Gradualism and Uncertainty in International Union Formation

Draft: January 2008

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[2] I would like to thank John Londregan, Andrew Moravcsik, and Adam Meirowitz for their invaluable guidance as well as Kristopher Ramsay, Thomas Romer, and Thomas Palfrey for their helpful comments and our useful discussions at Princeton. I have also greatly benefited from personal discussions with Paola Conconi, Abdul Noury, Micael Castanheira, André Sapir, Paul Magnette, and Jean Pisani-Ferry while at ECARES/ULB and helpful feedback during my presentations at APSA 2006, MPSA 2007 and the ECARES/ULB Economics Seminar.

Abstract

This paper introduces a new theoretical framework of international unions qua coalitions of countries adopting a common policy and common supranational institutions. I make use of a non-cooperative spatial bargaining game of coalition formation among three countries in order to examine the endogenous strategic considerations in the creation and enlargement of international unions. Why would we observe a gradualist approach in the formation of the grand coalition even if the latter is assumed to be weakly efficient? I propose uncertainty about the benefits of integration as a mechanism that can generate gradual union formation in equilibrium. As it turns out, it may well be in the 'core' countries' interest to delay the accession of a third, 'peripheral' country in order to i) stack the institutional make-up of the initial union in their favor and ii) signal their high resolve to wait out the expansion of their bilateral subunion. A related case from the European context provides an interesting illustration.

I. Introduction

The recent proliferation and expansion of international cooperation agreements and institutionalized regimes has attracted the attention of scholars from various disciplines. The ensuing shift in the locus of domestic and foreign policy formation to the supranational arena makes it all the more necessary to study the origins and evolutionary dynamics of these supranational structures from both an empirical and theoretical standpoint. Especially in the European context, it is of indisputable significance both from a scholarly and a policy-making perspective to make sense of the intricate map of international cooperation within an enlarged European Union of twenty-seven or more members.

This paper introduces a formal game-theoretic framework elucidating various aspects of the *variable geometry* and the dynamics of international union formation with a focus on European integration. I wish to study questions about the coalitional dynamics of the creation and piece-meal widening of a union. In a non-cooperative game of international union formation where the grand union is weakly efficient, why would we ever observe delay its formation? For example, why did formerly eligible countries like the UK, Denmark, Austria, and Sweden join the European Economic Community (known as the European Union since 1993) at a much later time? Naturally, I am particularly interested in endogenous strategic considerations in the creation of a union by a core of countries rather than exogenous changes in the geopolitical and geoeconomic environment (which rendered for example newly democratized countries like Greece, Spain, and Portugal or former communist countries eligible candidates at some later stage of the union formation process). Countries such as Greece, Spain, and Portugal and the former communist Central and Eastern European countries were invited to join the existing Union soon after they became politically (i.e. democratic) and/or economically (i.e. liberalized market economies) eligible. These latter cases may be plausibly modeled by postulating exogenous (mainly geopolitical) constraints to entry that cease to bind at some point in time.

Starting from the empirical observation of gradualism and piece-meal expansion of international unions and regional blocs (including to various degrees ASEAN and MERCOSUR) in the absence of clearly perceived shocks to the global (or even regional) geopolitical and economic

system, I propose *strategic delay* in the supranational bargaining process as a theoretical explanation. International cooperation and regional integration agreements are usually initiated by a core of 'natural' partners, who wish to reap the immediate gains from cooperation. Hence, even without the formalization of arbitrary eligibility criteria, other aspirant members are at first effectively excluded from the 'enacting' coalition only to join later at more unfavorable institutional and policy terms. So even when the inclusion of a wider collectivity of states has always been Pareto efficient, the formation of the enlarged coalition is *strategically delayed* by the founding signatories for reasons to be explained.

While the emphasis among international relations scholars has been primarily on the rationale for international cooperation agreements, their enforceability, and their overall effect on the international system, this paper seeks to shift the focus to the evolutionary dynamics of membership and institutional design of such regimes. Given the wide consensus among political scientists and economists on the existence of 'mutual gains' in international cooperation – effectively amounting to a Pareto-improving response to international policy spillovers and externalities intrinsic within a globalized environment of interdependence –, the general arguments of the paper concentrate on the strategic calculus of surplus distribution in union formation taking efficiency considerations for granted.

To tackle some of the above questions I make use of a formal model[3] theorizing about the strategic interaction among states in the realm of international cooperation. The rise of supranationalism does not necessarily imply the decline of the nation-state, which is why I use the latter as the main unit of analysis. For the most part I treat countries as unitary actors and international unions as coalitions among states. Particularly prevalent within the realist tradition in international relations theory, the unitary actor assumption treats democratically elected governments as representative agents seeking to maximize the welfare of the 'average' citizen or just some other aggregated national objective. Adding special interests and preference heterogeneity within countries gives rise to the possibility of strategic delegation and cross-country popular alliances and is more conducive to the *liberal intergovernmentalist* (Moravcsik,

[3] Even though the methodology is primarily derived from economic models, the theory does not limit itself to strictly economic variables in explaining the coalitional dynamics of integration. It is flexible enough to accommodate non-economic explanations of integration, such as geopolitical considerations and 'security externalities' (see Gowa, 1994).

1998) approach to regional integration and national preference formation. This nuanced analytical perspective is much more pervasive among economists in the political economics literature on regional integration (see for example Brou and Ruta, 2004).

In the same vein, I talk about states, not ruling parties, thus abstracting away from micropolitical considerations of vote maximization; my macrorealist perspective is essentially predicated on the assumption of domestic political consensus with respect to a country's perceived core national interests in the pursuit of international cooperation[4]. In the bulk of the analysis, I choose to subsume these important micro-level questions of national preference formation within exogenous assumptions. Furthermore, I refrain from examining the actual sources of surplus gains in international cooperation (in any given area) for the main reason that the focus is on the coalitional and bargaining dynamics within the context of union formation. In essence, this is a theory of 'grand bargains' among states rather than an institutionalist account of the workings and policy-making functions of supranational bodies. The formal nature of the approach renders its results generalizable to other cases of *gradual* coalition formation among countries in the pursuit of international cooperation.

I offer one particular mechanism that can generate *strategic delay* in the formation of the *grand* union: *private information* over the synergistic benefits generated by unions of which a country is a member. According to the proposed theory, uncertainty over the exogenous coalition surplus may result in *strategic delay* through a semi-separating signaling equilibrium, whereby high types choose to initially participate in a smaller union in order to shape the terms of enlargement to their benefit. In other words, I interpret the bandwagoning phenomenon in union formation and expansion as a war of attrition game, whereby states place themselves temporally on the coalition-building process in an attempt to signal their resolve in waiting out the formation of the Pareto efficient grand union. In equilibrium, the proposal order affects the order of entry to the coalition, which in turn is a strong predictor of surplus allocation.

[4] My case study on French EEC policy in the 60s analyzes for example the various policy shifts that took place despite the continuous dominant presence of Gaullists in power (initially General de Gaulle himself followed by his ideological heir and successor Pompidou). Of course, the assumption of continuity in economic and political integration policy across partisan lines is just an analytical simplification, not an empirical iron law. Gruber (2000), however, provides a theoretical explanation for the scant evidence of radical policy shifts with respect to decisions to accede to and/or secede from international regimes by ideologically distinct governments.

The next section provides a brief review of the breadth and scope of the political science literature on international cooperation with a particular emphasis on European integration as well as an account of the political economy literature on international unions. The subsequent section consists of my spatial bargaining model of union formation examining *uncertainty* as a cause of gradualism in union enlargement. I first discuss the game with complete information, then proceed to demonstrate why asymmetric information is a prerequisite for gradualism in coalition-formation and the mechanism through which that occurs, and conclude with some comparative static results. By manner of empirical justification, I further go on to show how my theory applies to the case of the first enlargement of the European and Economic Community (EEC), focusing in particular on the French-German-British triptych and the bargaining dynamics between those three major actors with respect to British accession to the EEC. The concluding section examines possible extensions, summarizes some of the implications of the model, and evaluates the merits of the utilized methodological techniques.

II. Related Literature

This paper draws from a variety of related work on both positive and normative aspects of international union formation and policy centralization and relates to diverse strands of literature in both economics and political science. It falls within the general field of comparative political economy with a substantive application to regional integration.

The political science literature on international cooperation has been dominated by international relations theorists of various traditions. The early debate on the theoretical and empirical relevance of supranational institutions was instigated by the neoliberal school of thought, giving rise to a vast body of work collectively dubbed as *regime theory* (Keohane, 1984; Milner, 1997; Slaughter, 2004). Their focus on the 'mutual gains' rationale for international cooperation in an anarchic world came as a rebuttal to the Waltzian realist mantra of power politics and national interests, which deemed the emergence of supranational institutions as epiphenomenal to the existing balance of power and essentially inconsequential within the system of international

relations. However, the acceleration of the European integration project and the proliferation of regional and global institutions in the 80s shifted the focus of the neorealist critique from the Pareto efficiency of international regimes (Krasner, 1983) onto the 'relative gains' of their participants and the enforceability[5] of those decentralized structures (Grieco, 1988 & 1990; Mearscheimer, 1994/5).

Sharing a common rational choice methodological perspective, the emergence of a neoliberal-neorealist consensus on the importance, causes, and effects of supranationalism has gradually given way to the analysis of distributional considerations in the evolution and design of those institutions. Gruber (2000) for example views international regimes not simply as *incomplete contracts* or *focal points* in the selection of multiple equilibria of coordination (as 'new institutionalists' are more than apt to do), but essentially as the manifestation of 'go-it-alone' power by rational 'enacting' governments seeking to restrict the choice set of domestic opponents and 'peripheral' states[6]. He makes use of a power argument in order to explain the bandwagoning phenomenon of union widening as well as the stability of these supranational institutional arrangements. In a similar vein, the game-theoretic argument of this paper seeks to contribute to our understanding of the dynamics of union formation and expansion and the evolution of their institutional design.

European integration studies[7] in particular have profited from extensive scholarly work from various fields of political science, albeit based on different disciplinary foundations and theorized at different levels of abstraction and generalizability (see Verdun, 2005). American accounts of European integration tend to be more interdisciplinary in nature and more deductive from an epistemological point of view. Mostly influenced by IR/IPE theories of international cooperation, such as *regime theory*, American scholars tend to regard the European project as a particular example of an exceptionally institutionalized regime of international cooperation and a

[5] On federalism or supranationalism as a compliance problem see Bednar (2007).
[6] Gruber (2000) is critical of the neoliberal-neorealist consensus on the Pareto efficiency of international regimes and is mostly interested in the winners vs. losers dimension of international cooperation, arguing that it is often the case (citing NAFTA and the European Monetary System as his primary examples) that some late signatory countries to such regimes are better off in an autarchic *status quo ante* of no cooperation than their current state of wider integration. However, the *status quo ante* has been removed from their choice set by the *fait accomplit* of partial integration, thereby rendering the costs of joining an existing international cooperation agreement lower than those of staying out.
[7] For a concise literature review of approaches to the study of European integration see Hix (1994; 1998).

particular affirmation of generalized theories of union formation and regional integration. Europeans, on the other hand, take on the whole a more empirical, particularistic approach making ample use of the methodological techniques of comparative politics and public policy. They view the European Union as a *sui generis* supranational state-like entity and as a result are loath to export the conclusions derived from empirical analyses of various areas of supranational policy-making to other less institutionalized international regimes (such as Mercosur, NAFTA, and ASEAN)[8]. The stark difference between the two approaches lies in the fact that the former theorize about the European Union as an international organization, whilst the latter regard it as a peculiar political system combining various aspects of domestic statehood. This divide highlights the need for a multidisciplinary political economy approach, in order to bring studies of European integration back to the mainstream of political science and out of their disciplinary insulation (Verdun, 2005).

