the entering countries are former socialist states. As such, democratic institutions are more recent and agents are less familiar with the process of lobbying. Special interests are less likely to have realized the benefits of collective action and face higher costs of becoming organized. The third argument is related to Krugman (1979). A richer economy will have a larger variety of sectors than a poorer economy. If this is the case, for a given population, each sector will have a smaller size in the richer country and will find it easier to overcome the free-riding problem associated with lobby formation (Olson,1965).[17]   A fourth argument comes from Mitra (1999). He shows that groups that have large capital stocks, face inelastic demand, and have a small number of members are more likely to get organized. All of these characteristics are typical of a more developed industrial economy.

Under political integration, lobbies in country A and B can influence policiy by lobbying the "semi-benevolent" union government. The problem the union government faces is the following:

$$\max_{g_U, G_U} W^U = W^A + W^B \tag{13}$$

subject to

$$t_U \left(m_A y_A + m_B y_B \right) = \int_{j \in M} g_U^j dj + G_U \tag{14}$$

where W^i with $i = A, B$ is given by equation 7 and g_U is the vector of local public goods under union.

From the union government budget constraint we get the union tax rate:

$$t_U = \frac{1}{\overline{y}m} \left(\int_{j \in M} g_U^j dj + G_U \right) \tag{15}$$

where we define $\overline{y} \equiv \frac{m_A y_A + m_B y_B}{m}$.

Using the union tax rate, the indirect utility of group j in country i is given by:

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[17]We thank Stanislaw Wellisz for highlighting this point.

$$W_i^j(g_U, G_U) = y_i - \frac{y_i}{\overline{y}m}\left(\int_{j\in M} g_U^j dj + G_U\right) + H\left(g_{iU}^j\right) + F(G_U) \tag{16}$$

Solving for the first-order conditions, we get the equilibrium allocations under integration:

$$H_g\left(\widetilde{g}_{iU}^{j,L}\right) - 1 = -(1-\lambda_U)(1-\eta) \leq 0 \tag{17}$$

for each $j \in N_A \cup N_B$

$$H_g\left(\widetilde{g}_{iU}^{j,N}\right) - 1 = \lambda_U(1-\eta)/\eta \geq 0 \tag{18}$$

for each $j \notin N_A \cup N_B$, and

$$mF_G\left(\widetilde{G}_U\right) = 1 \tag{19}$$

where $\lambda_U \equiv \frac{m_A y_A}{m\overline{y}}\lambda_A + \frac{m_B y_B}{m\overline{y}}\lambda_B$ is a weighted average of each country's λ, where the weights depend on a country's relative size $\frac{m_i}{m}$ and its relative income $\frac{y_i}{\overline{y}}$.

We want to compare how the provision of public goods changes in the case of the formation of an international union between country A and B.[18]

Proposition 1 *(i)The provision of the global public good increases under integration.(ii) Both organized and non-organized groups in the richer country (i.e. the country with a higher portion of lobbies) receive more of the targeted public good under union than under separation. (iii) The opposite occurs to organized and non-organized groups in the poorer country (i.e. the country with a lower share of lobbies).*

Intuitively, the provision of the global public good is increased under union because the social benefit is larger, due to the increase in population, while the social cost remains the same.

To grasp the intuition of results (ii) and (iii), note that the effectiveness of lobbying is a decreasing function of the share of groups that are organized, λ.[19] When this share is low, there is less competition among lobbies and each one is better able to affect policies in its favor. Unorganized groups also receive more favorable policies because they become a more important part of the aggregate (social) welfare function and the government weights their interests more heavily. For the more organized country, joining the union decreases the share of lobbies in total population ($\lambda_A > \lambda_U$), while the opposite happens for the poor and less organized country ($\lambda_B < \lambda_U$).[20]

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[18] All proofs are in Appendix 1.

[19] From the first order conditions we get: $\frac{d\widetilde{g}^L}{d\lambda} = \frac{1-\eta}{H_{gg}(.)} < 0$ and $\frac{d\widetilde{g}^N}{d\lambda} = \frac{\frac{1-\eta}{\eta}}{H_{gg}(.)} < 0$.

[20] This result is sensitive to the assumption that government benevolence in the two countries is the same and that the formation of an international union is not going to affect the benevolence parameter, η. We use this assumption

Lobbies in the rich country receive more of the targeted public good because they can influence policies in the other country under unification to a larger extent. Special interests in the less organized country can also affect policies in the rich country in a political union. However, since they face tougher competition under union (λ increases), lobbies in the poor country are less effective under integration than under separation.

2.4   Political integration and welfare

Having discussed the characteristics of policies in the political equilibria under separation and integration, we now turn our attention to the choice between these outcomes.[21]

Consider first the change in welfare of a non organized group of country i when that country moves toward political integration

$$\Delta_i^N = \widetilde{W}_{iU}^N - \widetilde{W}_{iS}^N$$

Similarly, the change in welfare induced by political integration on a lobby in country i is

$$\Delta_i^L = \left(\widetilde{W}_{iU}^L - \widetilde{C}_{iU}\right) - \left(\widetilde{W}_{iS}^L - \widetilde{C}_{iS}\right)$$

where $\widetilde{C}_{iU}$ and $\widetilde{C}_{iS}$ represent equilibrium contributions under integration and separation, respectively. Equilibrium contributions are derived in the appendix.[22]

Substituting in the equilibrium policies and rearranging both equations we get:

$$\Delta_i^N = \left[H\left(\tilde{g}_{iU}^N\right) - H\left(\tilde{g}_{iS}^N\right)\right] + \left[F\left(\tilde{G}_U\right) - F\left(\tilde{G}_{iS}\right)\right] - \left[y_i\left(\tilde{t}_U - \tilde{t}_{iS}\right)\right] \tag{20}$$

$$\Delta_i^L = \left[\left(H\left(\tilde{g}_{iU}^L\right) - \widetilde{C}_{iU}\right) - \left(H\left(\tilde{g}_{iS}^L\right) - \widetilde{C}_{iS}\right)\right] + \left[F\left(\tilde{G}_U\right) - F\left(\tilde{G}_{iS}\right)\right] - \left[y_i\left(\tilde{t}_U - \tilde{t}_{iS}\right)\right] \tag{21}$$

The change in either group's welfare consists of three different effects, represented by the three bracketed terms in the above equations. We refer to the first as the "lobbying effect of political integration", the second is the gain from centralized provision of the global public good and the third component is the redistribution effect, which captures the change in the total cost of providing public goods as well as the redistributive effect implied by proportional taxation.

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because of a lack of empirical evidence on such a measure. If we use corruption as a proxy of non-benevolence, poorer countries, which tend to have more corrupt governments, should have a lower η. In this case, if the union government has a measure of benevolence anywhere in between the two countries' benevolence rate, the result in proposition 1 holds.

[21] We assume that lobbies do not affect the political decision of integration. Our analysis focuses on a new channel - created by lobbying on policies - through which political integration affects welfare. For a model where lobbies directly affect the choice of regimes see Faia and Ruta (2003) and Ruta (2003).

[22] Following Laussel and Le Breton (2001) it can be shown that the vector of equilibrium contributions is unique for commonly used utility functions (e.g. Logarithmic, Cobb-Douglas, CIES) when η is not very small.

The change in the political regime induces a variation of targeted public good provision (for all groups) and contributions (for lobbies). The sign of the lobbying effect is derived in the following proposition.

Proposition 2 *The lobbying effect of political integration is positive for the rich and more organized country and negative for the poor and less organized country.*

A formal proof can be found in the Appendix, here we discuss the intuition. Under political integration the distortion in the provision of targeted public goods, as was established in the previous subsection, favors individuals in the more organized country. Therefore the lobbying effect of political integration is positive (negative) for non-organized groups in the more (less) organized country. The lobbying effect for special interests (equation 21) depends also on the change in equilibrium contributions. We show that the increase in welfare due to an increase in targeted public goods provision for lobbies in the rich country more than compensates the change in equilibrium contributions (and viceversa for lobbies in the poor country).

