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International Integration and Social Identity*

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Abstract

This paper contributes to the literature incorporating social identity into international economics. We develop a theoretical framework for studying the interplay between international integration and identity politics, taking into account that both policies and identities are endogenous. We find that, in general, a union is more fragile when peripheral member countries have higher status than the politically dominant “Core” countries, as this leads in equilibrium to stronger national identification in the periphery and a lower willingness to compromise. Low-status countries are less likely to secede, even when between-country differences in optimal policies are large, and although equilibrium union policies impose significant economic hardship. Contrary to the anticipation of many union advocates, mutual solidarity is unlikely to emerge as a result of integration alone.

JEL CODES: F02, F55, E71, Z18.

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1 Introduction

The interaction between economic policy and identity politics is increasingly seen as central for understanding international economics, from trade policy to currency areas to the European Union (e.g., Grossman and Helpman 2021; Rodrik 2021). Nationalist sentiment, for example, is often seen as a threat to the European project and is regularly associated with the ascent of Eurosceptic political parties (Hobolt and de Vries, 2016; Noury and Roland, 2020). This raises important questions about economic and political integration. Does a common identity strengthen a union? Which countries are more likely to join a union and which are prone to secede when identity and economic considerations interact? Have advocates of the European project been overly optimistic in assuming that integration promotes mutual solidarity, i.e. individuals from one country caring about the wellbeing of individuals from other member countries? We propose a simple analytical framework to help think about these questions, taking into account what we know about the workings of social identity, and focusing on an equilibrium in which both integration and identities are endogenous. We have four main results:

1. Mutual solidarity across countries is unlikely to emerge as a consequence of them joining an economic union. In fact, unification can push the politically more powerful countries in the union (“the Core”) towards a more exclusionary nationalist stance.
2. While economic and political unions can be economically beneficial under some conditions, social identity introduces the possibility that low-status periphery countries get caught in an “identity poverty trap”. For example, European identification can drive some peripheral European countries to economic concessions in order to stay part of the union. These concessions further diminish their national standing relative to Europe as a whole, providing further incentives to seek to identify as European, even as this undermines their economy.
3. A union with a periphery country that nonetheless enjoys higher status than the Core (e.g. due to its history or international prestige) is inherently fragile. National identification is harder to overcome in high-status countries, which in turn weakens their willingness to make policy concessions in order to be part of a union. Disintegration can thus take place despite low fundamental differences in optimal policies across countries.
4. A reduction in the salience of inter-country differences allows a union to survive at higher levels of such differences, and tends to expand the domain where both unification and a common identity can be sustained.

How should we model identity? Research in both economics and psychology documents the ways in which individuals associate themselves with groups, and how this affects their behavior (for a review see Shayo, 2020). The evidence indicates two broad patterns: (a) caring about the success and wellbeing of one’s group, often manifested in costly preferential treatment of this group; and (b) seeking to be similar to other individuals in one’s group. Importantly, such group-related behavior is endogenous: people are more likely to identify with those groups that are more similar to them and that can make them proud and confer higher status. Hence, identities not only shape but also respond to economic circumstances. Formally, people gain utility not only from their personal payoffs but also from the success (or “status”) of the group with which they associate themselves. That is, if my group does well, my utility increases. However, individuals cannot easily identify with *any* group to which they belong, and incur a cognitive cost for identifying with a group that is actually quite different from them. Thus, to maximize utility, individuals can engage in two different strategies. First, they can seek to increase the status of their group and to reduce their perceived distance from it. Second, they can change their identities. A German citizen, for example, may identify as a German but may, to some extent, also identify as a European. If the status of Europe is high relative to that of Germany alone (perhaps due to its history), identifying with Europe can raise that citizen’s utility.

We consider a simple bargaining game between two countries: a Core and a Periphery. Each country has its own optimal policy, reflecting its economic fundamentals, culture, political ideology, etc. Integration entails economic gains to both countries (e.g. from increased trade), but means they need to share a common policy. The politically dominant Core sets a common policy for the union (e.g. monetary, trade, or immigration policy). The Periphery then chooses whether to join the union or leave and set its own policy. Replicating classic results, unions in this model are less likely to be sustained in equilibrium when cross-country differences in optimal policies are large. The question is: what policies does the union adopt, and at what point does the union disintegrate? We say that a union is more *accommodating* if its policies better suit the needs of the politically weaker Periphery (at some economic cost to the Core). We say a union is more *robust* if it is sustained under larger differences in optimal policies between members.

While this model is relevant to many settings in which minority regions may seek secession (Canada, Spain, UK), for concreteness we use the European Union and the eurozone as the running examples. Thus, one can think of France and Germany as the Core, politically dominant countries within the union, while countries like Denmark, Spain, the UK and Greece are Periphery countries that choose whether or not to be part of the union. Members of each country may identify nationally (i.e. with their country) or they may

identify with Europe as a whole. Accordingly, there are four possible identity profiles: (C, P) , (C, E) , (E, P) and (E, E) , where the first entry in each pair denotes the identity of members of the Core and the second denotes the identity of members of the Periphery. For example, (C, E) denotes a situation in which members of the Core identify nationally and Periphery members identify with Europe. It should be stressed that identifying with Europe does not imply disregarding your country and caring only about Europe: it simply means placing some weight on the success of, and similarity to, Europe whereas an exclusive national identity does not.

To begin, consider the subgame perfect Nash equilibrium (SPNE) under a given profile of social identities. Consistent with common views and survey data, a union is more accommodating when citizens of the Core identify with Europe. This is partly because the Core then effectively internalizes some of the goals of the Periphery. However, a union is *less* accommodating when the Periphery identifies with Europe. Leaving the union makes it psychologically costly for the Periphery to continue identifying as European. Hence, as long as the periphery identifies as European, the Core can preserve the union with smaller concessions. Notably, the profile (E, E) in which everyone identifies as European is not always the most robust. For this to happen, the cost of identifying as European without being in the union has to be high. Otherwise, the (C, E) profile can be more robust.

Taking social identities as given could, however, be misleading. It is by now well-established that ethnic, national or other social identities are changeable, and respond to the social environment in systematic ways (Chandra 2012; Shayo 2020). This suggests that—consciously or unconsciously—individuals choose to identify in a meaningful way with some of the social categories to which they belong, but not with others; and that economic and political processes can affect this choice. Thus, while in principle we can derive the policies under any profile of social identities, it is unclear whether all these identity profiles can in fact be sustained. Recall that people are unlikely to identify with groups that are very different from them or have very low status, when a more similar or higher status alternative is available. But perceived differences can be endogenous to whether the countries are part of a common union or not; and the status of both the union and of the potential member states is also endogenous to integration decisions and to the policies that are in place. We therefore focus on the “Social Identity Equilibrium” (SIE), where both identities and policies are mutually consistent.

Consider the simplest case, in which the countries are ex-ante symmetric in status and similarity to the group does not affect identification decisions. In this case, in almost any equilibrium in which the union is sustained, the Core identifies nationally while the periphery identifies with the union (the identity profile is (C, E)). Given any other identity profile, and

sufficiently small differences in optimal policies such that the union can be sustained in SPNE, equilibrium policies lead to an (ex-post) status advantage for the politically dominant Core. This means that non- (C, E) profiles would not in fact be sustainable. From this perspective, the expectation that unification *by itself* would lead to the emergence of a common identity seems misplaced: the very success of a union works to enhance national identification in the union's dominant Core countries. This last intuition extends to the more general case. National identification is of course shaped by many forces, but it is a mistake to expect unification per se to act as an automatic antidote. This is our first main finding.

A second important result is that under fairly general conditions, when the Periphery has lower status than the Core, unification can be sustained in SIE despite large differences in optimal policies across countries. The basic reason is that once agents are allowed to choose their identity, members of a relatively low-status Periphery will seek to identify with the union. To the extent that it is psychologically easier to identify yourself as European if you are a member of the EU—or if your currency is the euro—then this increases the Periphery's willingness to make economic concessions in order to be part of the union. Hence the union can be sustained under larger differences. This happens despite—and to some degree because of—the union's unaccommodating policies vis-a-vis the Periphery, which accentuate the Periphery's inferiority.

Our third point is that when the Periphery has equal or higher status than the Core, disintegration can occur despite small differences in optimal policies. Such equilibria are characterized by national identification in the Periphery (though not necessarily in the Core), which reinforces the Periphery's reluctance to make policy concessions.

Fourth, consider policies that alter the salience of inter-regional differences. We find that when people care less about such differences, the union can be sustained under higher differences in optimal policies. Moreover, this (weakly) increases the set of circumstances in which both unification and an all-European (E, E) identity profile can be sustained in equilibrium.

The paper relates to several strands of literature. The first studies monetary and fiscal unions. In particular, the theory of Optimal Currency Areas starting with Mundell (1961) highlights the difficulty in handling asymmetric shocks with a common monetary policy. The main benefits from joining a currency union are trade increases due to the elimination of currency conversion costs and greater predictability of prices (Mundell, 1961; Rose and Honohan, 2001), and the ability to overcome inflation by joining a monetary union with a credible anchor country (e.g. Barro and Gordon 1983; Alesina et al. 2002; Aguiar et al. 2015; Chari et al. 2020). The theory suggests that countries are more likely to join a currency union when they have high price and output comovements with other countries in the union,

when they trade more with them, and when they cannot commit to low inflation (Alesina et al. 2002). We propose a simple way to incorporate identity politics into this understanding of monetary unions, thereby improving the political realism of these models.

Second, a growing literature, pioneered by Akerlof and Kranton (2000), examines the implications of identity in economics (see Chen and Li 2009; Benjamin et al. 2010; Bénabou and Tirole 2011; Chen and Chen 2011; Shayo and Zussman 2011; Lindqvist and Östling 2013; Bertrand et al. 2015; Cassan 2015; Holm 2016; Kranton and Sanders 2017; Besley and Persson 2019; Hett et al. 2020). Guriev and Papaioannou (2021) provide a review of the closely related—and overwhelmingly empirical—literature on populism. The closest to our paper are Shayo (2009); Gennaioli and Tabellini (2019); and Grossman and Helpman (2021), who study how social identity shapes policies like redistribution and tariffs. These papers focus on how the identity profile *within* a country interacts with that country’s policy. We build on these contributions to study how identity can shape interactions *between* countries.