Economists have of late forcefully entered the interdisciplinary field of integration studies by drawing on well-established theories in the fields of public and international economics. Highly influential in these models has been the public economics literature on *fiscal federalism* and *decentralization* (e.g. Oates, 1972 and 1999; Besley and Coate, 2003; Hafer and Landa, 2005; Persson and Tabellini, 1996a; Bureau and Champsaur, 1992; Cremer and Palfrey, 2000), which examines the welfare and distribution effects of federal versus decentralized government structures on the provision of public goods. Economists also tend to focus on the political economy of macroeconomic international coordination as in the case of monetary integration (Persson and Tabellini, 1996b; Casella, 1992b) as well as regional redistribution (Bordignon et al., 2001; Casella, 2005; Lockwood, 2002). Closely related to the phenomenon of political integration is the *theory of clubs* and overlapping jurisdictions (Casella and Feinstein, 2002), which models the interaction between markets as sets of rules for the exchange of private goods and institutions as organizations for the provision of public goods.

The above theoretical bodies of work have recently spawned a fast-growing literature on the *political economy of integration and international unions* (e.g. Alesina et al., 2001 and 2005; Alesina and Spolaore, 2003; Baldwin, 1993; Bolton and Roland, 1997; Bordignon and Brusco,

[8] See Caporaso et al. (1997) for a conclusive debate on whether the European Union constitutes a unique case (or the N=1 debate).

2001; Brou and Ruta, 2004; Ellingsen, 1998; Harstad, 2007), which mainly consists of game-theoretic models of the economic incentives of integration and/or secession (on secession see Bordignon and Brusco, 2001) as well as the economic determinants of country and union size, often yielding normative conclusions on constitutional design[9]. These papers take a non-generic approach to the specification of union benefits by modeling an international union as an efficient central provider of public goods, characterized by economies of scale and spillovers across union (and non-union) members, as in Alesina et al. (2001 and 2005). This modeling approach has been amply applied to explain the coalitional dynamics of European monetary integration and currency unions (Alesina and Grilli, 1993; Casella, 1992a) and to design the optimal membership rules to EMU - whether through rigid membership criteria or gradual expansion through flexible rules of integration (see Fratianni, 1998; Pisani-Ferry, 1995). On the basis of the theoretical results of these models, a number of economists have ventured to contribute to the ongoing debate about the institutional structure of the European Union (see for example Alesina and Wacziarg, 1999; Alesina and Perotti, 2004; Jacquemin and Sapir, 1995)[10].

In contrast to Alesina et al.'s (2001, 2005) emphasis on the stability and size of equilibrium unions in light of public good spillovers, the focus of this paper is on the bargaining dynamics of the coalition-formation game and the strategic incentives inherent in negotiating the creation of an international union of countries. Harstad (2007) actually addresses the trade-off between strategic delay in the process of political centralization and the cost of policy uniformity using a similar signaling mechanism to the one below - albeit within a two-region framework, which implies that he does not consider the possibility of endogenous enlargement. In what follows, I analyze the case of a three-country regional setting through a non-cooperative spatial bargaining model, in order to gauge the extent to which the dynamic process of union formation can be explained by endogenous strategic factors such as *uncertainty*. For reasons of analytical tractability, I choose to examine the simple three-country case so as to allow for the possibility of subcoalitions and endogenous enlargement in the formation of the grand coalition of countries.

[9] For a brief survey of economic theories of (dis)integration see Ruta (2005).
[10] The Center for Economic Policy Research issues yearly reports on various issues of European integration providing the opportunity for political economists to contribute to policy-making debates within the context of the European Union (see for example Berglöf et al., 2003 and Dewatripont et al., 1995).

III. The Model

Basic Framework

My modeling approach consists of a combination of simple unidimensional spatial analysis with non-cooperative games of coalition formation in the context of policy centralization within an international union (e.g. EU). The spatial approach is based on the interpretation of an international union a commitment device to centralize policy across countries and is better suited to analyze the bargaining aspects of union formation and/or policy coordination compared to the public goods approach used in the political economics literature. It also provides for a parsimonious formalization of the *liberal intergovernmentalist* (Moravcsik, 1998) theory on the 'grand bargains' of EU treaties. The coalition formation approach, on the other hand, is permeated by the notion of international unions as coalitions among countries adopting a common supranational policy and institutional structure. The unidimensional policy variable may hence be construed as the 'institutional terms of accession to a union' or just as a supranational public good affecting the utility of coalition members (and even non-members in the case of policy externalities).

The underlying cooperative game of coalition formation prescribes the set of players N (or in our case countries using the unitary actor assumption) as well as the *value* or *worth* $y_c \in \Re$ of each non-empty coalition of countries $c \subseteq N$. The source of these exogenous 'functional synergies' is not explicitly modeled but is implicitly linked to the emerging economic and political interdependence among countries in the era of globalization. The pure public goods nature of these benefits renders them indivisible, while the unidimensional policy variable serves as an imperfect (because of insufficient dimensionality) allocation device of coalitional surplus[11].

In the model I will generally employ a typical assumption used in the coalition formation literature, whereby the grand coalition is weakly efficient. This contingency is what I refer to as

[11] A political union is basically viewed as an 'economic club' that yields excludable and indivisible common benefits, given that any such synergistic relationship between sovereign nation-states is embedded within a broader environment of economic interdependence through trade and the exchange of people, ideas, and factors of production (which is the standard view of the engine of integration in post-WWII Western Europe).

weak superadditivity in the structure of the underlying cooperative game, i.e. the total *worth* of the grand union is greater or equal to the sum of the *worths* of any constituent subunions or – prosaically put – the whole is better than the sum of its parts. Otherwise, it would be trivial to explain why the grand coalition doesn't form or even impossible to explain its *gradual* formation[12]. This assumption is formally defined as:

> **Weak Superadditivity:** $y_N \geq \sum_{c \in \pi} y_c(\pi) \;\; \forall \pi, c \in \pi$, where π denotes any partition of the set of players *N*.

In what follows, I present a multilateral non-cooperative bargaining game of coalition formation for the simple case of $N = 3$ countries. In this parsimonious context, I examine the implications of private information over the size of the exogenous benefits for the potential of *strategic delay* in the formation of the grand coalition (i.e. whether coalition formation is *gradual* or *immediate* and whether it actual forms or not). I use a common modeling framework that consists of a linear absolute deviation utility function and a dynamic bargaining protocol with equal recognition probabilities, thus shying away from risk aversion and inequality in agenda-setting power as possible sources of *strategic delay*. The use of a random recognition protocol is just an abstraction for more institutionalized enlargement negotiations, whereby an aspirant member may first have to receive official candidate status before embarking upon negotiations over the exact terms of accession subject to the unanimous approval of existing members. I generally restrict my attention to the bargaining equilibria that exhibit gradualism in the formation of the grand union of all three countries. As it turn outs, gradualism by dint of *strategic delay* may only come about once either of the two ideologically extreme countries gets to propose first.

Using the above parsimonious three-country setting, I wish to demonstrate how the existence of private information over the synergistic benefits of any given coalition can hamper political compromise at an earlier date thus giving rise to inefficiencies in the bargaining process. So long as any country may not correctly anticipate the synergies inherent in a political union wherefrom it is excluded, equilibrium delay in the bargaining process essentially arises as a cost of

[12] Unlike earlier models in coalition theory, recent non-axiomatic work on coalition formation with externalities does not necessarily predict the emergence of the grand coalition (unlike the cooperative solution concepts of the *core* and the *Shapely value*).

extracting information about one's marginal contribution to the grand coalition. Along these lines, any unilateral demand over the ideological make-up of a proposed union is construed as a credible signal of how much a country stands to gain on the valence dimension from cooperating with any subset of its potential coalition partners. The model seeks to highlight the strategic trade-off between joining a political union right away as a founding member at less than favorable terms and waiting for a better accession deal that essentially permeates the dynamic process of political integration and expansion. The dynamic interaction between France, Germany, and the UK in the early days of the European Community constitutes the interesting case at hand and will be analyzed later on.

Let $i = A, B, C$ denote countries as unitary actors bargaining over the creation of a union at specific policy terms $x_c \in X$, where *c* represents any non-empty union subset of $N = \{A, B, C\}$, i.e. $c \in 2^N \setminus \varnothing$, and $X \subseteq \Re$ denotes the single policy (or ideological) dimension over which bargaining takes place. To avoid confusion, I denote *coalition structures* $\pi_t \in \Pi$ at time *t* = 0, 1 by $c(x_c)\big|\{N - c\}, \big|c\big| \geq 2$, where *c* denotes a bilateral or trilateral union with common policy x_c, otherwise $A\big|B\big|C$ denotes the fully autarchic coalition structure. I introduce preference heterogeneity over policy by assuming distinct country-specific ideal points on the line of real numbers $m_A < m_B < m_C \in X$, where the letter *m* denotes the bliss point of the median voter in each country. As long as any subset of countries agree to coordinate on a common policy $x_c \in X$, then each member of that coalition (or political union) reaps the common coalition benefits $y_c \geq 0, \ c \in 2^N \setminus \varnothing$. Note that the assumption of *weak superadditivity* guarantees that $y_c \leq y_{c'}, c \subseteq c' \in 2^N \setminus \varnothing$, i.e. the grand coalition *ABC* is weakly efficient and any bilateral union of countries may not generate strictly higher 'gains from trade'. Moreover, I do not allow for any *policy externalities* across countries; hence, autarchy yields no exogenous benefits *per se*, i.e. $y_i = 0, \ i = A, B, C$. It remains the case that in a subgame-perfect Nash equilibrium *autarchic*

policy coincides with the median ideal point in each country[13]. To keep things simple, utility takes the linear absolute deviation form $u(m_i; x_c; y_c) = -|x_c - m_i| + y_c, \ \ i \in c, \ \ i = A, B, C$ [14].

I further postulate the following set of technical assumptions with respect to the *worth* of the grand coalition *ABC* and the spatial configuration of median ideal points (see figure 1):

Assumption 1: $m_C \in [m_B + (m_B - m_A), m_B + 2(m_B - m_A)]$

Assumption 2: $m_C - m_A \geq y_{ABC} \geq m_C - \frac{m_A + m_B}{2} \left(> \frac{2}{3}(m_C - m_A) \right)$

The first assumption essentially implies that preference-wise the moderate country *B* is closer to *A* than *C* and thus *A* and *B* are the 'natural' partners in any pairwise coalition, while *C* is spatially 'peripheral' to the other two. By 'natural' partners I wish to denote a subset of countries that lie closer in terms of institutional structures, historical traditions, and economic fundamentals, which all together make for enhanced ideological contiguity in terms of policy preferences. Moreover, according to assumption 2, the exogenous benefits associated with the grand union *ABC* are at such a level as to allow for meaningful policy negotiations over the ideological direction of the trilateral union but not high enough to make everyone's participation constraints trivially binding. In light of the linear structure of the model, the imposed bounds on these parameters serve the purpose of ruling out corner solutions and simplifying the structure of the equilibrium[15].

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[13] Under autarchy, each country retains full sovereignty over the determination of its own domestic policy by democratic means. Assuming single-peakedness, the ideal point of the median country representative m_i is the only *Condorcet winner* in any pairwise election (or referendum). The *no-policy-externalities* assumption implies that the autarchic, go-it-alone payoff of a country does not depend on the entire coalition structure, i.e. whether the other two players coalesce or not. See Maskin (2004) for an axiomatic extension of the *Shapely value* solution concept allowing for *coalition externalities* and *partition functions.*

[14] Note that by using this simple linear functional form I essentially assume risk-neutrality; therefore, risk aversion will not factor into my results. The common exogenous benefit of integration y_c essentially enters utility as an additive component that is orthogonal to the ideological policy dimension. This essentially represents the *economies of scale* property of the centralized provision of public goods within international unions.

[15] For example, the lower bound on the set of permissible values for y_{ABC} implies that extreme countries *A* and *C* may only form a bilateral union with moderate country *B* at their ideal points in a subgame-perfect Nash equilibrium, thus ruling out subgames of partial coalition-formation at intermediate policy positions.