The global public good effect is always positive since it is strictly an economies of scale effect. All groups benefit from a greater population under political union.

The redistribution effect is theoretically ambiguous, being a function of the λ's and the y's. However, it is likely to benefit the poorer country as any increased cost of public good provision will be borne largely by the richer country. The larger the disparity in income across the two countries (or regions), the more likely that this effect will be positive for individuals in the poorer country.[23]

The two latter effects are the ones traditionally highlighted in the literature - the economies of scale in the global public good provision and the redistribution effect, respectively. In the case of the European Union Eastern enlargement, it is not clear if economies of scale will compensate existing EU members for the required redistribution. We argue that the new channel we introduce - the lobbying effect - helps to explain the move toward enlargement in the EU as well as rising complaints from some special interests in Eastern Europe. As in the previous literature, overall preferences on political integration are shaped by the relative strength of the different channels through which political integration affects welfare.

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[23]Thus far we have assumed that governments are always able to collect enough in tax revenues in order to provide the optimal level of public goods (both local and global). That is, in the government maximization problem under separation, the additional constraint $t_i \leq 1$ is not binding. This need not always be the case for poorer economies. How does this assumption affect our results? Poorer countries would face an additional benefit from integration because their budget constraint would be loosened: public goods that are too expansive to provide under separation can be provided under integration.

3 Endogenous lobby formation

Until now we have assumed that the number of lobbies is constant and exogenous. We now consider an extension of the model where the number of lobbies is endogenously determined. The reason for this exercise is that groups that were unorganized under separation could find it convenient to get organized and lobby the government once the union is formed. In other words, political integration itself could modify the lobbying structure of countries forming a union and bring into question previous results.

More specifically, in this section we address three questions. What determines the equilibrium number of lobbies in each country? Does political integration modify the incentives of interest groups to organize? How does lobby formation influence equilibrium policies and welfare in an international union?

We first present a model of endogenous lobbying and derive the equilibrium number of lobbies under political separation. We argue that a more advanced economy has a higher degree of collusion. We then study how political integration affects the lobbying structure of each country and of the union as a whole.

3.1 Equilibrium lobbies under political separation

In this subsection we study the decision of an unorganized group to form a lobby under political separation. Following Mitra (1999) we model the decision to become organized as a simple entry game where agents with common interests weigh the benefits of affecting policy in their favor against the cost of becoming organized.

-Each group faces a fixed cost of becoming organized. In choosing whether to incur this fixed cost, the nth group considers its welfare if organized relative to its welfare if it is not. If the benefit of becoming organized - net of contributions - is greater than the fixed cost, the group will choose to become organized. The game is solved by backward induction, where the outcome of the last stage is given by our previous results. As we saw in section 2, the policies chosen in equilibrium depend on the fraction of the population that is organized, i.e. on the fraction of groups that choose to form a lobby, $\lambda_i = \frac{n_i}{m_i}$.

Define the gross and the net benefit of forming a lobby, respectively, as[24]

$$GB(\lambda) = \widetilde{W}^L(\lambda) - \widetilde{W}^N(\lambda) \tag{22}$$

$$NB(\lambda) = \widetilde{W}^L(\lambda) - \widetilde{W}^N(\lambda) - \widetilde{C}(\lambda) \tag{23}$$

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[24] For now we consider the equilibrium in a single country and drop the country index.

where a "~" indicates equilibrium values. Therefore, $\widetilde{W}^L(\lambda)$ is the welfare of an organized group when a subset of groups of mass n are organized but all other groups are not.[25] Clearly, $NB(\lambda) = GB(\lambda) - \widetilde{C}(\lambda)$.

Let $F(j)$ denote the fixed cost of getting organized for group j. These fixed costs can depend on a number of factors. There is heterogeneity across groups within a country because groups differ in their organizational ability. Heterogeneity across countries is likely to arise as a result of differences in infrastructure (e.g. communications) and/or political institutions. Thus, even if countries have the same distribution of organizational abilities, the cost of becoming organized will be higher for those groups in the countries with poor infrastructure and institutions.

Let groups be ranked and indexed in ascending order of their fixed costs such that $F'(\lambda) > 0$. A group n will choose to become organized under the following condition:[26]

$$\widetilde{W}^L(\lambda) - \widetilde{W}^N(\lambda) - \widetilde{C}(\lambda) > F(\lambda) \tag{24}$$

It can be shown that if $NB'(\lambda) < F'(\lambda)$, there exists a unique Nash equilibrium and it is the one that satisfies the condition $\widetilde{W}^L(\widehat{\lambda}) - \widetilde{W}^N(\widehat{\lambda}) - \widetilde{C}(\widehat{\lambda}) = F(\widehat{\lambda})$, where $\widehat{\lambda} = \frac{\widehat{n}}{m}$.[27] In this equilibrium, all groups with fixed cost less than $F(\widehat{\lambda})$ are organized.

Rewriting equation 9, the welfare of an organized group and a non organized group are respectively given by:

$$\widetilde{W}^L = \left[y - \frac{n}{m}\widetilde{g}^L(\lambda) - \frac{m-n}{m}\widetilde{g}^N(\lambda) - \frac{\widetilde{G}}{m} + H\left(\widetilde{g}^L(\lambda)\right) + F\left(\widetilde{G}\right) \right] \tag{25}$$

$$\widetilde{W}^N = \left[y - \frac{n}{m}\widetilde{g}^L(\lambda) - \frac{m-n}{m}\widetilde{g}^N(\lambda) - \frac{\widetilde{G}}{m} + H\left(\widetilde{g}^N(\lambda)\right) + F\left(\widetilde{G}\right) \right] \tag{26}$$

where $\widetilde{g}^L(\lambda)$ and $\widetilde{g}^N(\lambda)$ are the equilibrium levels of local public good provision under separation to organized and non organized groups, respectively, and $\widetilde{G}$ is the equilibrium provision of the global public good. They are implicitly determined by the first-order conditions of the appropriate government maximization problem.

Using the definition of the gross benefit and equations 25 and 26 we have:

[25]Note that we explicitly write the gross benefit and contributions as functions of the share of the population that is organized, λ. That the gross benefit depends only on λ is apparent from equation 22. In appendix 1, we formally derive equilibrium contributions and show that they also depend only on λ. Intuitively, this is the case because with truthful contributions, a newly formed lobby must compensate the government for any resulting reduction in its welfare. Since the new lobby does not affect the provision of the global public good, any reduction in government welfare must come about through the new lobby's effect on the local public good, but this depends entirely on λ.

[26]Mitra (1999) provides a more detailed discussion of this point. Essentially, we assume that groups can costlessly overcome the free-rider problem. As long as the group as a whole is better off by becoming organized, the members will be able to coordinate the payment of the fixed cost.

[27]We restrict our analysis to the more interesting case of an interior solution, $\widehat{n} \in (0, m)$.

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$$GB\left(\lambda\right)=\left[H\left(\widetilde{g}^{L}\left(\lambda\right)\right)-H\left(\widetilde{g}^{N}\left(\lambda\right)\right)\right] \tag{27}$$

Equilibrium contributions are derived in the appendix and take the following form

$$\widetilde{C}\left(\lambda\right)=-\frac{\eta}{1-\eta}GB\left(\lambda\right)+\lambda\left(\widetilde{g}^{L}\left(\lambda\right)-\widetilde{g}^{N}\left(\lambda\right)\right)+\frac{\eta}{1-\eta}\left(\widetilde{g}^{L}\left(\lambda\right)-\widetilde{g}^{N}\left(\lambda\right)\right) \tag{28}$$

Using equations 27 and 28, the net benefit from forming a lobby is

$$NB\left(\lambda\right)=\frac{1}{1-\eta}\left[H\left(\widetilde{g}^{L}\left(\lambda\right)\right)-H\left(\widetilde{g}^{N}\left(\lambda\right)\right)\right]-\left(\lambda+\frac{\eta}{1-\eta}\right)\left[\widetilde{g}^{L}\left(\lambda\right)-\widetilde{g}^{N}\left(\lambda\right)\right] \tag{29}$$

In the following lemma we prove that, if the government is semi benevolent ($\eta < 1$) the net benefit is positive. Even if special interests are competing, the government cannot extract all the surplus that lobbies stand to gain from the agency game as in Dixit, Grossman and Helpman (1997). The reason is that in our model the tax rate (and therefore the budget) is residually determined after the decision on public goods provision has been taken. Therefore, changing the policy instrument creates distortions: altering the provision of targeted public goods for different groups induces a change in the tax rate (and therefore a change in net income) that distorts the optimal consumption of the public versus private good. As in Grossman and Helpman (1994) and Mitra (1999), when the policy instrument creates distortions, a semi benevolent government is disinclined to use it to extremes. This allows competing special interests to obtain positive rents from the lobbying game.[28]

Lemma 3 $NB\left(\lambda\right)>0$ *for all* $\eta \in [0,1)$.