Third, the literature on the political economy of international integration highlights the tradeoff between the costs of heterogeneity and the gains to unification due, e.g., to market size, economies of scale, cross-regional externalities, or better monitoring of politicians (Alesina and Spolaore 1997; Bolton and Roland 1997; Casella 2001; Lockwood 2002; Harstad 2007; Desmet et al. 2011; Boffa et al. 2015). We develop a model that features such a tradeoff and examine both how the introduction of social identity modifies the political equilibrium and how the political equilibrium affects identification patterns.

Finally, a substantial literature studies public attitudes towards international integration. Many explanations focus on economic factors, but non-economic factors clearly play an important role (Mayda and Rodrik, 2005). In the European case, the general conclusion of this literature is that identity-related concerns are at least as important as economic factors in explaining support for European integration (Hooghe and Marks 2004; see Hobolt and de Vries 2016 for a review). Data we collected around the Brexit referendum also show that, at least at the individual level, voters’ identity (measured before the referendum) strongly predicts their voting decisions, controlling for a host of socio-demographic and geographic characteristics (Appendix C.1). However, less is known about how such attitudes affect policies, and, especially, about the properties of the equilibrium. Does a common identity produce a more stable union? And what identity patterns can we plausibly expect to emerge?

We proceed as follows. Section 2 presents the model. The following two sections develop the building blocks for our solution concept: the determination of integration policy given social identities (Section 3), and the choice of identity (Section 4). Section 5 analyzes the equilibrium in which both policies and identity are endogenous. We conclude in Section 6.

2 Model

There are two countries: a “Core” of an economic union, denoted C , and a “Periphery” country P that considers joining or exiting the union. Each country has its own natural endowments, economic and legal institutions, culture, etc. Differences across countries translate to different ideal policies. As in Alesina and Spolaore (1997), unification entails economic gains to both countries (e.g. from increased trade), but means they need to share a common policy. We use the Eurozone and the European Union as the running examples of a union, but the model could also apply to other unions such as the United Kingdom or Spain. Denote by E the super-ordinate category which includes both the Core and the Periphery (e.g. Europe as a whole). Let $\lambda \in (0.5, 1)$ be the proportion of the population of E who are members of the Core.¹

Members of the Core and the Periphery countries have preferences over a compound policy instrument, which we denote r_i for $i \in \{C, P\}$. This may include macroeconomic policy instruments such as the interest rate set by the monetary authority, the exchange rate regime, or various fiscal tools. It could also represent other policies that are jointly set in case of unification, such as regulation and immigration policy. Let r_i^* be country i 's ideal policy, from a standard economic perspective. That is, it is the policy the country's citizens would most prefer in the absence of any identity concerns. Thus, differences in r_i^* capture fundamental differences in economic conditions and preferences across countries. In Appendix C.2 we compute some measures of these differences. Without loss of generality, assume that $r_C^* \geq r_P^*$. For example, Germany wants higher interest rates than Greece or more regulation than the UK.

The Core moves first and sets the policy instrument at some level $r_C = \hat{r}$. The Periphery then either accepts or rejects this policy.² If it accepts then $r_P = r_C = \hat{r}$. If it rejects then it is free to set its own policy. The assumption that the Core is politically more powerful is important: it is meant to capture the inherent asymmetry present in most unions. This is essential for understanding some of the fundamental difficulties in the vision of a union that automatically engenders solidarity among its members. In Section 3.1 we also discuss the symmetric case where union policy maximizes *joint* welfare.

Unification entails a per-capita benefit to both countries (or equivalently, breakup entails a cost) of size Δ . This can come from, e.g., gains from trade, economies of scale in

¹We take the social categories themselves (“Europe”, the various nations) as given. We do not model the historical-cultural process by which they evolved. Naturally, over the long run these categories may change. Indeed, our model suggests one avenue for studying this evolution: categories that do not engender identification in equilibrium may over time become meaningless and die out.

²Equivalently, all citizens of the union vote over the common policy, and the periphery subsequently holds its own referendum on whether to stay in the union. Since $\lambda > 0.5$ this yields the same results.

the production of public goods, or reducing the risk of conflict. The material payoff of a representative agent in country i is:

$$V_i(r_i, breakup) = -(r_i - r_i^*)^2 - \Delta * breakup \quad (1)$$

where $breakup$ is an indicator variable taking the value 1 if the two countries do not form a union and zero otherwise. Abusing notation slightly, we use i to denote both a country and a representative agent of that country.

Notice that we assume policy is “sticky”: once the Core sets the policy, it remains in place even if the Periphery rejects it. This makes sense if union policies are complex and cannot be changed overnight. E.g., if the UK leaves the EU, it will probably take a long time for the EU to revise all features of the Single Market as well as other regulations that were put in place to accommodate British interests. In Appendix B we provide an analysis of the case where the Core is fully flexible in setting its policy once the Periphery leaves the union. Conclusions are qualitatively similar.

Social identity. Think of an individual that belongs to several social groups. An individual i that *identifies* with group j cares about the status of group j and takes pride in its success. One consequence is that i 's preferences are to some degree aligned with group j 's. However, the individual cannot easily identify with a group that is very different from her, and pays a cognitive cost that increases with her perceived distance from that group. Another way to think about it is that an individual that identifies with group j , seeks to be similar to group j . This type of behavior is consistent with extensive evidence from a wide range of economic domains (see Shayo (2020) for a review). Let S_j be the *status* of group j and let d_{ij} be the *perceived distance* between individual i and group j . We then define social identification as follows.

Definition 1. Individual i is said to *identify* with group j if her utility over outcomes is given by:

$$U_{ij}(r_C, r_P, breakup) = V_i + \gamma S_j - \beta d_{ij}^2 \quad (2)$$

where $\gamma > 0, \beta \geq 0$.

Note that while identity is sometimes studied using survey responses, this formulation is more fundamental. Identity is not just something people say: it is part of their preferences and can be revealed by their choices (Atkin et al., 2021). Like tastes, identity resides in the mind of the individual: people do not need permission from anybody to identify with a given group, nor is their identification conditional on the identity choices of others. I may identify as an American, and take pride in America's achievements, even if many of the other Americans do not identify as such. This is not to say that other people's identification

decisions do not matter for my identity choices. To the extent that such decisions affect behavior and policy, they can affect both group status and perceived distances.

The status of a group, S_j , is affected by the material payoffs of its members, but we also allow for other, exogenous factors. Thus, the status of country j is:

$$S_j = \sigma_j + V_j, \text{ for } j \in \{C, P\} \quad (3)$$

where σ_j captures all exogenous factors that affect the status of country j such as its history, cultural influence, international prestige, etc. Such factors may well be the predominant determinants of a country’s status. For many years, both German and British status have probably been more influenced by their history than by their contemporary economic performance. To illustrate how this concept can be taken to the data, Appendix C.2 proposes some empirical measures of the status of different European countries in 1999 (when the euro was launched). The status of Europe is given by:

$$S_E = \sigma_E + \lambda V_C + (1 - \lambda)V_P \quad (4)$$

where σ_E captures exogenous sources of European status and lies between σ_C and σ_P . We shall sometimes refer to σ_j as the *ex-ante* status of group j and to S_j as its *ex-post* status.

The perceived distance d_{ij} between individual i and group j is a function of the differences between i and the average—or “prototypical”—member of group j on various dimensions. We also allow perceived distance from Europe to vary depending on whether or not one’s country is a member of the European union. Specifically:

$$d_{ij}^2 = (r_i^* - \bar{r}_j^*)^2 + w(q_i - \bar{q}_j)^2 + k \cdot \mathbf{1}[j = E \ \& \ \text{breakup} = 1] \text{ for } i \in \{C, P\}, j \in \{i, E\} \quad (5)$$

where $w, k \geq 0$ are parameters capturing the relative salience of the different dimensions; \bar{r}_j^* is the average ideal policy of members in group j ; $q_i = \mathbf{1}[i \in C]$ is an indicator for being a member of the Core; and \bar{q}_j is the average across members of j (i.e. the proportion of group j who are members of the Core).³ The first term in equation (5) captures fundamental economic differences between i and j . The second term captures differences between the countries that are *not* reflected in the ideal policies (e.g. cultural or linguistic differences). The third term captures the potential additional cognitive cost of $k \geq 0$ for identifying as European despite not being part of the European union.

2.1 Remarks and caveats

Before proceeding to the analysis, several remarks are in order.

1. Choosing your identity. Individuals clearly do not identify with *all* the groups that they belong to. Furthermore, they tend to switch the groups they identify with in response

³Specifically, $\bar{r}_E^* = \lambda r_C^* + (1 - \lambda)r_P^*$. $\bar{q}_E = \lambda$. For $i \in \{C, P\}$, $\bar{r}_i^* = r_i^*$ and $\bar{q}_i = q_i$.

to changes in economic and political conditions (Atkin et al., 2021). Such choices are not necessarily made consciously and deliberately. Nonetheless, we shall employ an optimization assumption to capture the major empirical regularities documented in the literature: that people are more likely to identify with those groups that have higher status and that are more similar to them. This has two important implications. First, not all identity profiles can be sustained. Second, identities respond to economic conditions.

It is important to note that while in this paper we often refer to identity as a binary choice between a European and a national identity, identifying with Europe may well mean you also identify with your own country. Formally, when you identify with Europe you put *some* weight (γ) on European status whereas if you identify exclusively as British you do not place any weight on European status. Similarly when you identify as European you may put some weight (β) on your similarity to other Europeans whereas if you only identify as British you do not. This interpretation seems consistent with survey data. In our survey of English voters before the Brexit referendum (see Appendix C.1), roughly 1 percent of voters said they saw themselves as *European only*, whereas about 25% saw themselves as both British and European. The latter were also far less likely to subsequently vote “leave” than the 70% who saw themselves as *British only*. In the French Eurobarometer 2014 data, the share of people who see themselves as European only is 1%, whereas 59% see themselves as both French and European and 40% as French only. France and the UK are not special in this respect – most Europeans report seeing themselves either as “[nationality] only” or as “[nationality] and European”.