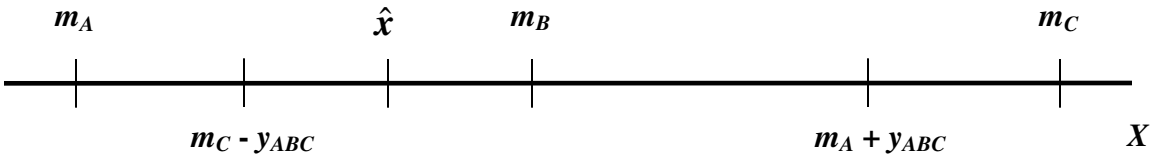

Figure 1: Spatial Configuration of Equilibrium Policy Proposals

As for the bargaining protocol of the game, there are two successive rounds of negotiations, whereby each country representative is randomly recognized with equal probability in each period regardless of the existing coalition structure[16]. Note that extending the extensive form of the game to an infinite-horizon bargaining framework would add little insight for our purposes, at the expense of multiplicity of equilibria and analytical complexity. Once recognized at time t = 0,1, the representative of country i makes an *unconditional*[17] common policy proposal $x_t^i \in X$ taking the existing coalitional structure π_t as given, which may be accepted or rejected by the other countries $j,k \neq i$. This is just a technical assumption - typical in the coalition theory literature -, which does not allow for the outright exclusion of a player from a proposed coalition. So let $x_t^i(\pi_t \mid y_{ij}, y_{ik}) : \Pi \to X$ and $\alpha_t^j(x_t^i \mid \pi_t, y_{ij}, y_{jk}) : X \to \{0,1\}$, $i \neq j \neq k$ denote the pure proposal and acceptance strategies respectively for each player-type and time period. A political union with common policy $x_t^i \in X$ will form at time t only between the proposing country and

[16] I hence abstract away from the possibility that participation in a union at an earlier time enhances one's proposal prerogative at subsequent enlargement negotiations, which could alternatively form the rationale for gradualism by incentivizing early participation by means of enhanced bargaining leverage in subsequent enlargement negotiations. Roberts (1999) presents a related dynamic model of clubs with endogenous membership.

[17] Note that this term should not be mistaken as *unconditional* on the past history of play (which will certainly not be the case in the proposed equilibrium). What it basically means is that a proposal may not be extended only to a specific proposed coalition, but should be available to all players. This is just a technical assumption that simplifies the proposal strategy set to X, rather than $2^N \times X$ as in the case of offers *conditional* on the proposed coalition $c \in 2^N \setminus \varnothing$. With *conditional* offers proposals only get implemented *if and only if* all parties of the proposed coalition concur. Gomes (1999) teases out the implications of allowing for both *conditional* and *unconditional* offers for efficiency and concludes that inefficient delay can be significant in superadditive games with small discount factors once *unconditional* offers have been ruled out.

those who accept that proposal. Existing union policy may only be renegotiated subject to the unanimous approval of all its members. I further assume excessively high fixed costs of union disintegration, effectively implying that once created, a union partnership may not dissolve or equivalently that a union member may not unilaterally withdraw[18]. An existing union may only expand its membership to the excluded country as long as all of its participating members agree to the proposed policy terms[19]. The postulate of veto power in enlargement negotiations is avowedly one of the driving forces of the main result. Finally, the future is discounted at a common rate $\delta \in [0,1]$.

To recapitulate the structure of the game, I present the timing in bullet form:

- Initially, countries *A*, *B*, and *C* reside in an autarchic *status quo ante*, i.e. policy is set at the domestic level and no coalitions have formed.
- At time $t = 0$, each gets randomly recognized as a proposer with equal probability. Once recognized, the agenda-setting country *i* will make an *unconditional* policy proposal $x_0^i \in X$, which the remaining two players may either choose to accept or reject.
- A first-period coalition $c_0 \subseteq \{A, B, C\}$ forms between the proposer and whoever else chooses to accept the initial proposal and utility payoffs accrue at the end of the period. If both reject, then policy is set at the domestic level and players receive their autarchic payoffs.
- At time $t = 1$, a proposer *j* is once again randomly recognized regardless of the coalition structure and the identity of the previous proposer *i* and makes a policy proposal $x_1^j \in X$ to the other two players.
- An existing two-country coalition carried over from the first period may not dissolve and it may only expand at the proposed policy $x_1^j \in X$ with the unanimous consent of its existing members. However, the members of an existing coalition my jointly agree to amend their common supranational policy $x_{c_0} \in X$ at time $t = 1$.

[18] This assumption is closely related to Seidmann and Winter's (1998) concept of i*rreversibility* of coalition agreements, which once agreed upon become immediately enforced allowing the contracting parties to reap the related payoffs. Their implicit assumption is that the fixed costs of divesting a coalition agreement are so high that the latter becomes an enforceable outside option in the bargaining process.

[19] This assumption essentially reflects the unanimity requirement for EU enlargement.

- Finally, the players reap the benefits pertaining to the coalition structure ensuing at the end of the second period and the game ends.

Before I proceed to describe the equilibrium, I introduce my final piece of notation:

> **Notation:** Let $\langle \pi_{t=0}, \pi_{t=1} \rangle$, where $\forall c \in \pi_{t=0},\ c' \in \pi_{t=1},\ c' \not\subset c$ (no-union-dissolution assumption), denote a two-period coalition-formation path.
>
> **Definition 1:** A coalition-formation path $\langle \pi_{t=0}, \pi_{t=1} \rangle$ is called *comprehensive* if and only if the *grand* coalition *ABC* forms in either period 0 or 1, otherwise the coalition-formation process is *partial*.
>
> **Definition 2:** A coalition-formation path $\langle \pi_{t=0}, \pi_{t=1} \rangle$ is called *gradual* if and only if $\exists c \in \pi_{t=0},\ c' \in \pi_{t=1}$ such that $c \subset c'$. Otherwise, it is *immediate*[20].

Two-period Bargaining Game with Complete Information

I first look at the baseline version of the model with complete information about the value of each and every potential coalition. In a simple application of backwards induction, the main result of this section is that a *gradual* coalition-formation path will never arise in the *subgame-perfect Nash equilibrium* of this game for any value of the discount factor and the set of coalition benefits $y_c, c \in 2^N \setminus \varnothing$. Perfect foresight, intertemporal discounting, and uniform benefits of integration do not allow for equilibria of gradual integration and union enlargement, whereby a third excluded candidate-country is invited to join an existing two-country union in the second period of the model.

[20] Seidmann and Winter (1998) offer an excellent theoretical account of the concepts of immediate vs. gradual as well as partial vs. comprehensive coalition formation.

Proposition 1: For any $\delta \in [0,1]$ and $y_c \geq 0,\ c \in 2^N \setminus \varnothing$ subject to assumptions (1) and (2), there is no *gradual* coalition-formation path in the *subgame-perfect Nash equilibrium* of the above game with complete information.

Proof. *See Appendix.*

Coalition-formation can only be *immediate* (*partial* or *comprehensive*) depending on who gets to propose, the specific value functions, and the discount factor. The basic intuition is that if either of the extreme countries *A* or *C* happens to face an initial policy proposal, which it finds unacceptable (*vis-à-vis* the autarchic *status quo*) regardless of the others' response, then the interval of unanimously acceptable policy proposals in the second period will effectively disappear given the *interim* coalition structure and utility payoffs. If either *A* or *C* are initially recognized at $t = 0$, then, depending on δ and $y_c \geq 0, c \in 2^N \setminus \varnothing$, they will either make an accommodating policy proposal such that the other two are just willing to join the grand union *ABC* or a more extreme proposal (which following assumption (2) would be their ideal position) such that only median country *B* is just willing to accept regardless of the third country's decision[21]. For all high types $y_{AB}, y_{BC} \in \left(2y_{ABC} - (m_C - m_A), y_{ABC}\right]$ either of the extreme countries would be better off in a *partial* coalition-formation outcome $AB(m_A)|C$ or $A|BC(m_C)$, since that would be preferable even to a grand coalition with common policy as close as possible to their ideal points, i.e. $ABC(m_C - y_{ABC})$ or $ABC(m_A + y_{ABC})$ respectively. Otherwise, for low types there always exists a Pareto superior common policy such that *immediate* grand coalition formation is unanimously preferred to the proposer's optimal *gradual* coalition-formation path. On the other hand, if *B* gets to propose first, then the grand coalition will always form *immediately*.

Entrenching oneself within a partial coalition *status quo* will never profitably enhance one's bargaining leverage with respect to the excluded country, for the simple reason that the gain from a restricted grand coalition Pareto set is less than the cost of delay even for δ close to unity. Also

[21] Since proposal strategies only consist of *unconditional* policy proposals not directed to specific coalition partners, it would be trivial to show that coalition *AC* may never form in a *partial subgame-perfect Nash equilibrium*, since by necessity median country *B* would also want to join.

note that the fact that *ABC* is weakly efficient *vis-à-vis* the autarchic *status quo* does not imply that it necessarily comes about; unlike traditional coalition-formation models, the inclusion of a spatial bargaining dimension gives rise to the possibility of *partial* coalition formation.

Two-period Bargaining Game with Asymmetric Information

Having proven that gradualism may never be part of the subgame-perfect equilibrium of the baseline model, I relax the assumption of complete information in order to show that private information is a precondition for gradualism in the coalition-formation process. I introduce uncertainty in the model by assuming that the representatives of each country are only aware of the synergistic benefits generated by a union in which they participate, i.e. the members of any given union share private information over the *worth* of their coalition. Otherwise, any excluded partner holds uniform prior beliefs over the common benefits inherent in a potential union between the other two countries, i.e. for any country $k \neq i, j$, $y_{ij} \sim U_k[0, y_{ABC}]$, where y_{ABC} denotes the total *worth* of the grand coalition. An equivalent interpretation of this type of private information is that the representative of any country *k* does not know with certainty the level of his/her country's *marginal contribution* $y_{ABC} - y_{ij}, k \neq i, j$ to the grand coalition[22]. For the purposes of the model, I assume independence of partial coalition values, even though correlated values would not significantly alter the results. As a result, the players cannot deduce their *marginal contribution* level from their own private information.

I now focus on the *perfect Bayesian Nash equilibrium* in pure weakly undominated strategies of the sequential bargaining game with incomplete information to demonstrate how gradualism in the formation of the grand union *ABC* may arise as a consequence of private information. The equilibrium consists of a set of proposal and acceptance strategies for each player and time-period, namely $< x_t^i(\pi_t \mid y_{ij}, y_{ik}, \sigma^i(y_{jk})), \alpha_t^i(x_t^i \mid \pi_t, y_{ij}, y_{ik}, \sigma^i(y_{jk})) >, \quad \forall i \neq j, k$ and $t = 0, 1,$

[22] To make a clarifying comparison, think of the level of a country's *marginal contribution* to the grand coalition as a poker hand; then this formulation of the game is tantamount to a game of poker where the players hold their cards against their forehead so that everyone else can see them but themselves.

and a set of beliefs $\sigma_t^i(y_{jk} \mid h_t)$ given the history h_t of actions at time t, such that i) $< x, \alpha >$ are *sequentially rational*, i.e. mutual best-responses for each profile of types (y_{ij}, y_{ik}, y_{jk}) given the updated equilibrium beliefs (*subgame perfection*) and ii) beliefs $\sigma_t^i(y_{jk} \mid h_t)$ are consistent with Bayes' rule given the history of actions h_t along the equilibrium path.