We show next that the net benefit of forming a lobby is a decreasing function of the share of the organized groups. Taking the derivative of the net benefit with respect to λ and rearranging we get

$$NB'\left(\lambda\right)=-\left(\widetilde{g}^{L}\left(\lambda\right)-\widetilde{g}^{N}\left(\lambda\right)\right)-H_{g}\left(\widetilde{g}^{N}\left(\lambda\right)\right)\frac{d\widetilde{g}^{N}}{d\lambda} \tag{30}$$

The first term represents the decrease in the net benefit due to the increased tax burden. This term is negative because $\widetilde{g}^{L}\left(\lambda\right)>\widetilde{g}^{N}\left(\lambda\right)$. The second term represents the opportunity cost of a group to stay unorganized when other groups organize (i.e. when λ increases). From equation 11, we get $\frac{d\widetilde{g}^{N}}{d\lambda}=\frac{(1-\eta)/\eta}{H_{gg}(\widetilde{g}^{N})}<0$ because $H_{gg}\left(g\right)<0$ by assumption. It follows that the second term is positive. In the following lemma we show that the first term dominates the second for all possible

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[28]When the budget is fixed (i.e. in a pure redistribution game), competing lobbies get no extra benefit from lobbying activity compared to non organized groups. Details can be found in proposition 5 and the ensuing discussion in Dixit, Grossman and Helpman (1997).

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values of the parameter η. The intuition for this result is that as the number of lobbies increases, there are more organized groups working against each other and a smaller unorganized population to exploit. Therefore the net benefit from forming a lobby is decreasing in the existing number of lobbies. Formally, we have:

Lemma 4 $NB'(\lambda) \leq 0$ *for all* $\eta \in [0,1]$.

As a direct consequence of the lemma and the fact that by assumption $F(\lambda)$ is increasing in λ, there is a unique equilibrium number of lobbies where $NB(\widehat{\lambda}^S) = F(\widehat{\lambda}^S)$ that is determined endogenously.

The smaller the fixed cost of getting organized for each group (i.e. the more the F schedule shifts down), the larger is the number of organized groups. Fixed costs will differ across countries because of differences in infrastructure and/or institutions and the cost of becoming organized will be higher for those groups in less developed countries. As a consequence, the equilibrium under separation implies that the share of lobbies over total population in country A, the richer and more developed country, is larger than in country B, $\widehat{\lambda}_A^S > \widehat{\lambda}_B^S$ (See figure 2).

3.2 Equilibrium lobbies under political integration

We turn now to study the interaction of political integration and lobby formation. More specifically, we focus on how political integration affects the equilibrium number of lobbies in each country and how this change influences equilibrium policies.

We assume that the equilibrium lobbying structure of the two countries under separation represents the status quo. This means that the choice of group formation under separation occurred some time in the past when interest groups could not foresee the possibility of political integration. Once the international union is formed, groups that were not organized in the separation regime may decide to form an active lobby in the new political environment.

We choose to have a "historical" number of organized groups in this section because we feel that it more closely reflects the European experience. Before the collapse of the socialist regimes in the late 80s and early 90s, strictly geopolitical reasons made it impossible to think about Eastern enlargement of the EU. From the perspective of groups that faced organizational decisions in the Cold War era, political integration between Western and Eastern Europe came as a fully unexpected event.[29]

The timing has the following four stages:

1. Each country decides to integrate or maintain political independence.

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[29]In order to take into account experiences different from the EU East enlargement process, we consider the alternative scenario where *all* groups simultaneously face the organization decision under political union in appendix 3. We show that this alternative timing of events leads to similar results.

2. If a political union is formed, unorganized groups choose to form a lobby or remain unorganized in the new political jurisdiction. Organized groups, that have already paid the fixed cost of becoming organized under separation remain that way (i.e. we assume no lobby destruction).

3. Every lobby non cooperatively and simultaneously presents the union government with a contribution schedule.

4. The union government chooses policies for the entire union so as to maximize a weighted sum of social welfare and contributions.

Consider how the incentives of (unorganized) groups to become organized are affected by a political union. Initially, the (weighted-average) proportion of the population that is organized in the union is given by

$$\lambda_U^o = \frac{m_A y_A}{m \overline{y}} \widehat{\lambda}_A^S + \frac{m_B y_B}{m \overline{y}} \widehat{\lambda}_B^S$$

so that $\widehat{\lambda}_A^S > \lambda_U^o > \widehat{\lambda}_B^S$. This implies that $NB(\lambda_U^o) > NB(\widehat{\lambda}_A^S) = F_A(\widehat{\lambda}_A^S)$, and that there are unorganized groups in country A that find it worthwhile to become organized under a political union. It is also true that $NB(\lambda_U^o) < NB(\widehat{\lambda}_B^S) = F_B(\widehat{\lambda}_B^S)$, and no unorganized group in country B finds it worthwhile to become organized. We assume that once a group is organized to affect national policy it can also affect union policy so that no organized group in B chooses to disband.[30] As lobby formation takes place in country A, both λ_A and $\lambda_U = \frac{m_A y_A}{m \overline{y}} \lambda_A + \frac{m_B y_B}{m \overline{y}} \widehat{\lambda}_B^S$ increase, moving up along the F_A schedule and down the NB schedule. This will continue until the equilibrium condition $NB(\widehat{\lambda}_U) = F_A(\widehat{\lambda}_A^U)$ is satisfied. The exact value of $\widehat{\lambda}_U$ will depend on the shapes of these two schedules, but it will lie somewhere in the interval $[\widehat{\lambda}_B^S, \widehat{\lambda}_A^S]$. The main results are summarized in the following proposition.[31]

Proposition 5 *Political integration induces: (i) An increase in the equilibrium number of lobbies in the richer country but no increase in the equilibrium number of lobbies in the poorer country. (ii) An increase in equilibrium targeted public good provision for both organized and non-organized groups in the richer country. (iii) A decrease in equilibrium targeted public good provision for both organized and non-organized groups in the poorer country.*

To grasp the intuition of this result we need to focus on how political integration affects lobbying activity. New lobbies are formed in the rich and (historically) more organized country because

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[30] This seems to be a plausible assumption. As indirect evidence, note that most national special interests with a stake in EU policy have an office in Brussel in addition to their national headquarters. The results, however, do not depend on this assumption.

[31] The assumption that previously formed lobbies in country B do not disband does not alter the results. If we allow for lobby "destruction", organized groups in B would become unorganized as groups in A become organized. Equilibrium is reached when the condition $NB(\widehat{\lambda}_U) = F_A(\widehat{\lambda}_A^U) = F_B(\widehat{\lambda}_B^U)$. It can be shown that $\widehat{\lambda}_A^S > \widehat{\lambda}_U > \widehat{\lambda}_B^S$ still holds and the same qualitative results follow.

political integration, by initially reducing the relative number of lobbies over total population, reduces effective competition between special interests and increases the net benefit of becoming organized.