2. Within-country heterogeneity. As pointed out by Bolton and Roland (1997), differences in income distributions across countries can lead to differences in the ideal policies of the median voters. Furthermore, within-country heterogeneity is important for understanding identification patterns (Grossman and Helpman, 2021; Holm, 2016; Lindqvist and Östling, 2013; Shayo, 2009). Here, we focus on factors such as changes in national status, that move both the elites and the poor in the same direction. Accordingly, one should think of the identity profiles we study as reflecting the identity of the decisive players in each country (be they the elites or the median voters), rather than as the complete distribution of identities.

3. Fundamental differences between countries may be endogenous to both integration and identification choices, at least in the long run. The direction of these effects, however, is theoretically and empirically ambiguous. On the one hand, integration can lead to specialization (Ricardo 1817; Krugman 1993; Casella 2001). On the other hand, closer trade links may lead to more closely correlated business cycles (Frankel and Rose 1998), and unions may actively seek to homogenize their populations (Weber 1976; Alesina et al. 2019).

The evidence for the European case is mixed. Since the 1980's there appears to have been some economic convergence across EU countries, at least until the 2008 financial crisis. But there is little evidence that EU countries became more similar in fundamental values or in major institutional features (Alesina et al. 2017). At this stage we thus take fundamental differences as fixed, but we do analyze changes in the importance that individuals attach to inter-country differences, which arguably can vary even in the short run.

4. Scope. This paper tries to isolate the factors that are essential to understanding the basic logic of integration and identity. On the political economy side: the trade-off between gains to unification and costs to heterogeneity, and some asymmetry in power between core and periphery. On the social identity side: the fact that people care about groups, and the fundamental factors entering identification decisions (distance and status). This setup, and especially the distinction between core and periphery, may be less relevant to trade agreements between more symmetric countries. We discuss the symmetric case in Section 3.1.⁴

3 Integration Under Fixed Social Identities

We begin by characterizing the Subgame Perfect Nash Equilibrium (SPNE) under any given profile of identities. SPNE is the first building block of our proposed solution concept (SIE, defined in Section 5). It is appropriate for situations where the Core has the political power, i.e., where the Periphery cannot commit to reject offers that are in fact in its interest, thereby forcing its desired policies on the union. Throughout, we impose that in case of indifference unification occurs. Denote by (ID_c, ID_p) the social identity profile in which Core members identify with group $ID_c \in \{C, E\}$ and Periphery members identify with group $ID_p \in \{P, E\}$.

Proposition 1. Subgame Perfect Nash Equilibrium (SPNE). *For any profile of social identities (ID_c, ID_p) , there exist cutoffs $R_1 = R_1(ID_c, ID_p)$ and $R_2 = R_2(ID_c, ID_p)$ and policies $\hat{r}_C = \hat{r}_C(ID_c, ID_p)$ and $\hat{r}_P = \hat{r}_P(ID_c, ID_p)$, such that $R_1 \leq R_2$, $\hat{r}_P < \hat{r}_C$ and:*

- a. *if $r_C^* - r_P^* \leq R_1$ then in SPNE unification occurs and $r_C = r_P = \hat{r}_C$;*
- b. *if $R_1 < r_C^* - r_P^* \leq R_2$ then in SPNE unification occurs and $r_C = r_P = \hat{r}_P$;*
- c. *if $r_C^* - r_P^* > R_2$ then in SPNE breakup occurs and $r_C = r_C^*$, $r_P = r_P^*$.*

⁴Even in the European case, the model is naturally a simplification. European integration involves many countries, many agencies, protracted negotiations and multidimensional policies. Adding specific features of, e.g., the formation of the Eurozone, the Greek debt negotiations, or the Brexit affair, could further enrich the picture. For example, the Brexit negotiations may have made more salient the differences between the UK and the EU, or may have affected British status. Another possibility is that the breakup revealed to other countries information about Δ (the cost of breakup).

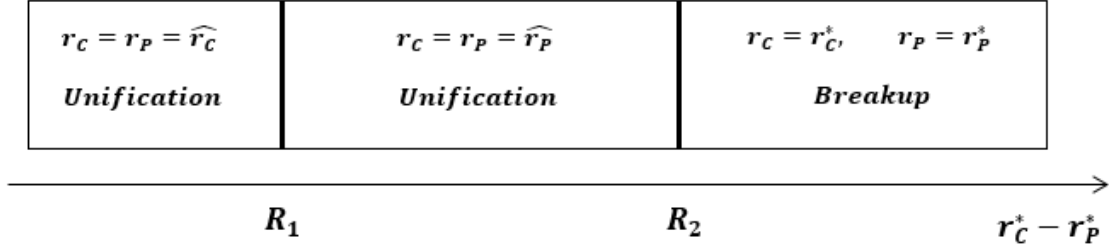


Figure 1: General Characterization of SPNE

Proofs are in Appendix A. Figure 1 illustrates. \widehat{r}_C reflects the Core's chosen policy when there is no threat of secession. This may or may not be equal to r_C^* , depending on the Core's identity. When fundamental differences between the countries ($r_C^* - r_P^*$) are small relative to the cost of dismantling the union, the Periphery country would rather accept \widehat{r}_C than set its own ideal policy and suffer the cost of breakup. As a result, the Core sets the policy to \widehat{r}_C . For larger fundamental differences between the countries (or lower costs of breakup), i.e. when $r_C^* - r_P^* > R_1$, the Core cannot set the policy to \widehat{r}_C while keeping the Periphery inside the union. However, as long as these differences are smaller than R_2 , the Core can set its policy at a lower level \widehat{r}_P which would keep the Periphery in the union and still be preferable to breakup. In equilibrium the Periphery country is exactly indifferent between staying in the union and exiting. Finally, when $r_C^* - r_P^*$ is sufficiently large relative to Δ , i.e. when $r_C^* - r_P^* > R_2$, the cost required to keep the Periphery in the union exceeds the benefits to the Core. In this case breakup occurs and policies are set to r_C^* and r_P^* .

We define two basic properties of unions.

Definition 2. A union is (strictly) more *robust* if it is sustained under (strictly) larger fundamental differences $r_C^* - r_P^*$.

Definition 3. A union is (strictly) more *accommodating* if the policy implemented is (strictly) closer to r_P^* , for any level of fundamental differences such that the union is sustained.

We can now state two preliminary results.

Proposition 2. Robustness. *The union is most robust under the (E, E) profile if and only if βk is sufficiently high. If βk is low, then the union is strictly more robust under the (C, E) profile than under any other identity profile, i.e. $R_2(C, E) > R_2(ID_C, ID_P)$ for all $(ID_C, ID_P) \in \{(C, P), (E, P), (E, E)\}$.*

Recall that βk is the cognitive cost of maintaining a European identity despite not being a member of the union. If this cost is sufficiently high, then the all-European identity profile

(E, E) is the most robust, since everyone would then be more reluctant to break the union. This is implicitly assumed in many public discussions. Proposition 2, however, shows that this is not true in general (see below for more intuition). The next result points out that a common (E, E) identity does not imply a more accommodating union.

Proposition 3. Accommodation

a. The union is more accommodating if Core members identify with Europe rather than with their nation, for any given Periphery identity.

b. The union is less accommodating if members of the Periphery identify with Europe rather than with their nation, for any given Core identity.

To see the intuition for these results, we briefly discuss each of the four possible social identity profiles. The complete characterization of these cases is given in Lemmas 1-4 in Appendix A. Figure 2 provides an illustration.

Case 1 (C, P) : Both Core and Periphery identify with their own country. This case serves as a convenient benchmark. It essentially replicates the standard analysis of economic integration, in which each country is only interested in its economic payoffs. At low fundamental differences, when there is no threat of secession, policy is simply r_C^* . Breakup takes place when the material concessions needed to keep the periphery in the union are larger than the material gains, regardless of how disintegration affects perceived distances and European status.

Case 2 (C, E) : Core Identifies with own Country and Periphery with Europe. Comparing this case to Case 1 provides some basic insights into the workings of social identity. First, $R_1(C, E) > R_1(C, P)$: as long as the Periphery sees itself as European, it prefers r_C^* to breakup at relatively higher levels of fundamental differences. Two forces are at work here. First, identifying as European is harder—i.e., generates higher cognitive costs—when one is not part of the European union. This lowers the value of the Periphery’s outside option. Second, to the extent that the Periphery sees itself as part of Europe, its material costs are (somewhat) offset by gains in status stemming from better overall European performance. For similar reasons, $\hat{r}_P(C, E) > \hat{r}_P(C, P)$: even when the Core makes concessions in order to sustain the union, these concessions are smaller than what was needed when the Periphery identified nationally.