Each country i's first-period proposal x_t^i essentially functions as a signal of its type $y_{ij} \in [0, y_{ABC}]$ in a potential bilateral union agreement with another country j. A player's type captures its resolve to wait out the formation of the grand union at more favorable policy terms. Taking country A for example, high y_{AB} types will want to credibly signal their strong type by proposing a transitory bilateral AB subunion agreement at time 0, in order to achieve greater bargaining leverage in the subsequent policy negotiations at time $t = 1$ by entrenching their position within a beneficial *interim status quo*. In that case, the excluded party C will recognize that only high y_{AB} types would find it in their interest to incur the cost (or reservation utility of partial coalition formation) of *strategic delay* in order to induce a better x_{ABC} proposal at time $t = 1$. The more extreme (relative to C) of the 'core' countries, i.e. the one that has least to gain, will hold the enlargement process hostage, in order to achieve the best possible deal in the formation of the grand coalition ABC. I now proceed to formally demonstrate the workings of this signaling mechanism of *strategic delay*.

I first state the equilibrium and then go on to characterize it:

> **<u>Proposition 2</u>:** There exists a unique *perfect Bayesian Nash equilibrium* for appropriately refined out-of-equilibrium beliefs, whereby the representative of either of the extreme countries $i = A, C$ will propose $x_0^{*i} = m_i$ at time $t = 0$ *if and only if* $y_{iB} \in (\tilde{y}_{iB}, y_{ABC}]$ for some $\tilde{y}_{AB} \in [y_{ABC} - (m_B - m_A), 2y_{ABC} - (m_C - m_A)]$ and $\tilde{y}_{BC} \in [y_{ABC} - (m_C - m_B), 2y_{ABC} - (m_C - m_A)]$, in which case coalition AB (or BC respectively) will form right away and may later expand to the grand coalition ABC at time $t = 1$ with strictly positive probability. Otherwise, for $y_{iB} \in [0, \tilde{y}_{iB}]$, $i = A, C$ will propose $x_0^{*i} = \hat{x}^j(\delta)$ such that $j = A, C \neq i$ is just indifferent between accepting and

rejecting at time $t = 0$, in which case the grand coalition ABC will form *immediately* (see figure 1). If median country B gets to propose first, then all its types will pool on an equilibrium proposal $x_0^{*B} = m_B$, which will lead to the *immediate* formation of the grand coalition.

So for appropriate out-of-equilibrium beliefs, gradualism in union formation will ensue with positive probability for a non-degenerate support of high bilateral union types $y_{iB} > \tilde{y}_{iB}$. Otherwise, the extreme country finds it too costly to delay the *immediate* formation of the weakly efficient grand coalition.

Solving this sequential bargaining game backwards, let us first examine the proposal subgame in the second period given an existing coalition structure $AB(m_A)|C$. Depending on its type, once recognized the representative of country A will either move to propose his/her ideal point for high enough values of y_{AB} in order to preserve the existing *status quo* coalition structure $AB(m_A)|C$, or otherwise will propose $m_C - y_{ABC}$, which makes C's participation constraint just binding, thus leading to the formation of $ABC(m_C - y_{ABC})$ as a final outcome. Formally, A's optimal proposal strategy at $t = 1$ in this subgame is the following:

$$x^{*A}_1 = \begin{cases} m_A, & y_{AB} \in (2y_{ABC} - (m_C - m_A), y_{ABC}] \\ m_C - y_{ABC}, & y_{AB} \in [0, 2y_{ABC} - (m_C - m_A)] \end{cases}.$$

In equilibrium, B will accept any $x_1^A \in [m_A - (y_{ABC} - y_{AB}), 2m_B - m_A + (y_{ABC} - y_{AB})]$ *if and only if* C accepts too, otherwise he/she will only accept an amended *status quo* bilateral coalition AB such that $x_1^A = x_{AB} \in [m_A, 2m_B - m_A]$ conditional on C's rejection. Finally, it is a weakly dominant strategy for C to accept any $x_1^A \in [m_C - y_{ABC}, m_C + y_{ABC}]$ regardless of B's response, i.e. regardless of whether the grand coalition actually materializes or not[23].

[23] Note that a condition for the existence of the proposed equilibrium in pure strategies is that any country will accept a policy proposal if indifferent between accepting and rejecting. Moreover, in equilibrium any country will always opt for the larger coalition if indifferent between coalitions of different sizes.

Country *B*, on the other hand, will choose to move the *status quo* coalition structure if there is no grand coalition *A* will agree to, otherwise he/she will propose the grand coalition at the most favorable terms possible, subject to the approval of the other two negotiating parties. Hence, *B*'s optimal proposal strategy is as follows (the last column indicates the ensuing coalition structure):

$$x^{*B}_1 = \begin{cases} m_A, & y_{AB} \in \left(2y_{ABC} - (m_C - m_A), y_{ABC}\right] & AB(m_A)\big|C \\ m_A + y_{ABC} - y_{AB}, & y_{AB} \in \left(y_{ABC} - (m_B - m_A), 2y_{ABC} - (m_C - m_A)\right] & ABC(m_A + y_{ABC} - y_{AB}). \\ m_B, & y_{AB} \in \left[0, y_{ABC} - (m_B - m_A)\right] & ABC(m_B) \end{cases}$$

Finally, once recognized the representative of country *C*, which was excluded from the initial union at time $t = 0$, will seek to maximize its expected returns from participating in the grand coalition *ABC* based on its beliefs about its *marginal contribution* $y_{ABC} - y_{AB}$. According to the proposed semi-separating equilibrium, *C*'s updated Bayesian beliefs following $x^A_1 = m_A$ will be such that $y_{AB} \sim U\left(\tilde{y}_{AB}, y_{ABC}\right]$; therefore, its optimal proposal strategy would be to maximize its expected payoff from participating in the grand coalition *ABC* subject to the approval of country *A*, i.e.

$$x^{*C}_1 = \underset{x^C_1 \in [m_C - y_{ABC}, m_C]}{\arg\max} \left\{Prob\left(A\ accepts \mid y_{AB} \sim U\left(\tilde{y}_{AB}, y_{ABC}\right]\right) \times \left(x^C_1 - m_C + y_{ABC}\right)\right\} =$$

$$= \underset{x^C_1 \in [m_C - y_{ABC}, m_C]}{\arg\max} \left\{Prob\left(y_{AB} \le m_A - x^C_1 + y_{ABC} \mid y_{AB} \sim U\left(\tilde{y}_{AB}, y_{ABC}\right]\right) \times \left(x^C_1 - m_C + y_{ABC}\right)\right\} =$$

$$= \frac{m_A + m_C - \tilde{y}_{AB}}{2}.$$

Of course, there is a positive support of types $y_{AB} \in \left(y_{ABC} - \frac{(m_C - m_A) - \tilde{y}_{AB}}{2}, y_{ABC}\right]$ that will reject *C*'s proposal at time $t = 1$, thus giving *C* its autarchic equilibrium utility of 0 and essentially leading to the *ex post* inefficient outcome of *partial* coalition formation.

Now let the coalition structure at time $t = 1$ be $A\big|B\big|C$, namely the full autarchic *status quo*. The optimal proposal strategies in this subgame are as follows:

$$x^{*A}_{1} = \begin{cases} m_A, & y_{AB} \in \left(2y_{ABC} - (m_C - m_A), y_{ABC}\right] \quad AB(m_A)\big|C \\ m_C - y_{ABC}, & y_{AB} \in [0, 2y_{ABC} - (m_C - m_A)] \quad ABC(m_C - y_{ABC}) \end{cases},$$

$$x^{*B}_{1} = m_B, \forall y_{AB}, y_{BC} \quad ABC(m_B), \text{ and}$$

$$x^{*C}_{1} = \begin{cases} m_C, & y_{BC} \in \left(2y_{ABC} - (m_C - m_A), y_{ABC}\right] \quad A\big|BC(m_C) \\ m_A + y_{ABC}, & y_{BC} \in [0, 2y_{ABC} - (m_C - m_A)] \quad ABC(m_A + y_{ABC}) \end{cases}.$$

Finally, once the grand coalition *ABC* has formed in the first period, its common policy may only be amended at time $t = 1$ *if and only if* $x_{ABC} \notin [m_A, m_C]$, i.e. its existing common policy lies outside of the unanimity *core*.

Reasoning backwards to the bargaining game in period 0, there are only two uniform support intervals of types y_{AB} that country *A* may credibly signal to country *C* in a semi-separating equilibrium[24]: low types $y_{AB} \in [0, \tilde{y}_{AB}]$, who will want to participate in the weakly efficient union *ABC* as soon as possible, and high types $y_{AB} \in (\tilde{y}_{AB}, y_{ABC}]$, whose transitory reservation utility in a gradualist equilibrium is high enough to justify *strategic delay* with the aim of eliciting a more favorable policy proposal from *C* at $t = 1$. Hence, there are only two equilibrium common policy proposals $x_0^{*A} \in X$ at $t = 0$: high types in favor of gradualism will seek to maximize their transitory reservation utility stemming from a subcoalition *AB* by proposing their ideal point m_A, which country *B* will unconditionally accept regardless of *C*'s response, while *C* will obviously reject in favor of setting its own autarchic policy. Low compromising types, on the other hand, will immediately propose a common policy $x_0^A = \hat{x}^C(\delta) \in [m_C - y_{ABC}, m_B]$[25] (depending on δ), such that *C* would be just willing to join the grand coalition *ABC* right away, instead of waiting for a potentially more favorable deal at a later time, i.e.

[24] The number of distinct policy proposals that may be elicited in this *perfect Bayesian equilibrium* is limited by the number of players and potential subcoalitions.

[25] It is clear from the above analysis that $\hat{x}^C(\delta) \geq m_C - y_{ABC}$, otherwise for $m_A \leq \hat{x}^C(\delta) < m_C - y_{ABC}$ *C* would never want to participate in a grand union *ABC* whose ideological make-up is so far skewed to the left that it yields less than its reservation utility of 0 throughout both periods (since it would not be able to amend it at time $t = 1$).

$$\hat{x}(\delta) = \inf\left\{x_0^A \in [m_C - y_{ABC}, m_B] : V_{t=0}^C\left(Accept\ x_0^A \mid B\ accepts\right) = V_{t=0}^C\left(Reject\ x_0^A \mid B\ accepts\right)\right\},$$

where *V*'s denote first-period continuation payoffs. There exists a first-period common policy proposal $\tilde{x}^C(\delta) \in [m_C - y_{ABC}, m_B]$[26] such that for $x_0^A < \tilde{x}^C(\delta)$ there exists a positive support of low types $y_{AB} \le \tilde{y}_{AB}$ that will reject *C*'s optimal period-1 proposal x_1^{*C} given its updated beliefs, where $x*_1^C = \underset{x_1^C \in [m_C - y_{ABC}, m_C]}{\arg\max} \left\{\Pr\left(A\ accepts \setminus y_{AB} \sim U[0, \tilde{y}_{AB}]\right) \times \left(x_1^C - m_C + y_{ABC}\right)\right\} = \frac{m_C + x_0^A}{2}$. This implies that *C*'s rejection continuation value becomes quadratic.

For $x_0^A \ge \tilde{x}^C(\delta)$ all low types will accept $x*_1^C = \frac{m_C + x_0^A}{2}$, since *C*'s optimal second-period proposal would make the highest possible low type $\tilde{y}_{AB}$ just indifferent, which implies that *C*'s rejection continuation value becomes linear. Hence

$$\hat{x}^C(\delta) = \frac{6 + 2\delta}{6 + 5\delta}\left(m_C - y_{ABC}\right) + \frac{2\delta}{6 + 5\delta} m_B + \frac{\delta}{6 + 5\delta} m_C \qquad (1)$$

In fact the location of $\hat{x}^C(\delta)$ with respect to $\tilde{x}^C(\delta)$ will depend on the value of the discount factor $\delta \in [0,1]$. See figure 2 below for a graphical demonstration:

[26] Essentially $\tilde{x}^C(\delta)$ has to be such that
$u_{t=1}^A\left(Acc\, x*_1^C = \tfrac{1}{2}(m_C + \tilde{x}) \mid y_{AB} = \tilde{y}_{AB}\right) = u_{t=1}^A\left(Rej\, x*_1^C = \tfrac{1}{2}(m_C + \tilde{x}) \mid y_{AB} = \tilde{y}_{AB}\right)$.