Lobby formation in country A increases the amount of competition in the political union compared to the initial proportion of the population that is organized in the union $\left(\widehat{\lambda}_U > \lambda_U^o \right)$. However, in equilibrium the share of lobbies over total population in the union is still lower than in country A in the separation regime $\left(\widehat{\lambda}_U < \widehat{\lambda}_A^S \right)$. Qualitatively, the effect of political integration is not changed by allowing for endogenous lobby formation. Although new lobbies are formed, the country that would be more organized before integration is still the one that benefits from integration because competition among lobbies is lower relative to the case of separation. The opposite is also still true for the country that would be less organized..

3.3 Discussion: political integration, lobby formation and welfare

In this subsection we turn to welfare analysis. We focus on the "lobbying effect of political integration." In the case of endogenous entry of lobbies, political union benefits the citizens of the rich country in two ways. Firstly, more groups choose to become organized and lobby the government for preferential treatment. Secondly, as in the exogenous lobby case, the decrease in competition allows organized groups to receive more of the local public good at a lower cost to the unorganized groups.

We can separate the groups in the rich country into three categories: those that are organized under both separation and union; those that are not organized under either regime; and those that only become organized under a political union. The first two groups, as in the exogenous case, benefit from a political union simply because the resulting fall in λ increases the amount of targeted public good they receive. The third group benefits further from the fact that they become organized and can influence the government to their advantage.

Groups in the poor country, as in the exogenous case, loose from a political union because the resulting increase in λ reduces the amount of public good they receive. However, the lobbying effect of political integration is now larger because the amount of competition in the union is larger than in the case of exogenous lobbying. The decision of whether to join the union then depends on the relative size of this effect and the other channels through which political integration influences welfare.

The analysis of special interest politics in an international union highlights an interesting aspect of the Eastern European enlargement - and more generally of political integration - neglected by the existing literature. Forming a union implies a loss of political independence for each country. Our results show that this problem might be particularly relevant for Eastern European countries and less important for countries already in the European Union. The reason is related to the different

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concept of political equilibrium that we use in this paper. In the previous literature, political integration implies a change of the median voter equilibrium. Assuming that the two countries have equal size, this change would be fully symmetric and the loss of political independence would be equal for the two nations. Instead, in our model lobbies affect policies in their favor. Therefore, the higher the number of organized groups in a country, the larger is the extent to which that country is able to influence the political process of the union and the smaller is the loss of political independence. This fact also helps to rationalize the fears of Eastern European nations that their interests will be neglected in an enlarged union.

As this section shows, political integration induces previously unorganized groups in the richer country to get organized and lobby. As a consequence, lobby formation in the European Union will increase the cost of losing political independence for entering countries.

4   Conclusions

The main results of this research have been already highlighted in the introduction. We would like to conclude with some comments and by stressing some avenues for future research.

Is this setting realistic? Our main assumption is that countries in the European Union are more organized than Eastern and Central European nations, in the sense that in the European Union a higher fraction of people has its interests somehow represented by lobbies. As argued in the paper, there are several theoretical reasons why this should be the case. Countries with higher GDP are generally characterized by those factors that the recent literature on interest groups has pointed as being key determinants of groups formation: better organizational abilities, higher varieties of sectors (and therefore smaller number of members in each sector), the presence of industries with large capital stocks and/or industries that face more inelastic demands. These theoretical arguments motivate Olson's idea that collective action will become more widespread over time in stable democracies. Unfortunately this assumption is difficult to verify empirically. However, if we consider formal business associations as a rough measure of lobby participation in a given country, interest groups in the current European Union are likely to be more represented in an enlarged union.

One could still doubt the relevance of the effects of lobbying activity on political integration identified in this paper. However, looking at the functioning of the European Union, it is difficult to think that the only economic benefit for a rich country coming from integration is the joint production of common public goods or from coordination of public good provisions. Recent historical accounts of the European integration process (Moravcsik, 1998) and studies by political scientists (Greenwood, 2003) highlight the role of special interest politics in influencing policies and regulations in the EU. Let's consider how the lobbying effect could work in practice. The European Union is, among other things, a regional trade agreement, with no internal tariffs and a common

external tariff. In the separation regime, Eastern European countries choose independently their trade policies, while in the case of integration they have to undertake the decision agreed with the other European countries. EU organized groups, mainly the lobby of exporters, find it difficult to influence trade policy decisions in Eastern European countries, but they would be better able to influence these decisions to their advantage in an enlarged union.[32]

Moreover, the European Union has a set of laws that regulate its internal market. This might give another advantage to EU interest groups. Think, for example, of environmental regulation: a lobby of firms can influence what kind of regulation the union can adopt and can push toward rules that favor its technology, but cannot influence legislation in a foreign country. Once Eastern European countries are inside the union they will have to undertake that regulation, making the expansion of current EU firms into Eastern European markets easier. As tariff barriers decrease, special interest groups will turn their attention to these 'non-tariff' barriers as a way to protect their interests.

We believe that a deeper understanding of how special interest politics influences institutions (in a broad sense as constitutional rules, laws, political borders, etc.) is an interesting area of research. Future work on lobbying and political integration will have to deal with the empirical relevance of the role played by interest groups in an international union and more in general in international organizations. On the other hand, theoretical models should also consider some issues that we have ignored for the sake of simplicity. What happens when lobbies in the same country have conflicting interests over integration? How would our results change if groups with similar interests choose to form international lobbies?

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[32]The important role played by interest groups in affecting trade policy has been largely studied. For a survey of empirical works in this area see Gawande and Krishna (Forthcoming).

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Appendix 1

In this appendix we provide the proof of the results in the main text.

Proof of Proposition 1

Compare the first order conditions under separation (equations 10 to 12) and integration (equations 17 to 19). Result (i) is immediate. Results (ii) and (iii) follow from $\lambda_A > \lambda_U > \lambda_B$.

Proof of Proposition 2

We first derive equilibrium contributions and then we show that the "lobbying effect of political integration" (i.e. the first bracketed term in equations 20 and 21) is positive (negative) for groups in the more (less) organized country.

A. Equilibrium contributions

As in Bernheim and Whinston (1986), we consider only truthful contributions, that are given by:[33]

$$C = W^L - b \tag{31}$$

where b is the net of contributions welfare of an organized group.

In order to calculate equilibrium contributions by a lobby, we follow Mitra (1999) by asking what will happen if a small number of organized groups, of measure Δn, decides do defect. Using equation 6, the national government welfare in equilibrium is given by

$$\widetilde{W}_{GOV}(n) = \eta \left(n\widetilde{W}^L(n) + (m-n)\widetilde{W}^N(n) \right) + (1-\eta)n\widetilde{C}$$

$$\equiv \eta\widetilde{W}_A(n) + (1-\eta)n\left[\widetilde{W}^L(n) - \widetilde{b}\right] \tag{32}$$

where $\widetilde{W}_A$ is aggregate welfare (gross of contributions) and where we make explicit that the welfare of groups and the aggregate welfare (net of contributions) are a function of n. However, if a number of lobbies of measure Δn deviates, the government's welfare changes to:

$$\widetilde{W}_{GOV}(n-\Delta n) = \eta(n-\Delta n)\widetilde{W}_A(n-\Delta n) + (1-\eta)(n-\Delta n)\left[\widetilde{W}^L(n-\Delta n) - \widetilde{b}\right] \tag{33}$$

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[33]See Bernheim and Whinston (1986) and Grossman and Helpman (2001) for a detailed discussion of truthful strategies. An equilibrium in truthful strategies has the property that all contribution schedules, when positive, have a slope that is equal to the marginal benefit for the lobby.