Finally, the union can be sustained under larger fundamental differences: $R_2(C, E) > R_2(C, P)$. The difference between $R_2(C, E)$ and $R_2(C, P)$ —i.e the range of fundamental differences over which the union is sustained under (C, E) but not under (C, P) —depends on several factors: the economic cost of breakup Δ , the cognitive cost of breakup k , the size

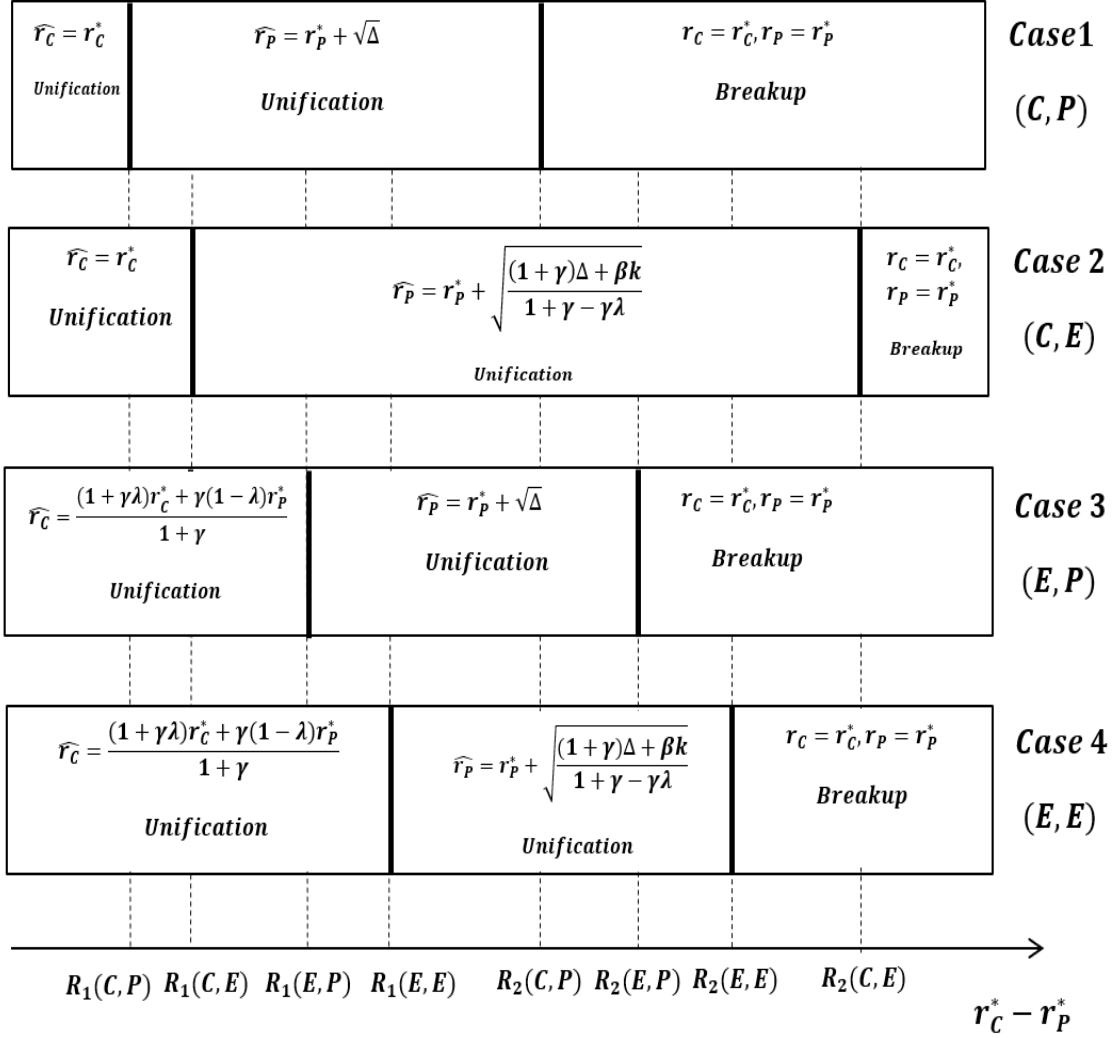


Figure 2: SPNE under Different Social Identity Profiles

Note: This figure does not cover all possible regions of the parameter space. See Lemmas 1-4 in Appendix A for a complete characterization.

of the Core λ , and the weights β and γ that the Periphery places on distance from Europe and on European status. An increase in any one of these tends to make breakup more costly for a Periphery that identifies with Europe. This allows the union to be sustained under larger differences.

Case 3 (E, P): Core identifies with Europe and Periphery with own Country.

Again, it is instructive to compare this case to Case 1. First, $\widehat{r}_C(E, P) < \widehat{r}_C(C, P)$. That is, even when there is no threat of secession, the union is more accommodating since the Core now internalizes the effects of its policies on European status. Thus, policy is set as some weighted average between the ideal policies of the two countries. In this respect, European identification implies a measure of solidarity across countries. At some point, however, this

policy which takes into account wider European considerations— $\hat{r}_C(E, P)$ —is not sufficient to keep the Periphery in the union and some concessions are needed.⁵ Since the Periphery cares only about its material payoffs, the policy required to keep it in the union is the same as in Case 1. Finally, $R_2(E, P) \geq R_2(C, P)$. Thus, European identity in the Core can also forestall breakup.⁶

Case 4 (E, E): Both Core and Periphery identify with Europe. On the face of it, the case where everyone identifies with the union seems like the most favorable for integration. Our model suggests a more nuanced view. What is crucial for (E, E) to be the most robust is that the psychological costs of breakup for those who identify as European (βk) are significant. If these psychological costs are low relative to the economic costs Δ , then the union is actually less robust when everyone identifies with Europe than when only the Periphery does, i.e. $R_2(E, E) < R_2(C, E)$.

The basic reason is that when fundamental differences between the countries are very large, European status would in fact be higher if the Periphery were kept outside the union and conducted its own policy. If the Core identifies nationally it may seek to sustain the union even if this depresses European status, as long as this is economically beneficial to the Core. But if the Core identifies with Europe, then it has to weigh the losses in status against these economic gains, as well as against the psychological gains from keeping the Periphery in the Union. If the latter are small, breakup can take place. Regarding policy, as in Case 3, at low levels of fundamental differences, policy is accommodating. Furthermore, the Periphery's identity means the union is less accommodating in the middle range between R_1 and R_2 , which makes it more robust than under either the (C, P) or (E, P) profiles.

The role of country size

Is a smaller Periphery more likely to join a union? Our analysis suggests that the answer depends on social identity. When the Periphery identifies with Europe, a larger relative size of the Core means that the Core's material interests feature more prominently in the Periphery's considerations, which in turn tends to make breakup more costly for the Periphery. This indeed allows the union to be sustained under larger differences (see Appendix A.1 for details). In other words, the entry of a small nation that identifies as European is likely to

⁵The reason is that the Core cares about *Europe*, and not about the Periphery per se. Since European status depends on both Core and Periphery material payoffs, $\hat{r}_C(E, P)$ is *not* the ideal policy from the Periphery's perspective, even if the Core places a very high weight on European status.

⁶This happens as long as $\beta k > 0$. If $\beta k = 0$ then $R_2(E, P) = R_2(C, P)$. The reason is that once fundamental differences are above $R_1(E, P)$, the Periphery's utility is held constant at the utility obtained under breakup. Hence the only factor shifting European status is Core material payoffs. $\beta k = 0$ means the Core suffers no cognitive cost to breakup, and hence once fundamental differences are such that Core material payoffs are higher under breakup than under unification, breakup takes place.

be more robust than the entry of a large nation that identifies this way. However, if the social identity profile is (E, P) , the union is *less* robust when the Core is larger. The higher is λ , the less important is the Periphery in the Core’s identity considerations, which makes the Core less open to concessions.

3.1 The planner’s solution and the importance of political asymmetry

In Appendix A.4 we compare the point at which the union disintegrates in SPNE to what a social planner interested in maximizing aggregate material payoffs would do. We find that national identification in the Periphery tends to produce a less robust union than what material payoff maximization implies. This echoes the common reaction of economists to the Brexit vote, which, as we show in Appendix C.1, was associated with strong national identification and weak identification with Europe. A shared identity, however, does not always enhance overall material payoffs. There exist situations where it is materially optimal to dismantle the union, and yet the union is sustained if the Periphery identifies with Europe.

Finally, in Appendix A.5, we analyze identity effects when there is no asymmetry in size or in political power across countries: countries decide whether or not to join the union, and union policy is set to maximize the joint welfare of its members. We show that in this case, the union is most robust under the (E, E) social identity profile, even if the psychological costs βk are low. This result demonstrates the implications of the Core’s political power. When the Core can make take-it-or-leave-it offers, it may seek to sustain the union at the expense of the Periphery’s material interests, can do so to a greater extent when the Periphery identifies with Europe, and will do so to a greater extent when it identifies nationally. In contrast, if union policy is constrained to maximize joint welfare, then this channel is shut down. The union is more robust when the Core identifies with Europe because the welfare-maximizing policy is in this case more accommodating to the Periphery, which provides stronger incentives for the Periphery to join.

4 Choice of Social Identity

We now turn to the determination of social identity. This is the second building block of our solution concept. As outlined in the introduction, the choice of identity is guided by two considerations: perceived distance from the group, and group status (Shayo, 2020). An individual is more likely to identify with Europe the smaller her perceived distance from Europe relative to her distance from her own country, and the higher the status of Europe relative to that of her own country. Formally, we assume that an individual chooses to identify

with the group that yields the highest utility given the economic and political environment. That is, an individual from country i chooses identity j to solve:

$$\max_{j \in \{i, E\}} U_{ij}(r_C, r_P, \text{breakup})$$

Accordingly, an individual in the Core identifies with her own country if $U_{CC} > U_{CE}$. Recall from equation (2) that $U_{ij} = V_i + \gamma S_j - \beta d_{ij}^2$. For any given policy, *material* payoff V_i does not depend on the choice of identity. Hence identification with own country takes place if $\gamma S_C - \beta d_{CC}^2 > \gamma S_E - \beta d_{CE}^2$. Using equations 3-5 this condition can be written as:

$$S_C - S_P > \frac{\sigma_E - \lambda \sigma_C}{1 - \lambda} - \frac{\beta(1 - \lambda)}{\gamma} [w + (r_C^* - r_P^*)^2] - \sigma_P - \frac{\beta k}{\gamma(1 - \lambda)} \mathbf{1}(\text{breakup} = 1). \quad (6)$$

In words, a Core individual identifies with her own country when the (ex-post) status gap between the two countries, $S_C - S_P$, is high and when the distance between the countries is large. This is more likely to happen when the exogenous sources of Core status, captured by σ_C , are high while those of Europe (σ_E) are low; when cultural or linguistic differences are salient (w is high); and when fundamental differences are large. As long as $\beta k > 0$, identifying with one's nation is also more likely under breakup (as in this case there is an additional cognitive cost of identifying with Europe).⁷