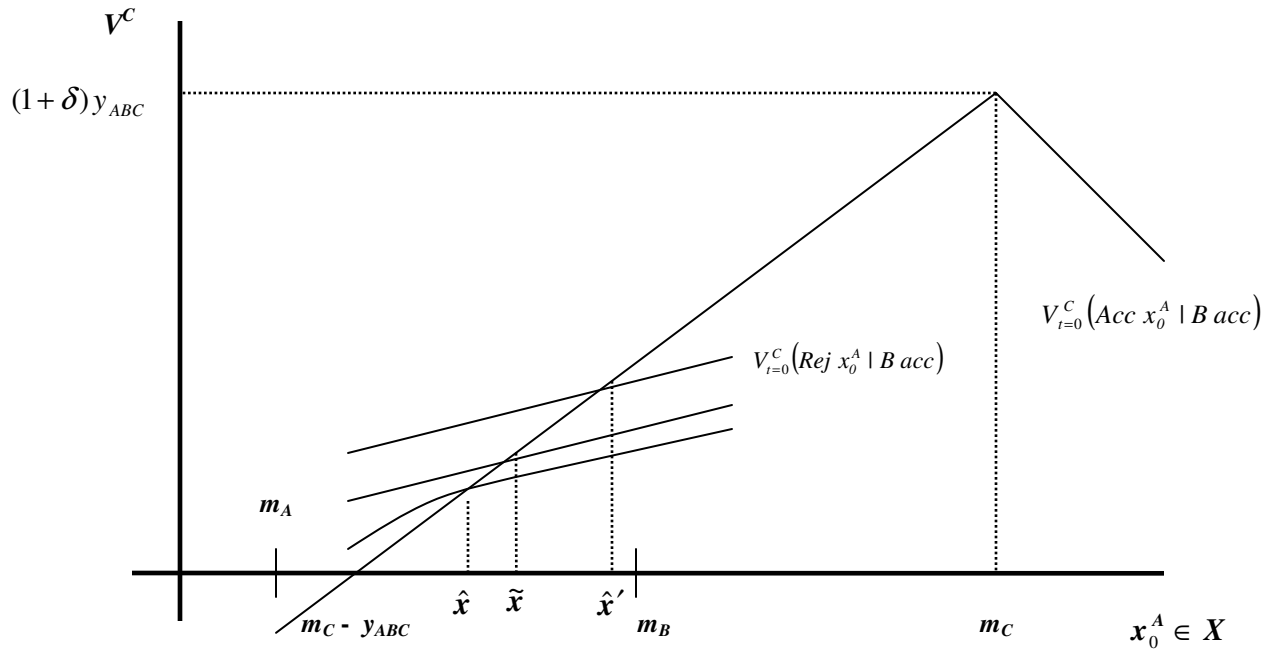

Figure 2: Graphical Determination of $\hat{x}(\delta)$

The unique threshold type $\tilde{y}_{AB}$ has to be such that the representative of country *A* would be *ex ante* indifferent between the *immediate* $\left\langle ABC(\hat{x}^C), ABC(\hat{x}^C)\right\rangle$ and the *gradual* $\left\langle AB(m_A)\middle|C, ABC(x_{ABC})\right\rangle$ equilibrium coalition formation paths. Hence, to ensure the incentive-compatible truthful revelation of types in period 0 within the context of the above semi-separating equilibrium, the cutoff type $\tilde{y}_{AB} \in \left[y_{ABC} - (m_B - m_A), 2y_{ABC} - (m_C - m_A)\right]$ for country *A* will have to satisfy the following incentive constraint:

$$V_0^A\left(x_0^A = m_A \mid y_{AB} = \tilde{y}_{AB}\right) = V_0^A\left(x_0^A = \hat{x}^C \mid y_{AB} = \tilde{y}_{AB}\right) \Leftrightarrow$$

$$\tilde{y}_{AB} + \frac{\delta}{3}\left[2y_{ABC} - (m_C - m_A) + \tilde{y}_{AB} + m_A - \frac{m_A + m_C - \tilde{y}_{AB}}{2} + y_{ABC}\right] = (1+\delta)\left[m_A - \hat{x}^C + y_{ABC}\right] \Leftrightarrow \quad (2)$$

$$\tilde{y}_{AB} = m_A + \frac{\delta}{2+\delta} m_C - \frac{2(1+\delta)}{2+\delta}\hat{x}^C + \frac{2}{2+\delta} y_{ABC}$$

In order to derive the above expression for $\tilde{y}_{AB}$, I make use of the optimal proposal and acceptance strategies in the period 1 subgames analyzed above and also of the fact that the lowest of high types $\tilde{y}_{AB}$ will always accept C's period 1 proposal $x^{*C}_1 = \frac{m_A + m_C - \tilde{y}_{AB}}{2}$ with certainty. Also note that each period 1 subgame equilibrium utility is discounted by a factor $\delta/3$ reflecting temporal discounting and equal recognition probabilities. Given the spatial location of $\hat{x}^C(\delta) \in [m_C - y_{ABC}, m_B]$ derived above, it is fairly straightforward to confirm that the cutoff type $\tilde{y}_{AB}$ indeed lies within the support interval $[y_{ABC} - (m_B - m_A), 2y_{ABC} - (m_C - m_A)]$. Using a similar approach for country *C*, one can derive the following cutoff proposer type:

$$\tilde{y}_{BC} = \frac{2}{2+\delta} y_{ABC} + \frac{2(1+\delta)}{2+\delta} \hat{x}^A - \frac{\delta}{2+\delta} m_A - m_C \tag{3}$$

$$\text{,where } \hat{x}^A(\delta) = \frac{6+2\delta}{6+5\delta}(m_A + y_{ABC}) + \frac{2\delta}{6+5\delta} m_B + \frac{\delta}{6+5\delta} m_A \leq \tilde{x}^A(\delta) \tag{4}$$

In order to complete the characterization of the semi-separating equilibrium starting with the representative of country *A* as the first-period proposer, I also need to specify the out-of-equilibrium beliefs for *C* satisfying the following refinement criterion. So let

$$\sigma^C\left(y_{AB} \mid x_0^A\right) \rightarrow \begin{cases} y_{AB} \sim U[0, \tilde{y}_{AB}], & \text{for } x_0^A \in [m_C - y_{ABC}, \hat{x}^C) \cup (\hat{x}^C, +\infty) \\ y_{AB} \sim U(\tilde{y}_{AB}, y_{ABC}] & \text{for } x_0^A \in (-\infty, m_A) \cup (m_A, m_C - y_{ABC}) \end{cases},$$

where $\sigma^C\left(y_{AB} \mid x_0^A\right)$ denotes *C*'s updated beliefs about *A* and *B*'s reservation utility. In order to support *A*'s equilibrium Bayesian proposal strategy, *C* will reason that only non-compromising, high types would ever make an initial policy proposal outside of *C*'s second-period grand coalition acceptance interval, i.e. strictly less than $m_C - y_{ABC}$, since *C* would never accept such a proposal regardless of *B*'s response[27]. On the other hand, only compromising, low types seeking

[27] Note that, despite the fact that country *B* shares the same private information as *A*, I have omitted its response to *A*'s *t* = 0 proposal from the signaling mechanism, taking its acceptance for granted. In light of its moderate ideological position on the real line *vis-à-vis* the other two actors, the representative of country *B* would always

the immediate formation of the *grand* coalition would make an offer within that interval. Given that the above line of reasoning would be common knowledge, *A*'s prescribed strategy would indeed be optimal in equilibrium. Similarly for $i = C$ as the first-period proposer:

$$\sigma^A\left(y_{BC} \mid x_0^C\right) \rightarrow \begin{cases} y_{BC} \sim U[0, \tilde{y}_{BC}], & for\ x_0^C \in \left(-\infty, \hat{x}^A\right) \cup \left(\hat{x}^A, m_A + y_{ABC}\right] \\ y_{BC} \sim U\left(\tilde{y}_{BC}, y_{ABC}\right] & for\ x_0^C \in \left(m_A + y_{ABC}, m_C\right) \cup \left(m_C, +\infty\right) \end{cases}.$$

As it turn outs, in light of my assumptions on the efficiency of the grand coalition and the ideological configuration of the three players, the gradualist equilibrium of *strategic delay* may only come about once either of the more extreme countries gets to propose first. In essence, agenda-setting power is not imposed *ex ante* as an exogenous prerogative but is rather rationalized *de facto* through the gradualist equilibrium of the model. In other words, the proposal order determines the order of entry into the union, which is crucial for the determination of its ideological character and the ensuing allocation of its overall synergistic benefits. It would be relatively straightforward for example to show that were the representative of country *B* to be recognized as a proposer in the first period, all of its types would necessarily pool on the same policy proposal by dint of its median ideological position, attracting both of its potential partners to the *immediate* formation of the grand union *ABC*. As the model has been set up, *B* would have no incentive to instigate an inefficient *gradual* coalition-formation path.

Comparative Statics and Welfare Analysis

The comparative static properties of the model refer to the effect of the discount rate δ, the grand coalition surplus y_{ABC}, and the ideological position m_C of the 'peripheral' country *C* with respect to the 'natural' coalition partners *A* and *B* on the *ex ante* probability of gradualism in coalition-formation. When would we expect the aforementioned bandwagoning phenomenon to be more

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accept a compromising grand union proposal $x_0^A = \hat{x}$. However, it would only accept the gradualist equilibrium proposal $x_0^A = m_A$ for m_C high enough and/or δ low enough. In either case, its pooling acceptance strategy does not provide an informative signal to *C*. Otherwise, *A* would have to moderate its initial, gradualist proposal to the extent that *B* is just indifferent between $\left\langle AB(x_0^A) \middle| C, ABC(x_{ABC}) \right\rangle$ and $\left\langle A \middle| B \middle| C, ABC(x_{ABC}) \right\rangle$.

prevalent in probabilistic terms? This question essentially boils down to examining how the threshold types $\tilde{y}_{iB}, i = A, C$ in the above p*erfect Bayesian Nash equilibrium* are affected by changes in the exogenous parameters. The following proposition presents the comparative static results:

> **Proposition 3:** In the above P*erfect Bayesian Nash Equilibrium* an increase in the ideological distance between the 'peripheral' country *C* and the moderate country *B* such that $m_C \in [m_B + (m_B - m_A), m_B + 2(m_B - m_A)]$ or an increase in the common discount factor $\delta \in [0,1]$ will *ceteris paribus* cause an increase in the *ex ante* probability that the grand union *ABC* will not form *immediately*, while an increase in the value y_{ABC} of the grand coalition will *ceteris paribus* lower the *ex ante* probability.

The *ex ante* probability that the *grand* union does not form *immediately* (heretofore denoted by *g*) is essentially the weighted sum (where the probabilities of recognition are the weights) of the conditional probabilities that the revealed types y_{iB} of either of the extreme countries $i = A, C$ are high enough, that is above the equilibrium threshold value of $\tilde{y}_{iB}$[28], i.e.

$$g = \frac{1}{3}\left(1 - \frac{\tilde{y}_{AB}(\cdot)}{y_{ABC}}\right) + \frac{1}{3}\left(1 - \frac{\tilde{y}_{BC}(\cdot)}{y_{ABC}}\right)$$

To examine the effect of an exogenous increase in the ideological distance of the 'peripheral country' *C* in terms of m_C keeping $m_B - m_A$ constant, let $\delta \in [0,1]$ be such that $\hat{x}^C(\delta) \geq \tilde{x}^C(\delta)$ and $\hat{x}^A(\delta) \leq \tilde{x}^A(\delta)$**,** which implies that *C*'s and *A*'s respective continuation payoffs of rejection are linear. (Results will carry through even in the quadratic case of $\hat{x}^C(\delta) < \tilde{x}^C(\delta)$ and $\hat{x}^A(\delta) > \tilde{x}^A(\delta)$.)