For Δn small enough, equations 32 and 33 have to be equal. Writing the equality and taking the limit for $\Delta n \to 0$ we get the net of contribution equilibrium welfare for lobby j:

$$\widetilde{b}(n) = \widetilde{W}^L(n) + n\widetilde{W}^{L\prime}(n) + \frac{\eta}{1-\eta}\widetilde{W}_A{}'(n) \tag{34}$$

From 31 and 34, we have

$$\widetilde{C}(n) = -\left[n\widetilde{W}^{L\prime}(n) + \frac{\eta}{1-\eta}\widetilde{W}_A{}'(n)\right] \tag{35}$$

The above expression means that the equilibrium contribution level by an organized sector compensates for the reduction in the gross welfare of the other existing organized groups and the reduction in the overall social welfare brought about by the formation of that organized group.

$\widetilde{C}(n)$ can be rewritten as:

$$\widetilde{C}(n) = W^L(n) - \widetilde{V}'(n) \tag{36}$$

where $\widetilde{V}(n) = n\widetilde{W}^L(n) + \frac{\eta}{1-\eta}\widetilde{W}_A(n)$. Note that

$$\widetilde{V}(n) = V\left(\widetilde{g}^L(n),\widetilde{g}^N(n),n\right) = \max_g \left[nW^L\left(g^L,g^N,n\right) + \frac{\eta}{1-\eta}W_A\left(g^L,g^N,n\right)\right] \tag{37}$$

By the Envelope Theorem

$$\widetilde{V}'(n) = W^L\left(\widetilde{g}^L,\widetilde{g}^N,n\right) + nW_3^L\left(\widetilde{g}^L,\widetilde{g}^N,n\right) + \frac{\eta}{1-\eta}W_{A3}\left(\widetilde{g}^L,\widetilde{g}^N,n\right) \tag{38}$$

where the subscript "3" stands for the partial derivative with respect to the third argument. Recalling equation 25:

$$W_3^L\left(\widetilde{g}^L,\widetilde{g}^N,n\right) = -\left[\widetilde{g}^L(n) - \widetilde{g}^N(n)\right] \tag{39}$$

and using the definition of aggregate welfare, we get:

$$W_{A3}\left(\widetilde{g}^L,\widetilde{g}^N,n\right) = W^L\left(\widetilde{g}^L,\widetilde{g}^N,n\right) - W^N\left(\widetilde{g}^L,\widetilde{g}^N,n\right) - \left(\widetilde{g}^L(n) - \widetilde{g}^N(n)\right) \tag{40}$$

where we have used the fact that $W_3^L\left(\widetilde{g}^L,\widetilde{g}^N,n\right) = W_3^N\left(\widetilde{g}^L,\widetilde{g}^N,n\right)$.

Plugging all these expressions into 36 and rearranging terms, we obtain the equilibrium contribution schedule

$$\widetilde{C}(n) = -\frac{\eta}{1-\eta}GB(n) + n\left(\frac{\widetilde{g}^L(n) - \widetilde{g}^N(n)}{m}\right) + m\frac{\eta}{1-\eta}\left(\frac{\widetilde{g}^L(n) - \widetilde{g}^N(n)}{m}\right) \tag{41}$$

The economic interpretation of this equation is the following. Recall that equilibrium contributions compensate for the reduction in overall gross welfare. The first term represents the increase

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in welfare to the newly formed lobby. The second term is the reduction in gross welfare of existing organized groups: each of the n lobbies has to pay a share $\frac{1}{m}$ of the increase in tax expenditures due to the formation of the new group.[34] Similarly, the third term represents the decrease in social welfare due to the increased tax burden. Note that in our benchmark case, the utilitarian equilibrium implied $\widetilde{g}^L = \widetilde{g}^N = g^*$, therefore the greater the difference between the two policies, the larger is the distortion and accordingly the higher equilibrium contributions need to be.

Remember from equation 27 that $GB(n) = H\left(\widetilde{g}^L(n)\right) - H\left(\widetilde{g}^N(n)\right)$ and that n enters the functions $\widetilde{g}^L(.)$ and $\widetilde{g}^N(.)$ only through $\frac{n}{m} \equiv \lambda$. Therefore, equilibrium contributions can be written as a function of the share of groups that is organized (as in equation 28 in the main text).

Furthermore, by following the same procedure we find that contribution functions take the same form for lobbies from both countries under political union. The only difference is that $\lambda = \frac{n}{m}$ is replaced by $\lambda_U \equiv \frac{m_A y_A}{m\overline{y}}\lambda_A + \frac{m_B y_B}{m\overline{y}}\lambda_B$. In both equilibria, contribution schedules depend on parameters of interest only through their effect on λ. This is intuitive because equilibrium contributions in the Grossman and Helpman framework compensate the government for the reduction in welfare due to lobbying activity (i.e. for the change of local public good provision and not for the change in the common public good provision).

B. Sign of the lobbying effect of political integration

1. Non organized groups

We need to show that the term in the first bracket of condition 20 is positive (negative) for non organized groups in the more (less) organized country. This is equivalent to showing that $H\left(\widetilde{g}^N\right)$ is decreasing in λ. Then the result simply follows from $\lambda_A > \lambda_U > \lambda_B$.

Note that

$$\frac{dH\left(\widetilde{g}^N\right)}{d\lambda} = [(1-\lambda)\eta + \lambda]\frac{d\widetilde{g}^N}{d\lambda}$$

From the first-order conditions, we have $\frac{d\widetilde{g}^N}{d\lambda} = \frac{\frac{1-\eta}{\eta}}{H_{gg}(.)} < 0$ which proves the result.

2. Lobbies

We show that the "lobbying effect of political integration" is positive (negative) for lobbies in the more (less) organized country. Using equation 21, this is equivalent to showing that

$$\frac{dH\left(\widetilde{g}^L\right)}{d\lambda} - \frac{d\widetilde{C}(\lambda)}{d\lambda} < 0 \tag{42}$$

The first term in the last inequality is given by

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[34]The increase in tax expenditures is a consequence of the increase of targeted public good provision for the new group from $\widetilde{g}^N$ to $\widetilde{g}^L$.

$$\frac{dH\left(\widetilde{g}^L\right)}{d\lambda} = [(1-\lambda)\eta + \lambda]\frac{d\widetilde{g}^L}{d\lambda} \tag{43}$$

Taking the first derivative of equation 41 with respect to the fraction of organized citizens, λ, we get the second term in condition 42:

$$\frac{d\widetilde{C}\left(\lambda\right)}{d\lambda} = -\frac{\eta}{1-\eta}\left[H_g\left(\widetilde{g}^L\right)\frac{d\widetilde{g}^L}{d\lambda} - H\left(\widetilde{g}^N\right)\frac{d\widetilde{g}^N}{d\lambda}\right] + \left(\widetilde{g}^L - \widetilde{g}^N\right) + \left(\lambda + \frac{\eta}{1-\eta}\right)\left(\frac{d\widetilde{g}^L}{d\lambda} - \frac{d\widetilde{g}^N}{d\lambda}\right) \tag{44}$$

Using the first-order conditions and simplifying, we get

$$\frac{d\widetilde{C}\left(\lambda\right)}{d\lambda} = \left(\widetilde{g}^L - \widetilde{g}^N\right) + [(1-\lambda)\eta + \lambda]\frac{d\widetilde{g}^L}{d\lambda} \tag{45}$$

The result simply follows by substituting equations 43 and 45 into condition 42 and recalling that $\widetilde{g}^L > \widetilde{g}^N$.

Proof of Lemma 3

From equaion 29, we need to show that

$$\frac{H\left(\widetilde{g}^L\right) - H\left(\widetilde{g}^N\right)}{\widetilde{g}^L - \widetilde{g}^N} > \eta + \lambda\left(1 - \eta\right)$$

From the first order conditions, remember that

$$H_g\left(\widetilde{g}^L\right) = \eta + \lambda\left(1 - \eta\right) < \frac{1}{\eta}\left[\eta + \lambda\left(1 - \eta\right)\right] = H_g\left(\widetilde{g}^N\right)$$

So that the assumption $H_{gg} < 0$ implies that
i) $\widetilde{g}^L > \widetilde{g}^N$
ii) $\eta + \lambda\left(1 - \eta\right) < H_g\left(x\right) < \frac{1}{\eta}\left[\eta + \lambda\left(1 - \eta\right)\right]$ $\forall x \in \left(\widetilde{g}^L, \widetilde{g}^N\right)$
By the Mean Value Theorem for some $\xi \in \left(\widetilde{g}^L, \widetilde{g}^N\right)$

$$\frac{H\left(\widetilde{g}^L\right) - H\left(\widetilde{g}^N\right)}{\widetilde{g}^L - \widetilde{g}^N} = H_g\left(\xi\right)$$

By the above point ii), we have that $H_g\left(\xi\right) > \eta + \lambda\left(1 - \eta\right)$. So that $NB\left(\lambda\right) > 0$.