Similarly, a Periphery individual identifies with her own country if:

$$S_C - S_P < \frac{(1 - \lambda) \sigma_P - \sigma_E}{\lambda} + \frac{\beta \lambda}{\gamma} [w + (r_C^* - r_P^*)^2] + \sigma_C + \frac{\beta k}{\gamma \lambda} \mathbf{1}(\text{breakup} = 1). \quad (7)$$

Figure 3 illustrates how the identity profile is determined. Start with Panel A. On the horizontal axis we continue to have fundamental differences. On the vertical axis we have the status gap between the Core and the Periphery. The dashed curves represent “identity indifference curves” (IIC) for the Core (downward sloping and red), and for the Periphery (upward and blue). These curves depict combinations of $r_C^* - r_P^*$ and $S_C - S_P$ such that

⁷The relative size of the Core also affects identification decisions. Consider first the case where we shut down perceived distance effects, i.e. $\beta = 0$. When the Core's material payoff (V_C) is higher than the Periphery's (V_P), but the exogenous status of Europe is larger than that of the Core, a larger Core implies the Core is more likely to identify with Europe. Identifying with Europe allows the Core to enjoy the exogenously high status of Europe while incurring lower losses in terms of the endogenous status ($\lambda V_C + (1 - \lambda)V_P$). In contrast, when the Core's material payoffs are lower than the Periphery's, while the exogenous status of Europe is lower than that of the Core, a larger Core size implies the Core is more likely to identify nationally. In this case, a larger Core means identifying with Europe is less beneficial to the Core because the endogenous status of Europe is more tilted towards the (lower) Core's material payoffs. Finally, with $\beta > 0$, a larger λ means Europe is closer to the Core, which incentivizes the Core to identify with Europe.

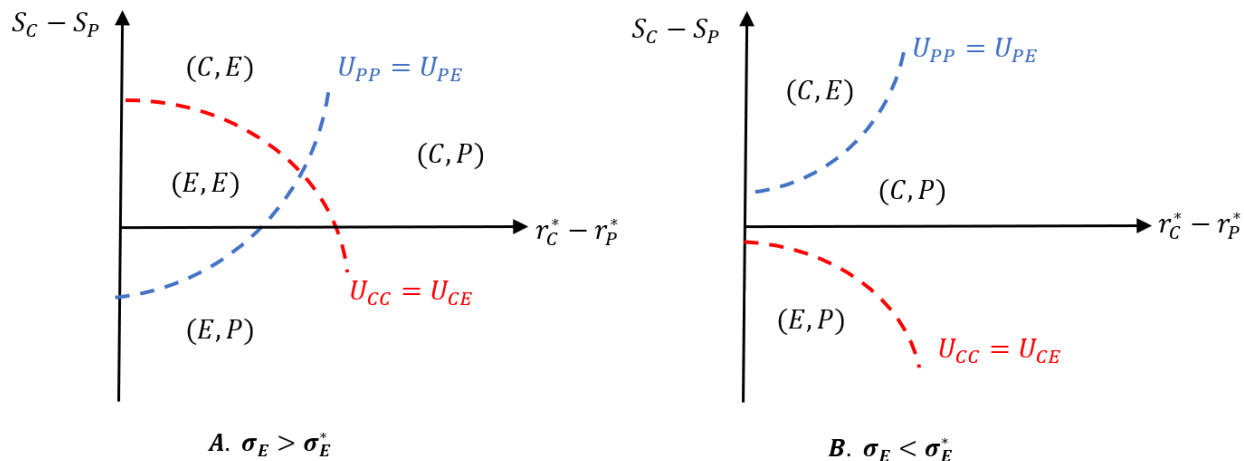


Figure 3: Choice of Social Identity

individuals are indifferent between identifying with their own nation and with the union.

Take the Core for instance. Combinations of $r_C^* - r_P^*$ and $S_C - S_P$ which are located above and to the right of the Core's IIC (denoted $U_{CC} = U_{CE}$) imply that the Core is better off identifying nationally ($U_{CC} > U_{CE}$). Hence, in the region northeast of the Core's IIC, the identity profile has to be either (C, P) or (C, E) . However, in the region below and to the left of the Core's IIC, the Core identifies with Europe (as both intra-union differences and Core status are relatively low). Hence, the identity profile is either (E, P) or (E, E) . By a similar logic, the Periphery identifies nationally in the region below and to the right of the Periphery's IIC ($U_{PP} = U_{PE}$), and with Europe above and to the left of it.

In Figure 3.A, ex-ante European status is relatively high.⁸ Thus, at low differences between the countries, three identity profiles are possible. If the ex-post status gap is sufficiently high, then the only possible identity profile is (C, E) . Conversely if $S_C - S_P$ is sufficiently low, then the only possible profile is (E, P) . In the intermediate range both the Core and the Periphery identify with Europe. However, larger differences between the countries make a common European identity harder to sustain. Thus, even when ex-ante European status is relatively high, an all-European identity profile cannot be sustained if differences between the countries are too large. But large inter-country differences permit the (C, P) profile.

Figure 3.B illustrates the situation when ex-ante European status is relatively low. In this case, the all-European profile (E, E) cannot be sustained, but (C, E) and (E, P) are still possible. Finally note from equations 6 and 7 that breakup shifts both IIC curves inward, making European identification harder to sustain. Importantly, the actual ex-post status gap $S_C - S_P$ is a function of the policies chosen (Appendix A.6 provides a characterization). Since

⁸That is, above the threshold $\sigma_E^* \equiv \lambda\sigma_C + (1 - \lambda)\sigma_P + \frac{\beta w \lambda(1 - \lambda)}{\gamma} + \frac{\beta k}{\gamma} \mathbf{1}(breakup = 1)$.

these policies themselves depend on the identity profile, we need to consider the equilibrium.

5 Social Identity Equilibrium

We are now in a position to address our main question: what configurations of social identities and policies are likely to hold when both are jointly determined? We employ a concept of *Social Identity Equilibrium (SIE)*, adapted from Shayo (2009). SIE requires that the policies implemented in both countries be a SPNE in the game analyzed in Section 3, that is, policies and integration decisions are an equilibrium given the social identity profile. At the same time, SIE also requires that the social identities themselves be optimal given these policies.⁹

Definition 4. A *Social Identity Equilibrium (SIE)* is a profile of policies $(r_C, r_P, breakup)$ and a profile of social identities (ID_c, ID_p) such that:

- i. $(r_C, r_P, breakup)$ is the outcome of a SPNE given (ID_c, ID_p) ;
- ii. $ID_i \in \underset{ID_i \in \{i, E\}}{\operatorname{argmax}} U_{i, ID_i}(r_C, r_P, breakup)$ for all $i \in \{C, P\}$.

We begin with the simplest case where there are no ex-ante differences in status and where perceived distances do not affect identification decisions. Section 5.2 then adds status differences, and section 5.3 further adds distance effects.

5.1 A simple benchmark

Start by shutting down perceived distance effects, i.e. assume $\beta = 0$. Graphically, this means that the only thing determining identification decisions is status and hence IICs are flat and do not depend on unification. Furthermore, suppose there are no ex-ante status differences between the countries. A special case is when status is completely determined by material payoffs so that $\sigma_j = 0$ for all $j \in \{C, P, E\}$.

Proposition 4. *Suppose $\beta = 0$ and $\sigma_C = \sigma_P = \sigma_E$. Then:*

- a. *An SIE exists.*
- b. *In almost any SIE in which the union is sustained, the social identity profile is (C, E) . The only exceptions are when $(r_C^* - r_P^*) \in \{0, R_2(C, P)\}$.*
- c. *For any fundamental differences $(r_C^* - r_P^*) \in [R_2(C, P), R_2(C, E)]$, there exist multiple SIE with both unification and breakup.*
- d. *The profile (E, E) can be sustained either when $r_C^* = r_P^*$ or under breakup.*

⁹The implicit assumption is that the SPNE game in Section 3 and the choice of identities analyzed in Section 4 occur simultaneously.

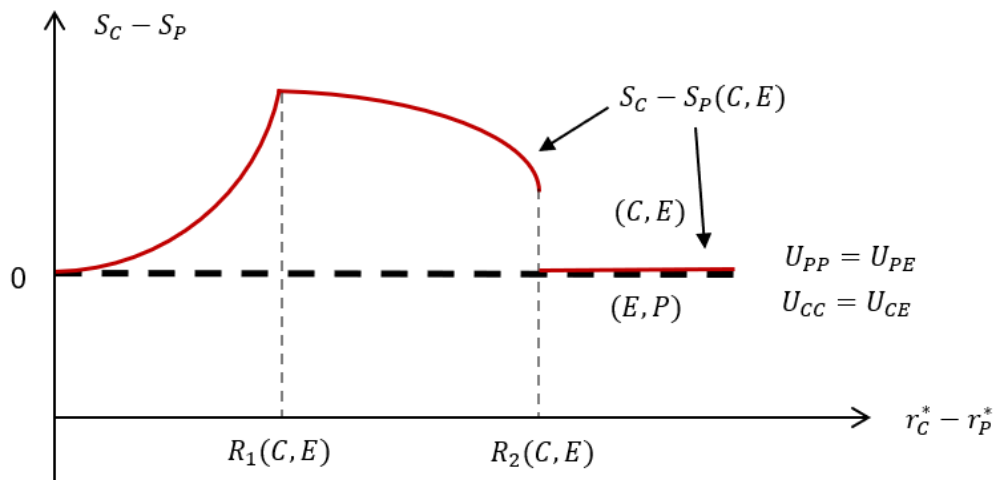


Figure 4: SIE under No Ex-Ante Differences in Status and $\beta = 0$

The main flavor of Proposition 4 is illustrated in Figure 4. Given the parameter restrictions, the two IICs coincide (at the dashed line). At points strictly above the IICs, C identifies nationally in equilibrium, and P identifies with Europe. At points strictly below the IICs the profile is (E, P) . Now, the solid red curve depicts the status gap induced by the SPNE under the (C, E) profile (described in Section 3, Case 2). Note that while the status gap does vary at different levels of fundamental differences, at any level below $R_2(C, E)$ the status gap is above the IICs. This is because the SPNE policies under (C, E) privilege Core economic interests over the Periphery's, and we are assuming that there are no other sources of status differences (ex-ante status is identical). Hence, the (C, E) profile is indeed chosen by individuals in the Core and the Periphery. Thus, for any level of fundamental differences in this range, there exists an SIE with unification and (C, E) .