After combining equations (1), (2), (3), and (4) we can then take the following derivative:

[28] Of course, neither change in the exogenous parameters would affect the equilibrium outcome whenever median country *B* is the first-period proposer, since all *B* types would pool on the same universally acceptable proposal.

$$\frac{\partial g}{\partial m_C} = -\frac{1}{3y_{ABC}}\left[-\frac{12+12\delta+\delta^2}{(2+\delta)(6+5\delta)}-1\right] < 0.$$

Essentially, greater preference heterogeneity between the 'natural' partners and the 'peripheral' country will widen the equilibrium support of high types with a strategic incentive to delay the formation of the grand coalition and thus instigate a *gradual* coalition-formation path. We should hence expect a higher degree of gradualism and delay in regional cooperation among countries with historically divergent trade patterns, economic fundamentals, and institutional traditions.

All else equal, a simple calculation with respect to the discount factor $\delta \in [0,1]$ shows that

$$\frac{\partial y}{\partial \delta} = -\frac{1}{3y_{ABC}}\left[\frac{\partial \tilde{y}_{AB}}{\partial \delta}+\frac{\partial \tilde{y}_{BC}}{\partial \delta}\right] < 0,$$

$$\text{where } \frac{\partial \tilde{y}_{AB}}{\partial \delta} = \frac{2}{(2+\delta)^2}\left(m_C - y_{ABC} - \hat{x}^C(\delta)\right) - \frac{2(1+\delta)}{2+\delta}\frac{\partial \hat{x}^C}{\partial \delta} < 0,$$

$$\text{and } \frac{\partial \tilde{y}_{BC}}{\partial \delta} = \frac{2}{(2+\delta)^2}\left(\hat{x}^A(\delta) - m_A - y_{ABC`}\right) - \frac{2(1+\delta)}{2+\delta}\frac{\partial \hat{x}^A}{\partial \delta} < 0$$

These partial derivatives are negative, since we know that $\hat{x}^C(\delta) \geq m_C - y_{ABC}$ and $\hat{x}^A(\delta) \leq m_A + y_{ABC}$. In addition, partially integrating equations (1) and (3) yields $\frac{\partial \hat{x}^C}{\partial \delta} = \frac{6}{(6+5\delta)^2}\left[3y_{ABC} - 2(m_C - m_B)\right] > 0$ and $\frac{\partial \hat{x}^A}{\partial \delta} = \frac{6}{(6+5\delta)^2}\left[3y_{ABC} - 2(m_B - m_A)\right] > 0$. The latter is intuitively true since country *C* (or *A* respectively) would have to be compensated with a better first-period policy proposal for its higher continuation payoff of rejection as a result of an increase in the discount factor. Hence, an exogenous increase in the discount factor would lead us to expect gradualist outcomes in union formation with higher probability. One direct implication of this would be that bandwagoning would be more prevalent among countries with longer executive terms or even semi-dictatorial rule, since their rulers would presumably discount the future less the longer they expect to stay in office.

Finally, to perform an exercise in comparative statics with respect to y_{ABC}, I need to partially differentiate the expression for the *ex ante* probability that the *grand* union *ABC* does not form *immediately*. Following a simple set of calculations, it turns out that

$$\frac{\partial g}{\partial y_{ABC}} = \frac{1}{3}\frac{\partial}{\partial y_{ABC}}\left(1-\frac{\tilde{y}_{AB}(y_{ABC})}{y_{ABC}}\right)+\frac{1}{3}\frac{\partial}{\partial y_{ABC}}\left(1-\frac{\tilde{y}_{BC}(y_{ABC})}{y_{ABC}}\right)<0\ ^{29}.$$

The fact that the more valuable the grand union is, the lower the probability of delay in its formation is fairly intuitive, since the second-period strategic incentive of signaling one's resolve to wait is dampened by the increase in immediate coalition-formation gains; hence, the set of high extreme country types willing to exclude the third country from the grand coalition through an uncompromising first-period proposal will shrink. We should therefore observe fewer gradualist outcomes and less strategic delay in regions or periods of time where the immediate gains of cooperation appear reasonably high for all countries involved in the supranational negotiation process[30].

Finally, it would be interesting to conjecture how the bargaining outcomes of the above model would be affected by *successive enlargement negotiations*. What happens when there is an exogenous increase in the pool of eligible expansion countries? An increase in the size of an existing union would seem to have a dual effect on the negotiated 'terms of accession' *vis-à-vis* the excluded candidates-in-waiting: 1) it would enhance the collective agenda-setting power of the union, since its members would have to negotiate and consent to enlargement *en bloc* and 2) it would mitigate the degree of uncertainty with regards to each candidate country's marginal contribution to collective welfare. The model therefore implies a certain type of *status quo* bias. The more entrenched and institutionalized an existing union is, the easier it is to gauge the

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[29] $\frac{\partial}{\partial y_{ABC}}\left(1-\frac{\tilde{y}_{AB}(y_{ABC})}{y_{ABC}}\right)=\frac{1}{y_{ABC}^2}\frac{1}{(2+\delta)(6+5\delta)}\left[\left(12+16\delta+5\delta^2\right)m_A-\left(4\delta+4\delta^2\right)m_B-\left(12+12\delta+\delta^2\right)m_C\right]<0$

and $\frac{\partial}{\partial y_{ABC}}\left(1-\frac{\tilde{y}_{BC}(y_{ABC})}{y_{ABC}}\right)=\frac{1}{y_{ABC}^2}\frac{1}{(2+\delta)(6+5\delta)}\left[\left(12+12\delta+\delta^2\right)m_A+\left(4\delta+4\delta^2\right)m_B-\left(12+16\delta+5\delta^2\right)m_C\right]<0$

,which hold for any $m_C > m_B$.

[30] Drawing from the European experience, the excess of trade creation benefits over trade diversion costs generated by mutual tariff reduction among the original EEC-6 members may help explain the fact that they all decided to join at the same time at the exclusion of other less integrated economies.

potential effect of a new member on its collective synergies and policy orientation. For example, the strategic calculus and cost-benefit analysis inherent in the Southern and Eastern expansions of the European Community was much more clear-cut as compared to its first enlargement. This helps explain why the strict conditionality clauses imposed on the latest accession countries appeared as unduly harsh and unfavorable, even though these countries were much better off joining the EU than staying out (Moravcsik and Vachudova, 2003). My model may thus provide a theoretical account of the *gradual* shift in the EU enlargement process from open-ended accession negotiations (as evidenced in the earlier waves of enlargement) to the more rigorous application of the *conditionality* principle (most notable in the recent expansion from 15 to 27 and increasingly applied in ongoing accession negotiations with candidate-members)[31].

Having explained how gradualism may arise within the context of a *perfect Bayesian equilibrium*, it is now incumbent to examine the efficiency properties of this equilibrium taking *A* as the first-period proposer *without loss of generality*. From an *interim* efficiency perspective, the question arises whether there is an *immediate* grand coalition formation path $\langle ABC(x_{ABC}), ABC(x_{ABC})\rangle$ that makes everyone better off in comparison with the *gradual* equilibrium path for high y_{AB} types, i.e. $\langle AB(m_A)|C, ABC(x*_1^j))\rangle$.

<u>Proposition 4</u>: For a non-degenerate support of high y_{AB} types $(\tilde{y}_{AB}, \tilde{y}_{AB}+\varepsilon], \varepsilon > 0$, there exists an *immediate* grand coalition formation policy $x^*_{ABC} \in [m_C - y_{ABC}, m_B]$ such that $\langle ABC(x^*_{ABC}), ABC(x^*_{ABC})\rangle R_i \langle AB(m_A)|C, ABC(x*_1^j))\rangle$ for all $i, j = A, B, C$, where R_i denotes the weak preference relation and x_1^{*j} denotes the optimal second-period proposal for any representative *j* to get recognized.

Proof: *See Appendix.*

[31] Reluctance (or inability) on the part of candidate-members to pledge full adherence to the existing *acquis* points to the adoption of more flexible modes of enlargement in the future by manner of 'privileged partnership' agreements and a more inclusive European Neighborhood Policy (http://ec.europa.eu/world/enp/index_en.htm). Quoting Enlargement Commissioner Olli Rehn in his recent speech at the Finnish Institute of International Affairs (27th October, 2006): "By keeping our word and sticking firmly to the accession perspective, we can create a virtuous circle of credible commitment, rigorous conditionality and reinforced reforms."

Ex post inefficiency, on the other hand, ensues whenever *C*'s x^{*C}_1 proposal gets rejected by *A* at $t = 1$ (or conversely), namely whenever the grand union *ABC* fails to materialize and the coalition formation process gets stalled in the partial coalition stage. In light of *C*'s non-degenerate beliefs about its partners' reservation utility, there is always a positive support of high types that will reject its second-period proposal and, hence, the partial union *AB* will fail to expand despite the existence of mutually beneficial enlargement policy deals. Note that in the absence of uncertainty about one's *marginal contribution* to the grand coalition, the unique equilibrium solution to the above two-period spatial bargaining game would prescribe *immediate* (*partial* or *comprehensive*) coalition formation and as such would necessarily be efficient. In other words, the presence of asymmetric information constitutes the real source of inefficiency by giving rise to the possibility of *gradual* and/or *partial* coalition formation.

IV. Case Study: UK Accession to the EEC

The early evolution of the membership and institutional set-up of the European Economic Community provides an interesting illustration of the above mechanism of *strategic delay* in union formation. Brought to life by the Treaty of Rome (signed and ratified by the founding members, namely France, Germany, Italy, the Netherlands, Belgium, and Luxembourg in 1957), the European Economic Community was a belated offspring of the European Coal and Steel Community (the ECSC was created by the Schuman Plan and the Treaty of Paris in 1950). The initial exclusion of the UK from the EEC led to the *de facto* division of Western Europe and gave rise to the core grouping of 'the Six' (also known as 'Little Europe'). On account of its heavy reliance upon its transatlantic and Commonwealth trade links, Britain did not show any interest in participating in such a novel economic and political integration project, especially if it had to cede much of its highly valued sovereignty over sensitive domestic policy areas. In the eyes of the British political establishment, the incipient EEC was a fragile and highly uncertain political experiment that could prove utterly unsuccessful and lead to the imminent collapse of the established supranational institutions. All the more reason for British abstention from the Treaty of Rome was the strong agenda-setting influence of the French on the institutional and political

character of this new structure. Imbued by a high degree of supranationalism and bureaucratic *dirigisme* – a direct heir of the Monnet blueprint on the ECSC High Authority -, the EEC was both in character and design much more than an economic free trade association. As a concession primarily to the French, the Treaty of Rome, whose main agenda comprised the completion of the common market and subsequently the integration of agricultural markets, also allowed for the possibility of international cooperation in both the political and social spheres. As a result, the British perceived their national interests and preferences to lie elsewhere; in pursuit of an export outlet for their industrial production, they opted instead for the looser economic grouping of the European Free Trade Association (signed into existence by the Stockholm Convention in 1959)[32], whose economically diverse and geographically scattered membership also included Denmark, Norway, Sweden, Switzerland, Austria, and Portugal. The EEC, however, remained according to the Treaty of Rome open to all Western European countries, subject to certain political eligibility requirements (i.e. no dictatorships) and as long as they fully accepted the *acquis communautaire*[33].

The first few years after the inception of the EEC, also known as the 'honeymoon years' (see Ludlow, 1997, pp. 22-26), were marked by great success and dynamism in the creation of the common market and the dismantlement of intra-EEC barriers to trade, which in turn sent a clear signal of high 'mutual gains' among the founding members and strong interest in the continuation and expansion of cooperation. That signal combined with a gradual shift in its trade patterns towards the major economies of the EEC (and away from its Commonwealth partners) led to a radical change in British policy towards Europe under the Conservative Macmillan government. As a result, the UK (together with Denmark, Ireland, and Norway) applied for EEC membership in 1961.