Proof of Lemma 4

Remember that $NB'(\lambda) = -\left(\widetilde{g}^L\left(\lambda\right) - \widetilde{g}^N\left(\lambda\right)\right) - H_g\left(\widetilde{g}^N\left(\lambda\right)\right)\frac{d\widetilde{g}^N}{d\lambda}$
We first consider the extreme cases.
Case 1: Full government benevolence ($\eta = 1$)

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In this case, lobbies do not cause any distortion:

$\widetilde{g}^L(\lambda) = \widetilde{g}^N(\lambda)$ and $\frac{d\widetilde{g}^N}{d\lambda} = 0$

so that $NB'(\lambda) = 0$

Case 2: Government only cares about contributions $(\eta = 0)$

In this case, $\lim\limits_{\eta \to 0} NB'(\lambda)$ is, in general, indetermined because

$\lim\limits_{\eta \to 0} H_g\left(\widetilde{g}^N(\lambda)\right) = +\infty$ and $\lim\limits_{\eta \to 0} \frac{d\widetilde{g}^N}{d\lambda} = -\infty.$

However, when we restrict preferences to commonly used utility functions (e.g. Logarithmic, Cobb-Douglas, CIES), it can be shown that $\lim\limits_{\eta \to 0} NB'(\lambda)$ is always determined and negative.

Now we consider how $NB'(\lambda)$ behaves for $\eta \in (0, 1)$.

$$\frac{dNB'(\lambda)}{d\eta} = -\left[\frac{d\widetilde{g}^L}{d\eta} - \frac{d\widetilde{g}^N}{d\eta}\right] - \frac{1-\eta}{\eta}\frac{d\left(H_g/H_{gg}\right)}{dg}\frac{d\widetilde{g}^N}{d\eta} + \frac{1}{\eta^2}\frac{H_g(\widetilde{g}^N)}{H_{gg}(\widetilde{g}^N)} \geq 0$$

The first term is always positive.

For the same group of commonly used functions, the second term is also positive and always dominates the last (negative) term. Thus we have that $NB'(\lambda) \leq 0$ for all $\eta \leq 1$.

Proof of Proposition 5

The discussion in the main text establishes result (i). In order to prove results (ii) and (iii) we need only prove that $\widehat{\lambda}_A^S > \widehat{\lambda}_U > \widehat{\lambda}_B^S$. Suppose that this is not the case. First, consider the case when $\widehat{\lambda}_U > \widehat{\lambda}_A^S$. This implies that $NB(\widehat{\lambda}_U) < NB(\widehat{\lambda}_A^S) = F_A(\widehat{\lambda}_A^S) < F_A(\widehat{\lambda}_A^U)$, which contradicts the equilibrium condition. Similarly, if $\widehat{\lambda}_U < \widehat{\lambda}_B^S$, then $NB(\widehat{\lambda}_U) > NB(\widehat{\lambda}_B^S) = F_B(\widehat{\lambda}_B^S) = F_B(\widehat{\lambda}_B^U)$, another contradiction.

Appendix 2

There is no general proof for the existence of an equilibrium in a common agency game with a continuum of principals. Bernheim and Whinston (1986) show that such an equilibrium exists in the case of a finite number of principals. Here we prove that the conditions derived in the main text are necessary conditions for the existence of an equilibrium where all organized lobbies offer a contribution schedule that requires a positive contribution. We do so by showing that the agent (i.e. the government) and the principals (i.e. the lobbies) have no incentive to deviate from this equilibrium.

1. Lobbies

We begin by showing that none of the lobbies (principals) have an incentive to deviate from the specified actions. Specifically, this entails showing that any lobby cannot be made better off by offering a zero contribution (effectively acting as a non-organized group).

Suppose the opposite is true and that an active lobby finds it profitable to abstain from offering contributions. Since there is a continuum of groups, each lobby is of measure zero and its deviation does not affect the share of the population that remains organized, λ. Consequently, the government does not alter the quantity of targeted public goods that it gives to either organized lobbies or non-organized groups ($\tilde{g}^L$ and $\tilde{g}^N$, respectively). The reason is that the equilibrium targeted public goods provision only depends on λ. Similarly, the deviation of a lobby does not change equilibrium contributions $\tilde{C}$ (see appendix 1).

The deviating lobby now receives $\tilde{g}^N$ instead of $\tilde{g}^L$. This implies a gross payoff of $\widetilde{W}^N$ as opposed to $\widetilde{W}^L$. Moreover, the lobby no longer has to pay contributions $\tilde{C}$. The change in net payoff to this group is given by $\widetilde{W}^N - \widetilde{W}^L + \tilde{C} = -NB$ where the net benefit is given by equation 29 in the main text. Lemma 3 shows that for $\eta < 1$ the net benefit is positive. This is a contradiction because it implies that the deviating lobby incurs in a welfare loss.

2. Government

It is straight-forward to show that the government (the agent in this common-agency set-up) will not deviate. This follows directly from the fact that

$$(\tilde{g}, \widetilde{G}) = \underset{(g,G)}{\arg\max} \left[\eta(m-n)W^N + nW^L \right] = \underset{(g,G)}{\arg\max} W_{GOV} \tag{46}$$

where W_{GOV} is given by equation 6 and the last equality follows from the fact that we consider an equilibrium in truthful strategies.

More precisely, from the last term in equation 46, $\tilde{g}$ must be such that

$$\eta \left[(m-n)W^N(\tilde{g}) + nW^L(\tilde{g}) \right] + (1-\eta)n\tilde{C} > \eta \left[(m-n)W^N(g) + nW^L(g) \right] + (1-\eta)nC$$

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for all $g \neq \widetilde{g}$.

From the definition of the contribution function (equation 31), we have that $\widetilde{C} = W^L(\widetilde{g}) - \widetilde{b}$. This implies that $C > W^L(g) - \widetilde{b}$. Substituting into the last inequality and simplifying, we obtain the first term in condition 46.

Appendix 3

We return to the interaction of political integration and lobby formation under a different assumption on the timing of the game. We focus on how political integration determines the equilibrium number of lobbies in the two countries and how this affects equilibrium policies, lobby formation and welfare.

In the present exposition, all groups decide simultaneously whether or not to organize into formal lobbies. The key difference with the model discussed in section 3.2 is that there is no status quo number of previously organized lobbies. A possible interpretation is that the current case assumes that all groups fully expect the possibility of a political union, while the previous case allows for lobby formation before the possibility of a political union is considered. Formally, the timing is as follows. At an initial stage each country decides to integrate or to remain politically independent. If one of the two countries does not accept integration, the game reverts to the one presented in section 3.2. If a political union is formed, at the second stage groups in each country decide whether to form a lobby or to remain unorganized. At the third stage, every lobby non-cooperatively and simultaneously presents the union government with a contribution schedule. At the final stage, the union government sets policy for the entire union so as to maximize a weighted sum of social welfare and contributions.

The game under a political union is thus similar to the one under separation except that all groups in both countries must now simultaneously decide if it is worthwhile to influence the union government. As before we solve the game using backward induction. The final stage under political integration is the same as in the exogenous lobby case (section 2.3). The union government increases the provision of the global public good and sets the provision of the local public goods according to the equilibrium (weighted-average) fraction of the population that is organized, λ_U.