For all other identity profiles it can be shown that SPNE implies a status gap which is strictly above the IICs, as long as fundamental differences are greater than zero and below the respective R_2 's. Thus, if unification is sustained in SPNE, the identity profile underpinning this SPNE cannot be an SIE. If fundamental differences are above the relevant R_2 , the status gap is zero and the profile can be sustained in SIE, but the underlying SPNE must involve breakup.

Going back to Point 1 from our introduction, this benchmark already illustrates a force that works against the idea of an “ever-closer union”, which suggests that joining the union itself ultimately brings the member countries closer together (see discussion in Spolaore, 2015). As stated in the last part of Proposition 4, an SIE with the social identity profile (E, E) is unlikely to be sustained under unification. In fact, the very success of the union tends to push Core countries towards more exclusionary nationalist identities. Furthermore, as we

have seen (Proposition 3), a union with a (C, E) profile is unlikely to be very accommodating to the needs of the Periphery.

5.2 Status asymmetry

We now relax the assumption of equal ex-ante status. A rather stark—but arguably common—case is when the Periphery has relatively low ex-ante status:

Proposition 5. *Low-Status Periphery.* *Suppose $\beta = 0$ and $\sigma_C > \sigma_E > \sigma_P$. Then there exists a unique SIE; the social identity profile is (C, E) ; and the union is sustained if and only if $(r_C^* - r_P^*) \leq R_2(C, E)$.*

As in the benchmark case, if the union is sustained the political power of the Core pushes towards a (C, E) profile. In the present case however, the Core’s political advantage is reinforced by its higher ex-ante status, and the (C, E) profile holds even without unification.

The more important lesson is that the union is more stable in this case. From Proposition 4.c we know that under equal ex-ante status there exists a range of fundamental differences in which both unification and breakup can take place. Proposition 5 however shows that differences in ex-ante status can push the countries towards a unique SIE in which unification occurs. This is due to the fact that identity is endogenous. Consider fundamental differences larger than $R_2(C, P)$ – the point at which the union disintegrates if the periphery identifies nationally. Since agents are allowed to choose their identity, the Periphery in this case will choose to identify *with Europe*, which in turn permits the union to be sustained under larger differences. Recall also that under (C, E) the union is least accommodating (Proposition 3). As a result, the status gap $(S_C - S_P)$ between the Core and the Periphery widens, and members of the Periphery are further motivated to identify with Europe.

This intuition underpins Point 2 from our introduction. As a possible application, consider the relationship between the Core Eurozone countries and Greece during the debt crisis. Significant fundamental differences have not led to a “Grexit” from the Eurozone, despite the grave recession in Greece. Moreover, the Greek government accepted severe austerity measures in order to remain in the Eurozone. To be sure, leaving the euro could have enormous costs, but unlike Brexit, in the case of southern Europe there is genuine debate among economists regarding the balance of costs and benefits.¹⁰ Indeed, from the perspective of the model, the dismal economic performance of Greece may have even helped sustain a sufficient degree of European identification among the Greeks which in turn helped keep Greece in the

¹⁰With respect to Greece, economists like Joseph Stiglitz argued that “leaving the euro will be painful, but staying in the euro will be more painful” (Stiglitz, J., *The Future of Europe*, UBS International Center of Economics in Society, University of Zurich, Basel, January 27, 2014).

Eurozone (see Appendix C.3 for data on support for the euro following the 2008 financial crisis).

Next, consider the Social Identity Equilibrium when the ex-ante status of the Periphery is higher than the Core's. Contrary to the unambiguous nature of Proposition 5, this setting implies a richer set of possibilities. While the Core continues to enjoy more political power, it no longer has an (ex-ante) status advantage. In the setting of Proposition 5, even if some shock drove the Core to temporarily identify with Europe, such an identity would not be sustainable. However, in the present case political power is counterbalanced by lower exogenous status and hence European identity in the Core may be sustained. This may then translate to equilibria in which the union is sustained and policy is relatively accommodating (e.g. SIE's with (E, P) and (E, E) identities). And while (C, E) equilibria may still exist, they are no longer unique.

Proposition 6. *High-Status Periphery.* *Suppose $\beta = 0$ and $\sigma_C < \sigma_E < \sigma_P$. Then:*

- a. An SIE exists.*
- b. In any SIE in which breakup occurs, the social identity profile is (E, P) .*
- c. There exists a subset $I^* \subseteq [R_2(C, P), R_2(C, E)]$ such that if $(r_C^* - r_P^*) \in I^*$ both unification and breakup can occur. However, in any SIE in I^* in which unification occurs, the Periphery identifies with the union.*

Two lessons are worth highlighting. First, the union is more fragile in this case. In contrast to the previous case, in which unification necessarily takes place as long as fundamental differences are below $R_2(C, E)$, in this case breakup can occur below this threshold. This is illustrated in Figure 5, Panel A. The figure depicts the status gap curve consistent with the identity profile (E, P) . When this curve lies below both IIC's, the (E, P) profile holds in SIE. However, for fundamental differences above $R_2(E, P)$ the SIE involves breakup. But we know from Section 3 that $R_2(E, P) < R_2(C, E)$. The conclusion is that unification is not assured when the Periphery has higher status, even under relatively mild fundamental differences: the status differences can support an identity profile which does not allow for unification in the face of these differences.

Second, consider levels of fundamental differences such that multiple SIE exist where some involve breakup and others unification. Proposition 6 says that any SIE in this region that involves unification must have the Periphery identify with Europe. This can be seen in Figure 5, Panel B. The figure depicts the status gap functions under three identity profiles.¹¹

¹¹The figure is drawn for the case when European status is high, and hence (C, P) cannot be part of an equilibrium. The intuition for the result is similar in the case when European status is low.

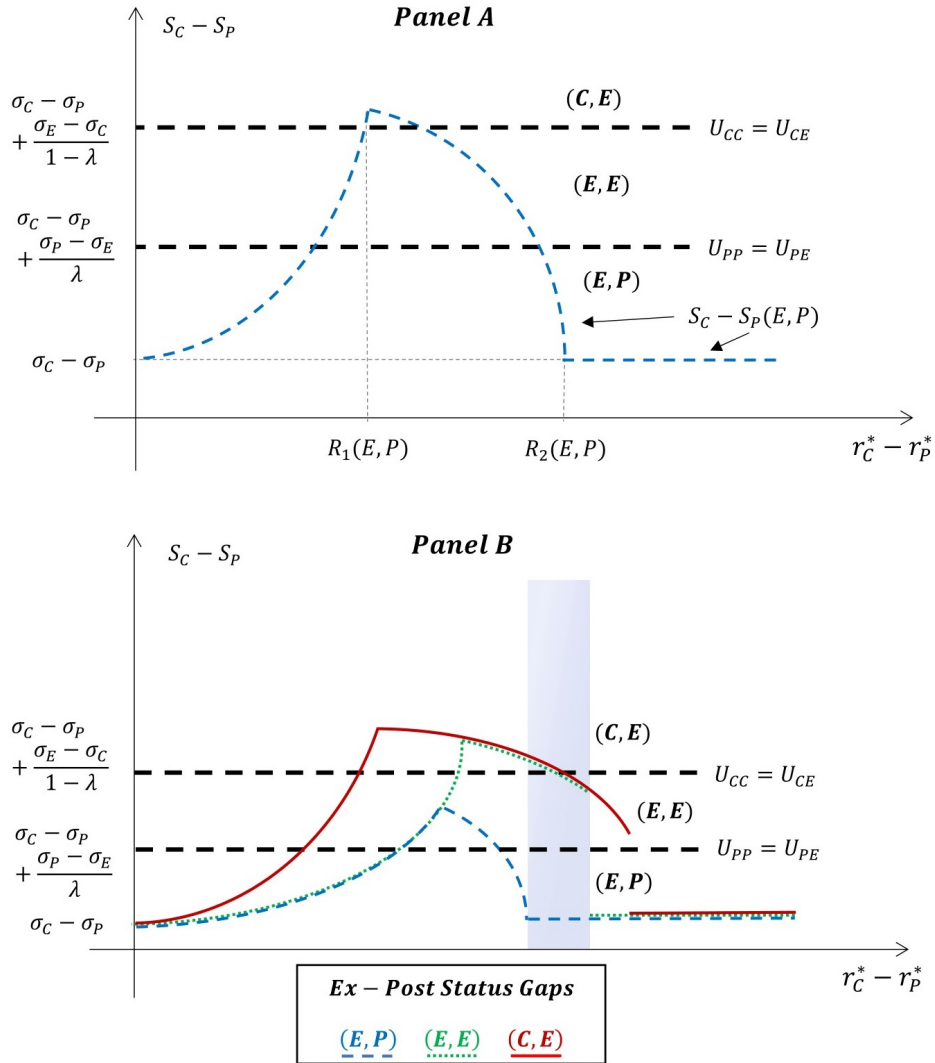


Figure 5: SIE when the Periphery has Higher Ex-Ante Status and $\beta = 0$

Note: The Figure is drawn for the case in which $\sigma_E > \sigma_E^*$.