The extensive negotiations that followed between the EEC-6 and the new candidates focused on i) the harmonization of their domestic legislation with the extensive body of EEC legislation (collectively known as the *acquis communautaire*) through derogations and transitional periods, ii) their political weight in the supranational institutions, and iii) their financial contributions to

[32] See Gstöhl (2002) for an analysis of EC-EFTA relations.
[33] It should be noted that the Treaty of Rome did not specify any particular bargaining protocol for future accession negotiations other than that any enlargement decisions had to be agreed upon by unanimity (Art. 237).

the common budget. While the Dutch were the staunchest supporters of UK accession (given their strong political and economic links with the British), four of the other EEC members were also in favor each for its own reasons (see Ludlow, 2006, Ch. 6). Only the French appeared lukewarm towards the prospect of EEC enlargement (especially in the case of Britain), albeit not opposed to it in principle. They therefore presented the British with the biggest obstacles towards membership. Lest the negotiations be brought to a successful conclusion, General de Gaulle pronounced an effective veto upon British accession in a famous January 1963 press conference[34], in an attempt to preempt a potential *Yes* or *No* decision with respect to a fully negotiated but undesirable from the French point of view accession deal.

De Gaulle's unilateral and sudden decision to end accession negotiations by pronouncing 'Britain not ready for Europe' came to the *chagrin* of the 'Five' other EEC members and initially caused some disenchantment and malaise in the everyday workings of the Community, effectively slowing down the pace of integration. Even the Germans, who under Adenauer placed high political stakes in a French-German *rapprochement*[35] but were also eager to welcome a major trading partner and militarily powerful country like Britain into the Community, were negatively surprised by de Gaulle's actions; yet, apart from some ireful statements by politicians like Schroeder and Erhard, they chose not to confront France on the issue lest they jeopardize the heretofore achieved gains from cooperation and destabilize the internal institutional bargains of the EEC. Despite strong reactions by politicians of the other member-states, not one country chose to unilaterally withdraw from the Community in light of the high economic and political stakes at hand. A similar episode took place in 1967 during the second British application for EEC accession under Wilson's Labor government, only this time the official excuse for de Gaulle's veto was the monetary instability of the sterling in light of its devaluation in 1967 (see Ludlow, 2006, Ch. 5). However, in the aftermath of the second French veto, peace, unity, and integration momentum were unlikely to return to the Community until the

[34] Here is a translated excerpt from his press conference as quoted in Ludlow, 1997, p. 207: "England is, indeed, insular and maritime, linked by her trade, her markets and her food supplies to diverse and often far-flung countries. She works primarily in industry and commerce, and hardly at all in agriculture. She has, in all her patterns of work, habits and traditions [,] which are highly distinctive and original. ¶ In short, the nature, the structure, the economic situation that characterize England, differ profoundly from the Continent. ¶ How then could England, as she lives, as she produces, as she trades, be incorporated into the Common Market as it was conceived and as it works?"

[35] As evidenced by the signing of the bilateral Elysée Treaty shortly after de Gaulle's press conference in January 1963, which remains until today a strong symbol of French-German *rapprochement* in the 60s.

enlargement controversy (also known as *la question anglaise*) had been addressed in a manner satisfactory to both applicants and member states.

Enlargement negotiations were finally reopened in the Hague Summit of 1969, were concluded in 1971, and the UK, Denmark, and Ireland officially became the first EEC expansion members in 1973 (Norway's accession was rejected by popular referendum). The French under their newly elected Gaullist president Georges Pompidou – but with the express approval of his predecessor and ideological kinsman de Gaulle – appeared much more accommodating during the enlargement process, having simultaneously achieved some much desired progress on the completion of the Community's initial agenda (*achèvement*) and the deepening of cooperation into new policy areas (*approfondissement*). The British, on the other hand, got a much worse deal than they would have in 1963, as it became apparent that the onus of adaptation to the *acquis* lay with the states wishing to join the EEC, in light of the complexity of existing internal policy bargains. In the context of my model, this bargaining outcome translates into a policy farther away from the expansion country's ideal point[36].

The French vetoes of the British bids for EEC membership in the 60s[37] provide an interesting illustration of the above model, where France would be country *A*, Germany would be country *B*, and the UK would be the 'peripheral' country *C*. I choose to restrict my attention to this triptych of actors because of their major role in the bargaining dynamics of the first enlargement. Firmly grounded on a rational choice perspective, one may interpret the above historical account through the theoretical prism of *strategic delay* in the formation of the EEC-9. Accordingly, de Gaulle wanted to make sure that 1) the customs union and its common external tariff had been completed subject to the timetable set out by the Treaty of Rome, 2) the Common Agricultural Policy and its financial regulation framework became a *fait accomplit*, and 3) the institutional make-up of the union strongly reflected French interests, before he would agree to enter into

[36] Even though the *acquis* needs to be fully accepted and implemented by all new Community members, the single policy bargaining dimension in the model is just a metaphor for the 'terms of accession' or, in other words, how flexible the expansion country's adjustment is to an existing body of legislation (e.g. through derogation clauses and transitional periods). This is why accession to an already formed and institutionalized union is not treated as a dichotomous decision to fully accept or reject the *acquis* as it is. Another way to rationalize the unidimensionality of the enlargement bargaining process is that it captures the afforded degree of an accession country's influence upon the character and institutional design of the enlarged union.

[37] See N. Piers Ludlow (1997) for a detailed analysis of the relationship between the UK and the EEC in the 60s.

membership negotiations with Britain (see Moravcsik, 1998, Ch. 3). France was apprehensive that premature British accession would derail the ongoing common market integration process, lead to the renegotiation of the CAP (through the formation of a strong British-German pro-industrial axis), and on the whole alter the character of the EEC integration project towards a looser Atlanticist free trade area[38].

The British on the other hand underestimated the political and economic stakes of existing members in the preservation of the Community as well as their willingness to adhere to the general principles of the *acquis*. When they eventually came to realize how much they had to gain or by corollary how little the French would benefit from enlargement, they softened their bargaining stance and agreed to much more onerous accession terms. This can avowedly not be a story of partisan re-orientation of the country, since 1) British accession negotiations were concluded under Conservative Prime Minister Edward Heath, who was also the Lord Privy Seal or main negotiator during the 1961-3 period, and 2) a general cross-partisan consensus came about in Britain in the mid 60s with regards to the desirability of entry into the EU. To summarize, a way to explain this dynamic through a rational-choice framework is by arguing that the French reluctance to expand the union in the 60s was simply an attempt to signal its strong contentment with the EEC-6 *status quo*. Gradualism in this vein may be construed as a strategic ploy in an uncertain environment of overlapping interdependencies with the aim of tilting future expansion negotiations in the founding members' favor. The clash between France and Britain in this instance became even more pronounced because of their structurally distinct commercial interests and their diametrically opposed preferences over the ideological orientation of the European integration project.

Although the perception of French and British national interests by de Gaulle and Macmillan respectively may also be viewed through the prism of the wider geopolitical environment at the

[38] The following quote (Ludlow, 2006, p. 138) by General de Gaulle is quite indicative on this point: "Either it will have to be recognized that their [the British] entry into the Common Market, with all the exceptions that would inevitably accompany it, with all the quantitative and qualitative changes that it would entail, and with the participation of multiple other states that would certainly be its corollary, would amount to the establishment of an entirely new entity, all but erasing that which has been built. And where, then, would this lead us other perhaps than the creation of a type of European free trade area, which would in turn lead to an Atlantic zone that would deprive our continent of any real personality."

time (as many historians are apt to do[39]), strategic political economy factors (coupled with domestic political considerations) do certainly come into play in examining the dynamics of enlargement. Even though geopolitical incentives loomed in the background in the form of 'security externalities' (Gowa, 1994), the primary strategic considerations driving the integration and enlargement process were essentially economic, especially given that attempts towards greater political integration and security cooperation had not yet come to fruition following the failure of the Fouchet Plan in the early 60s. De Gaulle's European policy was not dictated by illusions of *grandeur* or crude geopolitical considerations (Moravcsik, 2000); his perception of a 'European Europe' was above all of an economic nature and his primary concern was the promotion of shared commercial interests. It is within the above historical context that my political economy story of gradualism becomes germane.

V. Discussion and Extensions

The above theoretical framework provides an explanation for the paradox of union expansion to formerly eligible countries (UK, Scandinavian countries, Austria) or in other words piece-meal coalition formation in the absence of binding exogenous (e.g. geostrategic) constraints. I have managed to derive equilibrium delay in the formation of the grand union through the postulate of private information. Another way to view this model is that it makes the change of union policy increasingly expensive in terms of high fixed costs of bureaucratic and economic infrastructure (lock-in effect). This effectively amounts to an infant-industry type of argument of systematically shifting preferences over time that give rise to dynamically contracting bargaining policy winsets.

Tampering with the dimensionality and the information structure of these models suggests one of the ways to proceed in making these models richer, more comprehensive, and more realistic, by obviating the need for complex exogenous assumptions. Given the broad, non-issue specific nature of political unions, it seems more than plausible to assume more than one policy

[39] See for example Vaïsse, 1998; de la Serre, 1992.

dimensions in the negotiation process, thus giving rise to opportunities for issue-trading, issue linkages, as well as *enhanced cooperation* in the form of policy-specific subunions. Adding a second policy dimension or public good opens up a range of possibilities with regards to the equilibrium relationship between union size and scope and the optimal rules of union formation. This extension to the $N = 3$ union formation model allowing for a two-dimensional policy space should accordingly examine whether the separability of the policy dimensions has any significant welfare implications. An efficiency comparison of the bargaining equilibria of various schemes of union formation, such as federal package deals, enhanced cooperation, and open partnerships[40] could be potentially quite enlightening about the future of the European project. Alesina et al. (2001, 2005) use a public goods approach to predict a bias towards excessive centralization and small union size owing to a time-inconsistency problem. However, the historical record of European integration particularly in the 90s has shown that union expansion may be concomitant with deepening under the appropriate rules. In this extension to the model with multiple policy jurisdictions or public goods, it seems appropriate to examine how the coalition formation protocol affects the equilibrium relationship between size and scope. Moreover, a multidimensional union formation model with policy externalities would be able to highlight the various incentives of countries to free-ride or otherwise bandwagon upon international initiatives and regimes.

One related avenue for future research would be to explore a dynamic model of enlargement and union deepening, whereby piece-meal integration helps current and prospective members refine and signal their beliefs about the common uncertain benefits of integration through a number of random sample draws proportional to the degree of integration. Subunions (or *enhanced cooperation agreements*) could serve as policy laboratories experimenting on the actual effects of policy coordination in particular areas subject to highly variable exogenous shocks. Moreover, it would be interesting to model the supranational bargaining process as a continuous-time *war of*

[40] Models of *variable geometry*, such as the *concentric circles* approach proposed by Karl Lamers and the *eccentric circles* approach proposed by Edouard Balladur, essentially distinguish between a 'core' and a 'periphery' of countries integrating over overlapping and non-overlapping jurisdictions and subunions. In addition, *generalized subsidiarity* and *open partnerships* refer to a model of flexible integration put forward by Dewatripont et al. (1995) that advocates the need for commitment to a common base of integration, allowing at the same time for discretion on the part of member-states to experiment and engage in optional new forms of cooperation in other policy areas.

attrition game with uncertainty (see for example Admati and Perry, 1987; Cramton, 1992), in order to derive *strategic delay* through a perfect separation of types.

Finally, in light of the economic and political interdependence of otherwise sovereign states, it would also be instructive for our purposes to allow for policy externalities or *spillovers* (positive or negative), whereby the welfare of the autarchic country is affected by the common policy adopted by the bilateral union, within these types of bargaining settings. It should be expected that the presence of externalities would affect equilibrium payoff allocations and coalition formation paths[41].