To find the fraction of the union population that becomes organized in the second stage we again need to rank groups in ascending order of their fixed cost. Remember that we did this for each region separately in section 3.1. By construction, the functions $F_A(\lambda)$ and $F_B(\lambda)$ represent the inverse of a cummulative distribution function. For a given fixed cost, $c \in \Re_+$, the function $\lambda_i(c) = F_i^{-1}(c)$ represents the fraction of groups in region i with a fixed cost less than or equal to c. We construct $F_U(\lambda)$ as the inverse of the following weighted average:

$$\lambda_U(c) = \frac{m_A y_A}{m\overline{y}}\lambda_A(c) + \frac{m_B y_B}{m\overline{y}}\lambda_B(c)$$

Then, by construction, the function F_U always falls between the functions F_A and F_B. The group at position λ_U will choose to become organized if the following condition is satisfied.

$$NB(\lambda_U) = \widetilde{W}^L(\lambda_U) - \widetilde{W}^N(\lambda_U) - \widetilde{C}(\lambda_U) > F_U(\lambda_U)$$

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In lemma 4 we prove that $NB'(\lambda) < 0$, moreover $F'_U(\lambda) > 0$ by construction. Then it can be shown that there exists a unique Nash equilibrium to the entry game and it is the one that satisfies the condition $NB(\widehat{\lambda}_U) = F_U(\widehat{\lambda}_U)$, where $\widehat{\lambda}_U = \frac{m_A y_A}{m\overline{y}}\widehat{\lambda}_A^U + \frac{m_B y_B}{m\overline{y}}\widehat{\lambda}_B^U$. Since the NB schedule is the same under separation as under political union and since the F_U schedule lies everywhere between the F_A and the F_B schedules, we can conclude that $\widehat{\lambda}_B^S < \widehat{\lambda}_U < \widehat{\lambda}_A^S$ (refer to figure 4).

The proportion of the population that becomes organized in each region is uniquely determined and more (less) groups become organized in the richer (poorer) country relative to the separation case. The equilibrium condition essentially determines a cut-off level of the fixed cost. Any group with a fixed cost lower than this cutoff becomes organized. Since the fixed cost is lower for the rich country relative to the separation case, more groups become organized in the case of political union.

We have now established the results of the following proposition.

Proposition 6 *(i) More lobbies are formed in the rich country under political union than under political separation. (ii) Less lobbies are formed in the poor country under political union than under political separation. (iii) Both organized and non-organized groups in the richer country receive more of the targeted public good under union than under separation. (iv) Both organized and non-organized groups in the poorer country receive less of the targeted public good under union than under separation.*

Proposition 6 replaces proposition 5 in the main text. A subtle distinction is that this time the reduction in competition from the perspective of country A comes about from the political integration with a country where groups face a higher cost of organization rather than from the integration with a less organized population. The discussion on welfare, however, is the same as in section 3.3.

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		Population (000's)	GDP million PPS	GDP per capita PPS (EU15 = 100)	Trade and Business Associations
Bulgaria	BG	8170	51400	28	20
Cyprus	CY	671	12900	85	4
Czech Republic	CZ	10272	135500	58	25
Estonia	EE	1436	12400	38	13
Hungary	HU	10024	115100	51	15
Latvia	LV	2417	15900	29	3
Lithuania	LT	3696	27600	33	7
Malta	MT	390	4900	55	10
Poland	PL	38649	342100	39	11
Romania	RO	22443	117300	23	3
Slovakia	SK	5401	58100	48	3
Slovenia	SI	1989	31000	69	16
Turkey	TR	65303	397500	27	40
Total		170861	1321700	34	170
EU vs Candidates					
EU 15	EU15	376455	8525000	100	1396
All Candidates		170861	1321700	34	170
Candidates less Turkey		105558	924200	39	130

Source: Population and GDP figures, Eurostat Yearbook, 2002. Trade association figures for the year 1999, Euromonitor.

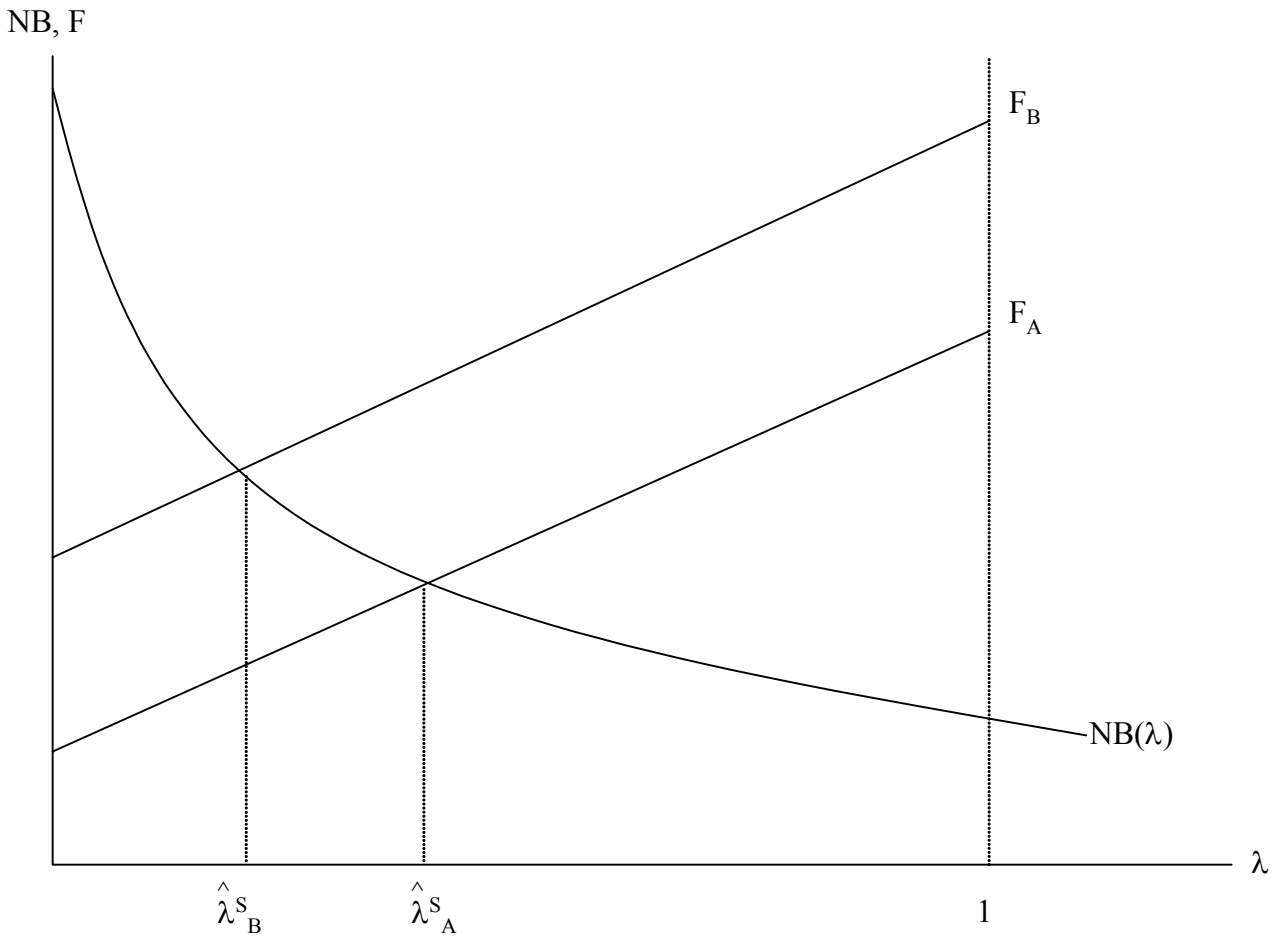Figure 1: **General Statistics for the EU and Candidate Countries**

NB, F

F_B

F_A

NB(λ)