The shaded area shows a region of fundamental differences in which multiple equilibria exist, with different identity profiles. Thus, there exists an SIE with breakup and the Periphery identifying nationally (the (E, P) profile – dashed blue curve). But for the same levels of fundamental differences, there also exist SIE’s with unification. Furthermore, in all of these SIE’s the Periphery identifies with Europe. However, unlike the case of a low-status Periphery (Proposition 5), a high-status periphery may identify nationalistically in equilibrium, and this equilibrium is characterized by breakup even at low levels of fundamental differences. This can help explain why, in 2016, a majority of UK voters chose to leave, despite the EU being relatively accommodating to British demands and despite the overwhelming view

among economists that the costs far outweigh the benefits.¹² Support for Brexit remained substantial in subsequent years, even when the costs of leaving were in plain sight, and the pro-Brexit Conservative party won a landslide in the December 2019 general elections.

5.3 Distance effects

We now relax the assumption $\beta = 0$ to allow identification decisions to respond to perceived distances. Let $\mathbf{p} = (\beta, k, w, \gamma, \Delta, \lambda, \sigma_E)$ be a vector of parameters. Let $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P)$ be the *maximal* level of fundamental differences under which an SIE with unification exists given \mathbf{p} and ex-ante status σ_C, σ_P . Let $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P)$ be the *minimal* level of fundamental differences such that an SIE with breakup exists for any level of fundamental differences larger than $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P)$, given $\mathbf{p}, \sigma_C, \sigma_P$.

To begin, consider what happens when σ_E , the exogenous part of European status, is not too high. Specifically:

Condition 1.

$$\sigma_E < \min \left\{ \begin{array}{l} \sigma_C + \frac{\beta(1-\lambda)^2}{\gamma} \left(w + 2\Delta + 2\sqrt{\Delta^2 + \frac{\beta\Delta k}{1+\gamma\lambda} + \frac{\beta k}{1+\gamma\lambda} - \frac{\gamma k}{(1+\gamma\lambda)(1-\lambda)}} \right) \\ \lambda\sigma_C + (1-\lambda)\sigma_P + \frac{\beta w\lambda(1-\lambda)}{\gamma} \end{array} \right\}$$

We can then characterize the SIE as follows.

Proposition 7. Robustness in SIE. *Assume Condition 1. Then for any given parameter vector \mathbf{p} ,*

a. $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) \leq \overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$, and there exist $(\mathbf{p}, \sigma_C, \sigma_P)$ such that the inequality is strict.

b. $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) \leq \underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$, and there exist $(\mathbf{p}, \sigma_C, \sigma_P)$ such that the inequality is strict.

This result generalizes the patterns discussed in Section 5.2. A union can be sustained at higher levels of fundamental differences when the Periphery has relatively low status; and disintegration can occur at lower levels of fundamental differences when the Periphery has equal or higher status than the Core. The basic reason is that members of a low-status Periphery will tend to identify with Europe, which in turn permits the union to be sustained under larger differences. This happens despite—and to some degree because of—the unaccommodating policies of the union, which accentuate the Periphery’s status disadvantage

¹²See Ipsos-MORI, Bloomberg and Financial Times surveys of economists prior to the vote.

and makes European identity more attractive. In contrast, a high-status Periphery is more likely to adopt a nationalistic identity, which in turn requires a more accommodating policy under unification. As a result, the union breaks up under smaller differences.

The next two results modify the conclusions from Section 5.2, and provide more insight regarding the identification patterns that emerge under breakup and under unification.

Proposition 8. *Identification in SIE with Breakup.* *Assume Condition 1.*

a. If $\sigma_P < \sigma_C$ then in any SIE with breakup the Core identifies nationally but the Periphery may identify with Europe.

b. If $\sigma_P > \sigma_C$ then in any SIE with breakup the Periphery identifies nationally but the Core may identify with Europe.

Part (a) says that even countries that are not part of the union might still in equilibrium identify as European, so long as they are low-status. In contrast, high-status countries always identify nationally under breakup. To see the intuition, consider for a moment what happens when $\sigma_C = \sigma_E = \sigma_P$. Under breakup, each country sets its own policy and there is clearly no status gain from identifying as European. But identifying with Europe entails a cost in terms of perceived distance. Hence, in any SIE with breakup both the Core and the Periphery must identify nationally. Now, if the Periphery has low ex-ante status, the status gain from identifying with Europe may in principle compensate it for the loss in similarity, even at (relatively high) levels of fundamental differences such that breakup occurs. Nonetheless, unlike the special case of $\beta = 0$ (Proposition 5), the identity profile under breakup is not necessarily (C, E) , as the Periphery may also identify Nationally.

Conversely, if the Periphery has high ex-ante status, then it identifies nationally in any SIE with breakup. However, the special case of $\beta = 0$ (Proposition 6) again needs modification, as the Core does not necessarily identify with Europe.

Next, consider the identity profile in SIE with unification.

Proposition 9. *Identification in SIE with Unification.* *Assume Condition 1.*

a. If $\sigma_P < \sigma_C$ then in any SIE with unification the Core identifies nationally.

b. If $\sigma_P > \sigma_C$ then all four identity profiles can be sustained in some SIE with unification.

Notice that for high status periphery countries, we expect national identification under breakup (Proposition 8b), but not necessarily under unification. Proposition 9 also confirms the point we alluded to earlier: that unification by itself does not guarantee the emergence of a common identity throughout the union. Most notably, if the Core has high status, then unification tends to push it towards a more exclusionary identity.¹³

¹³If $\sigma_C = \sigma_P$ there are more possibilities, depending on β . If $\beta > 0$ then like Proposition 9.a, in any SIE

Finally, consider shocks to β . The thought experiment could be some policy that alters the salience of inter-country differences.

Proposition 10. *Assume Condition 1. Then $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P)$ and $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P)$ are both weakly decreasing in β .*

Thus, a reduction in the salience of inter-country differences—or if people care less about them—would tend to allow the union to be sustained at higher levels of fundamental differences. Moreover, as we show in Appendix A.14, a fall in β would allow new SIE in which the Periphery identifies with Europe and unification takes place. However, it is important to note that when $\sigma_C \geq \sigma_P$ the Core identifies nationally in any new SIE which involves unification. Basically, the gain from identifying with Europe following a decrease in β is offset by the loss in status.

A more specific question then is what happens to the set of $(r_C^* - r_P^*)$ such that there exists an SIE with *both* unification *and* an all-European (E, E) profile. This question has been quite central to the European integration project. We find that in the case of a high status periphery ($\sigma_C \leq \sigma_P$), a fall in β tends to expand this set but this set is unchanged when $\sigma_C > \sigma_P$ (Proposition 15.b in Appendix A.14).

5.4 When the ex-ante status of the union is high

To complete the analysis, consider what happens when we relax Condition 1. We concentrate here on the basic intuition and provide more details in Appendix A.15.

A very high European status makes European identity attractive for a low-status Core. And as long as identifying with Europe implies a cognitive cost of breakup (i.e. $\beta k > 0$), then, as discussed in Section 3, this generates an additional incentive for the Core to maintain the union. Together, these two forces can offset the destabilizing effects of a high-status periphery noted in Proposition 7.

Specifically, consider a union with a very high status. Post-WWII USA might be a good example. In this case, even if the periphery region has relatively high status ($\sigma_P > \sigma_C$), the (E, E) identity profile can be sustained at relatively high fundamental differences. Everyone still identifies as American. But recall from Proposition 2 that if βk is sufficiently high then the union is most robust under the (E, E) profile. We can then show that there exist parameter values such that (E, E) can be sustained at high fundamental differences when the Periphery is relatively high-status but not when the Core is. Hence there could be situations where $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) > \overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$.

with unification the Core must identify nationally. If $\beta = 0$, this is true in *almost* any SIE with unification (Proposition 4).

6 Conclusion

Social identity has been widely discussed as an important factor underlying international economic and political integration. But tracing the implications of identity in this context is complicated by the fact that identities can adjust to economic and political conditions. This paper sought to develop a tractable framework that might help us address these issues. We focus on the equilibrium in which both policies and identities are endogenously determined.

The analysis offers several lessons. A union with an (ex-ante) high-status periphery country tends to be more fragile and may break up at low levels of fundamental differences, compared to a union with a low-status periphery. Importantly—and against the hopes of many supporters of European integration—unification does not necessarily support the emergence of a common identity in equilibrium. Indeed, in the case of relatively high Core status, integration can push the Core countries towards a more exclusionary identity. The analysis also points to the possibility that low status countries get caught in an identity poverty trap: low national status generates an incentive to identify as a member of the union, but such an identification entails a higher cost of breaking up with the union. This can push the periphery country to policy concessions that further erode its status.

To illustrate the applicability of this framework, consider the formation of the eurozone. Countries that joined the euro were not simply countries for whom the loss of monetary policy independence was less costly—given similar business cycles as in France and Germany—and/or for whom the gains from trade and enhanced credibility were particularly large. Rather, they were countries with a *combination* of high fit in terms of the Optimum Currency Area (OCA) criteria, and relatively low international status (see Appendix C.2 for data and discussion). The eurozone thus included countries that seemed unlikely candidates from an OCA perspective. Countries that stayed out despite their economic suitability to the euro, tended to be high status countries with relatively high levels of national identification. Similar mechanisms seem to have contributed to avoiding a Grexit despite unaccommodating policies; and to the realization of Brexit, where a high-status country chose to leave the EU despite very accommodating policies.

We believe this now calls for empirical analysis to identify and quantify these mechanisms, and to quantitatively assess the role of social identity in economic integration more generally. More work is also needed to introduce dynamic considerations into the model. This includes possible differences in the costs of entering versus leaving a union, and the endogeneity of fundamental differences to integration decisions. The latter includes policies taken by the union and by non-members that affect perceived differences, e.g., by promoting a common (or a differentiated) culture, and reducing economic and social disparities across countries.

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A Proofs and Additional Results

A.1 Proof of Proposition 1:

Lemma 1. *Suppose both Core and Periphery identify with their own country. Then:*

- a. $R_1(C, P) = \sqrt{\Delta}$, $R_2(C, P) = 2\sqrt{\Delta}$,
- b. $\hat{r}_C(C, P) = r_C^*$, $\hat{r}_P(C, P) = r_P^* + \sqrt{\Delta}$.