To conclude, I will briefly evaluate the modeling techniques used in explaining the process of regional integration. The spatial bargaining model is based on the interpretation of an international union (or regime) as a commitment device to centralize policy across countries in an efficient manner. This approach is better suited to analyze the bargaining aspect of union formation by emphasizing the policy trade-offs and bargains inherent in a positive-sum game among countries seeking to capture the surplus gains of supranational policy coordination. This non-cooperative game-theoretic approach is also amenable to illustrative extensive-form representations of the process of international cooperation. It may thus be construed as an attempt to formalize some of the tenets of the *liberal intergovernmentalist* theory (Moravcsik, 1998) of European integration. Spatial analysis is flexible enough to be adequately applied to the explanation of both the 'grand bargains' of EU treaty negotiations as well as international cooperation in distinct policy areas that do not fall within the realm of 'high politics'.

However, parsimonious and versatile as they may be, spatial bargaining models can become quite laborious and inconclusive in more than one dimensions. In the absence of a restrictive notion of equilibrium stability, it appears excessively complex to extend the results to higher dimensions and thus to draw conclusions about the endogenous choice of policy areas of centralization (namely the scope of the union). Furthermore, the complexity of these models grows exponentially as one increases the number of countries; hence, they are not amenable to

[41] Etro (2001) has analyzed the model with three countries and spillovers of international policy coordination and has found that if union policy is characterized by strategic complementarities, then the grand union is much more likely to form than in the case of strategic substitutabilities.

N-country generalizations. Finally, there are reasons to be critical of the arbitrariness of the exogenous assumptions on the sequential bargaining structure and to be doubtful of the robustness of the results with respect to those assumptions[42], a common critique of non-cooperative bargaining models. Yet, this paper represents a first step towards formalizing and conceptualizing the big-picture dynamics and strategic incentives inherent in the process of political integration and union formation.

Appendix

Proposition 1: For any $\delta \in [0,1]$ and $y_c \geq 0, c \in 2^N \setminus \varnothing$ subject to assumptions (1) and (2), there can be no *gradual* coalition-formation path in the *subgame-perfect Nash equilibrium* of the baseline game with complete information.

Proof. *Gradual* coalition-formation in this model occurs whenever a player joins an existing coalition in the second period of bargaining or any new coalition forms after a first-period bargaining impasse. To show that gradualism may not arise in the subgame-perfect Nash equilibrium of the complete-information workhorse model, I examine each possible coalition-formation-path and then use proof by contradiction:

i) Let $\pi_{t=0} = A|B|C$, i.e. no coalition has formed after the first round of bargaining for some $\delta \in [0,1]$ and some first-period proposer $\imath_{t=0} \in \{A, B, C\}$. This would imply that the values of $(y_{AB}, y_{BC}, y_{ABC})$ are so low that the Pareto sets for all possible coalition are empty, otherwise it would be a dominated strategy for a proposer not to make a proposal within the Pareto ser of his preferred coalition. However, we know by assumption that there always a non-degenerate set of policies such that the grand coalition *ABC* is always Pareto superior to the autarchic state; therefore, autarchy may not persist as a first-period bargaining outcome within the subgame-perfect Nash equilibrium of the game.

[42] See Sutton (1986) for an overview of these problems.

ii) Now let $\pi_{t=0} = AB(x_{AB})|C$, i.e. partial union *AB* has formed after round one. That can only be the outcome of a first-period proposal by *A*, since *B*'s subgame-perfect equilibrium first-period proposal of m_B would have been accepted by both *A* and *C*. We need to show that $ABC(x_{ABC})$ cannot be the outcome of the second round of bargaining in a subgame-perfect NE for any x_{AB}, x_{ABC} and δ. Assume *by contradiction* that $\pi_{t=1} = ABC(x_{ABC})$. Subgame perfection would imply that $x_{ABC} \geq m_C - y_{ABC}$ (*C*'s participation constraint) and $x_{ABC} \leq y_{ABC} - y_{AB} + x_{AB}$ (*A*'s participation constraint). For the grand coalition unanimity acceptance set to be non-empty, we need that $x_{AB} \geq m_C + y_{AB} - 2y_{ABC}$ (*). This effectively rules out any $x_{AB} < m_C - 2y_{ABC}$ as possible equilibrium first-period proposals. We proceed to proving the contradiction by showing that profitable deviations exist for any other possible x_{AB}:

a. Let $x_{AB} \in [m_C - 2y_{ABC}, m_A)$: this is a Pareto-dominated set of proposal for both *A* and *B*, since both would be unambiguously better off with a proposed policy of $x_{AB} = m_A$, since not only it is closer to their ideal positions, but it also enhances their bargaining leverage *vis-à-vis* *C* by shrinking the *ABC* Pareto set.

b. Let $x_{AB} = m_A$: from (*) this implies that $y_{AB} \leq 2y_{ABC} - (m_C - m_A)$. For low types $y_{AB} \in [0, y_{ABC} - (m_B - m_A))$, the contradiction follows by showing that $u_0^A\left(\left\langle ABC(x^*_{ABC}), ABC(x^*_{ABC})\right\rangle\right) \geq Eu_0^A\left(\left\langle AB(m_A)|C, ABC(x_1^{*j}))\right\rangle\right), \forall \delta, y_{ABC}$, where the expectation is taken over the identity of the proposer *j* at *t* = 1 (hence x_1^{*j} is *ex ante* unknown in equilibrium) and $x^*_{ABC} = \inf\left\{x_0^A; \alpha_0^j = 1, j = B, C\right\}$. A simple algebraic calculation shows that this holds for any y_{AB} within the above interval. Hence, *A* would have an incentive to deviate to a better proposal given the subgame-perfect acceptance strategies of *B* and *C*. Similarly for intermediate types $y_{AB} \in [y_{ABC} - (m_B - m_A), 2y_{ABC} - (m_C - m_A)]$ there always exists a globally acceptable, Pareto efficient grand coalition first-period proposal x^*_{ABC} that makes *A* weakly better off compared to the *gradual* coalition-formation subgame. Going through all the possible subgames and subcases for $y_{AB} \in [y_{ABC} - (m_B - m_A), 2y_{ABC} - (m_C - m_A)]$ and $\delta \in [0,1]$, it turns out that for

$x^*_{ABC} = m_A + y_{ABC} - y_{AB} - \varepsilon, \varepsilon \geq 0$ there always exists a non-empty permissible interval for values of $\varepsilon \geq 0$ such that the following conditions are satisfied:

(*i*) $u_0^A(x_0^A = x^*_{ABC}) \geq Eu_0^A(x_0^A = m_A)$ (*A*'s optimization problem)

(*ii*) $u_0^C\left[\alpha_C\left(x_0^A = x^*_{ABC}\right) = 1 \mid \alpha_B = 1\right] \geq Eu_0^C\left[\alpha_C\left(x_0^A = x^*_{ABC}\right) = 0 \mid \alpha_B = 1\right]$ (*C*'s incentive constraint)

(*iii*) $x^*_{ABC} = m_A + y_{ABC} - y_{AB} - \varepsilon \geq m_C - y_{ABC}$ (*C*'s participation constraint)

c. Finally, for $x_{AB} > m_A$ it would be enough to show that, given that only *B* will accept, *A* would profit from deviating to a proposal $x_0^A = \max\{m_A, \tilde{x}_0^A\}$, where $\tilde{x}_0^A$ is the policy that makes *B* just indifferent between accepting and rejecting at *t* = 0 (given that *C* rejects), since it would bring both immediate policy gains and enhanced second-period bargaining leverage (because of a restricted grand coalition Pareto set). Moreover, for any $x_0^A \geq x^*_{ABC} \geq m_C - y_{ABC}$ subgame perfection and sequential rationality imply that *C* should also have accepted *A*'s first-period proposal.

iii) Now let $\pi_{t=0} = A|BC(x_{BC})$, i.e. partial union *BC* has formed after round one (following a proposal by country *C*). Using a similar reasoning as above, assuming that $\pi_{t=1} = ABC(x_{ABC})$ leads to a contradiction, since that coalition-formation path cannot be part of a subgame-perfect Nash equilibrium.

iv) Finally the case of $\pi_{t=0} = AC(x_{AC})|B$ may never arise in equilibrium since either *A*'s or *C*'s unconditional acceptance of each other's policy proposals implies that the median country *B* is always better off accepting too. *QED*

Proposition 4: For a non-degenerate support of high y_{AB} types $(\tilde{y}_{AB}, \tilde{y}_{AB}+\varepsilon], \varepsilon > 0$, there exists an immediate *grand* coalition formation policy $x^*_{ABC} \in [m_C - y_{ABC}, m_B]$ such that $\langle ABC(x^*_{ABC}), ABC(x^*_{ABC})\rangle R_i \langle AB(m_A)|C, ABC(x*^j_1))\rangle$ for all $i, j = A, B, C$, where R_i denotes the weak preference relation and x^{*j}_1 denotes the optimal second-period proposal for any representative *j* to get recognized.

Proof: Let $y_{AB} \in (\tilde{y}_{AB}, \tilde{y}_{AB}+\varepsilon], \varepsilon > 0$. We first need to find the set of *grand* union policy proposals that make *A* weakly better off in an *immediate* coalition formation path rather than a *gradual* one, i.e. find $x_{ABC} \geq m_A$ such that

$$u^A_0\left(\langle ABC(x_{ABC}), ABC(x_{ABC})\rangle\right) \geq Eu^A_0\left(\langle AB(m_A)|C, ABC(x^{*j}_1))\rangle\right),\ j = A, B, C.$$

So we need the following inequality to hold:

$$(1+\delta)(m_A - x_{ABC} + y_{ABC}) \geq y_{AB} + \frac{\delta}{3}\left[2y_{ABC} - (m_C - m_A) + y_{AB} + m_A - \frac{m_A + m_C - \tilde{y}_{AB}}{2} + y_{ABC}\right]$$

$$\Leftrightarrow m_A \leq x_{ABC} \leq \frac{1}{1+\delta}\left(\frac{2+\delta}{2}m_A + \frac{\delta}{2}m_C + y_{ABC} - \frac{3+\delta}{3}y_{AB} - \frac{\delta}{6}\tilde{y}_{AB}\right) = \bar{x}_{ABC}$$

Given that $\tilde{y}_{AB} \leq 2y_{ABC} - (m_C - m_A)$, it turns out that $\bar{x}_{ABC} \geq m_C - y_{ABC}$, which implies that there may be such an immediate *grand* coalition proposal that could make *C* weakly better off. Since *B*, the moderate country, will trivially have a strict preference to participate in an immediate *grand* union with a common policy much closer to its own ideal point, all we need to show is that *C* is weakly better off under such an *immediate* agreement compared to the *gradual* equilibrium whereby it believes *A* and *B* to be of a high type, i.e.

$$u^C_0\left(\langle ABC(\bar{x}_{ABC}), ABC(\bar{x}_{ABC}\rangle\right) \geq Eu^C_0\left(\langle AB(m_A)|C, ABC(x^{*j}_1)\rangle\right)$$

$$\Leftrightarrow (1+\delta)(\bar{x}_{ABC} - m_C + y_{ABC}) \geq \frac{\delta}{3}\left[(m_A + y_{ABC} - y_{AB}) - m_C + y_{ABC} + \frac{m_A + m_C - \tilde{y}_{AB}}{2} - m_C + y_{ABC}\right]$$

$$\Leftrightarrow y_{AB} \leq 2y_{ABC} - (m_C - m_A)$$

Since we know from before that $\tilde{y}_{AB} \leq 2y_{ABC} - (m_C - m_A)$, then the latter expression has to be true for some $y_{AB} \in (\tilde{y}_{AB}, \tilde{y}_{AB} + \varepsilon], \varepsilon > 0$ and will hold as a strict inequality for any interior cutoff type $\tilde{y}_{AB} < 2y_{ABC} - (m_C - m_A)$. We have thus shown that an immediate grand coalition formation path under $\bar{x}_{ABC}$ will be a Pareto superior solution, hence the *interim* inefficiency of the gradualist equilibrium. *QED*

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