$\hat{\lambda}^S_B$

$\hat{\lambda}^S_A$

1

λ

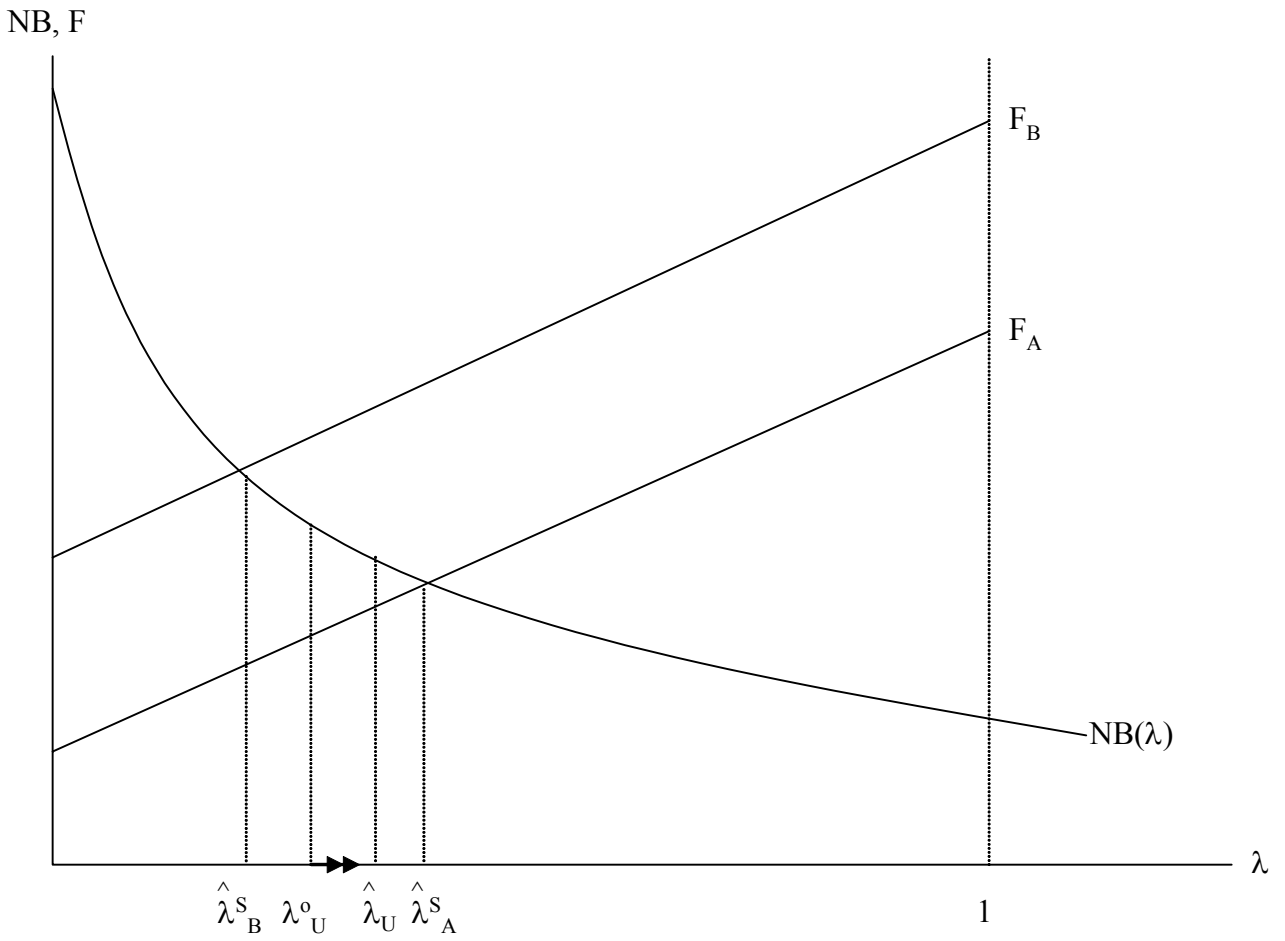Figure 2: **Equilibrium Lobby Formation Under Separation**

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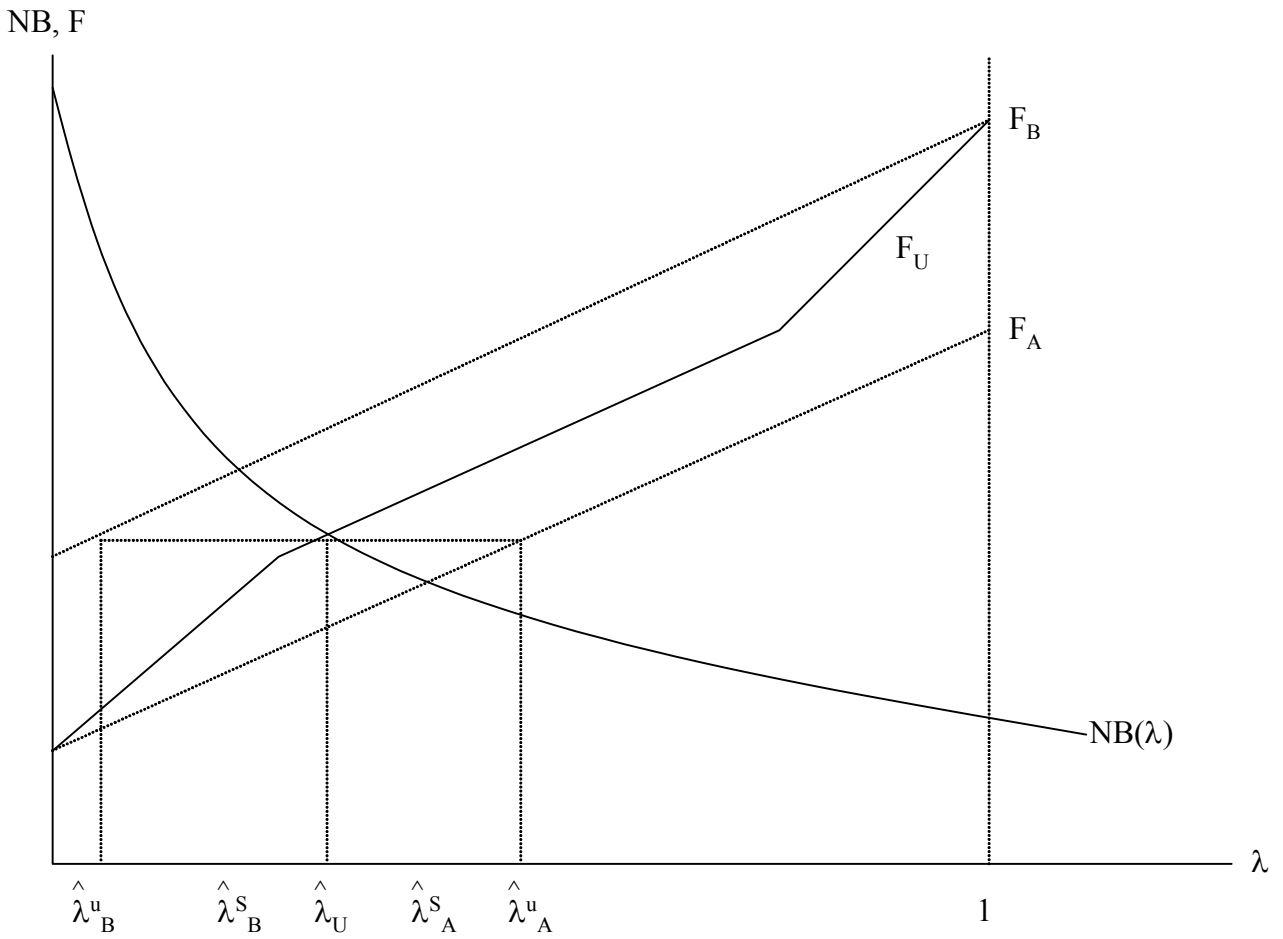Figure 3: **Equilibrium Lobby Formation Under Political Union**

Figure 4: **Equilibrium Lobby Formation Under Political Union (Alternative Timing)**