Proof. Utilities in this case are:

$$U_{CC} = \gamma\sigma_C - (1 + \gamma) ((r_C - r_C^*)^2 + \Delta * \text{breakup}) \quad (8)$$

$$U_{PP} = \gamma\sigma_P - (1 + \gamma) ((r_P - r_P^*)^2 + \Delta * \text{breakup}) \quad (9)$$

Note that the Periphery's utility depends on whether it accepts or rejects r_C . If it rejects, it sets its policy optimally to r_P^* . Hence:

$$U_{PP} = \begin{cases} -(1 + \gamma)(r_C - r_P^*)^2 + \gamma\sigma_P & \text{if } P \text{ accepts} \\ -(1 + \gamma)\Delta + \gamma\sigma_P & \text{if } P \text{ rejects.} \end{cases}$$

Clearly, for $r_C \geq r_P^*$ the Periphery accepts r_C if and only if $r_C - r_P^* \leq \sqrt{\Delta} \equiv R_1(C, P)$. Since the Core identifies nationally, its chosen policy when there is no threat of secession is r_C^* , which we denote by $\hat{r}_C(C, P)$. Thus, when $r_C^* - r_P^* \leq R_1(C, P)$ the Core is indeed able to set its policy to r_C^* without suffering the cost of breakup.

When $r_C^* - r_P^* > R_1(C, P)$, the Core decides between the following two options:

1. Set the policy that maximizes utility under breakup, which is r_C^* . Utility will then be:

$$U_{CC}|_{\text{breakup}} = -(1 + \gamma)\Delta + \gamma\sigma_C$$

2. Set the policy that maximizes utility subject to the constraint that the union is sustained (i.e choose among the policies that would be accepted by the Periphery). This policy is $r_C = \min\{r_C^*, r_P^* + \sqrt{\Delta}\} = r_P^* + \sqrt{\Delta}$, since $r_C^* - r_P^* > \sqrt{\Delta}$ in this case. Denote this policy by $\hat{r}_P(C, P)$. Utility is then:

$$U_{CC}|_{\text{unification}} = -(1 + \gamma)(r_P^* - r_C^* + \sqrt{\Delta})^2 + \gamma\sigma_C$$

Since $r_C^* - r_P^* > \sqrt{\Delta}$, we have $U_{CC}|_{\text{breakup}} > U_{CC}|_{\text{unification}}$ if and only if $r_C^* - r_P^* > 2\sqrt{\Delta} \equiv R_2(C, P)$.

In summary, the SPNE for the (C, P) social identity profile is given by:

1. if $r_C^* - r_P^* \leq R_1(C, P)$ unification occurs and $r_C = r_P = \hat{r}_C(C, P)$.
2. if $R_1(C, P) < r_C^* - r_P^* \leq R_2(C, P)$ unification occurs and $r_C = r_P = \hat{r}_P(C, P)$.
3. if $r_C^* - r_P^* > R_2(C, P)$ breakup occurs and $r_C = r_C^*, r_P = r_P^*$.

Finally, we have that $R_1(C, P) < R_2(C, P)$, $\hat{r}_P(C, P) < \hat{r}_C(C, P)$ and that both $R_1(C, P)$ and $R_2(C, P)$ are strictly increasing functions of the breakup cost Δ .

This completes the proof of Lemma 1. To characterize the SPNE for the remaining social identity profiles, use equations (2) and (4), to obtain the following utilities:

$$U_{PE} = \gamma\sigma_E - (1 + \gamma - \gamma\lambda)(r_P - r_P^*)^2 - \gamma\lambda(r_C - r_C^*)^2 - [(1 + \gamma)\Delta + \beta k] * breakup - \beta\lambda^2 [w + (r_C^* - r_P^*)^2] \quad (10)$$

$$U_{CE} = \gamma\sigma_E - (1 + \gamma\lambda)(r_C - r_C^*)^2 - \gamma(1 - \lambda)(r_P - r_P^*)^2 - [(1 + \gamma)\Delta + \beta k] * breakup - \beta(1 - \lambda)^2 [w + (r_C^* - r_P^*)^2] \quad (11)$$

Next, apply the same steps as in the proof of Lemma 1, using the appropriate utility functions from equations (8)-(11). This yields Lemmas 2-4.

Lemma 2. *Suppose Core identifies with own Country and Periphery identifies with Europe. Then:*

- a. $R_1(C, E) = \sqrt{\frac{(1+\gamma)\Delta + \beta k}{1 + \gamma - \gamma\lambda}}$, $R_2(C, E) = \sqrt{\Delta} + \sqrt{\frac{(1+\gamma)\Delta + \beta k}{1 + \gamma - \gamma\lambda}}$,
- b. $\hat{r}_C(C, E) = r_C^*$, $\hat{r}_P(C, E) = r_P^* + \sqrt{\frac{(1+\gamma)\Delta + \beta k}{1 + \gamma - \gamma\lambda}}$.

Lemma 3. *Suppose Core identifies with Europe and Periphery identifies with own Country. Then:*

- a. $R_1(E, P) = \frac{1 + \gamma}{1 + \gamma\lambda} \sqrt{\Delta}$, $R_2(E, P) = \sqrt{\Delta} + \sqrt{\Delta + \frac{\beta k}{1 + \gamma\lambda}}$,
- b. $\hat{r}_C(E, P) = \frac{(1 + \gamma\lambda)r_C^* + \gamma(1 - \lambda)r_P^*}{1 + \gamma}$, $\hat{r}_P(E, P) = r_P^* + \sqrt{\Delta}$.

Lemma 4. *Suppose both Core and Periphery identify with Europe. Then:*

$$a. R_1(E, E) = \begin{cases} \frac{1 + \gamma}{1 + \gamma\lambda} \sqrt{\frac{(1 + \gamma)\Delta + \beta k}{(1 + \gamma - \gamma\lambda)}} & \text{if } \gamma(1 - \lambda) \leq \sqrt{1 + \gamma\lambda} \\ \sqrt{\frac{(1 + \gamma)^2 \Delta + (1 + \gamma)\beta k}{\gamma(1 - \lambda)(1 + \gamma\lambda)}} & \text{if } \gamma(1 - \lambda) > \sqrt{1 + \gamma\lambda} \end{cases}$$

$$R_2(E, E) = \begin{cases} \sqrt{\frac{(1 + \gamma)\Delta + \beta k}{(1 + \gamma - \gamma\lambda)}} + \sqrt{\frac{(1 + \gamma)\Delta + \beta k}{(1 + \gamma - \gamma\lambda)(1 + \gamma\lambda)}} & \text{if } \gamma(1 - \lambda) \leq \sqrt{1 + \gamma\lambda} \\ \sqrt{\frac{(1 + \gamma)^2 \Delta + (1 + \gamma)\beta k}{\gamma(1 - \lambda)(1 + \gamma\lambda)}}, & \text{if } \gamma(1 - \lambda) > \sqrt{1 + \gamma\lambda} \end{cases}$$

$$b. \hat{r}_C(E, E) = \frac{(1+\gamma\lambda)r_C^* + \gamma(1-\lambda)r_P^*}{1+\gamma}, \quad \hat{r}_P(E, E) = r_P^* + \sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\gamma-\gamma\lambda)}}.$$

From Lemmas 1-4 we obtain Proposition 1. \square

Remark. Note that in the (E, E) case (Lemma 4), R_1 may coincide with R_2 . This happens in particular when γ is sufficiently large. Intuitively, if γ is very large, both Core and Periphery have similar preferences (as they both mainly care about European payoffs). Once the Periphery prefers breakup to unification under $\hat{r}_C(E, E)$ (the policy that maximizes these same preferences under unification), then so does the Core. Hence there is no region where the Core makes concessions to keep the Periphery in the union.

A.2 Proof of Proposition 2:

From Lemmas 1-4 and some algebra it is easy to show:

1. $R_2(C, E) > R_2(C, P)$
2. $R_2(C, E) > R_2(E, P)$
3. $R_2(E, E) > R_2(C, E)$ iff $\gamma^2\lambda(1-\lambda)\Delta < \beta k$.

We can see that the union is most robust under the (E, E) profile ($R_2(E, E) > R_2(ID_C, ID_P)$) for all $(ID_C, ID_P) \in \{(C, P), (E, P), (C, E)\}$ if and only if $\beta k > \gamma^2\lambda(1-\lambda)\Delta$. If $\beta k \leq \gamma^2\lambda(1-\lambda)\Delta$, then the union is strictly more robust under the (C, E) profile than under any other identity profile, i.e $R_2(C, E) > R_2(ID_C, ID_P)$ for all $(ID_C, ID_P) \in \{(C, P), (E, P), (E, E)\}$. \square

A.3 Proof of Proposition 3:

a. From Lemmas 1,3 we obtain:

1. $r_P^* \leq \hat{r}_c(E, P) \leq \hat{r}_c(C, P)$ for any given level of fundamental differences such that $r_C^* - r_P^* < \min\{R_1(C, P), R_1(E, P)\} = R_1(C, P)$;
2. $r_P^* < \hat{r}_c(E, P) \leq \hat{r}_p(C, P)$ for $R_1(C, P) < r_C^* - r_P^* \leq R_1(E, P)$;
3. $r_P^* < \hat{r}_p(E, P) = \hat{r}_p(C, P)$ for $R_1(E, P) < r_C^* - r_P^* \leq \min\{R_2(C, P), R_2(E, P)\} = R_2(C, P) = R_2(E, P)$.

Hence the union is more accommodating in the (E, P) than in the (C, P) case. From Lemmas 2,4 and simple algebra we obtain:

4. $r_P^* \leq \hat{r}_c(E, E) < \hat{r}_c(C, E)$ for $r_C^* - r_P^* < \min\{R_1(C, E), R_1(E, E)\} = R_1(C, E)$;

5. If $R_1(E, E) < R_2(E, E)$ then:

(a) $r_P^* < \hat{r}_c(E, E) \leq \hat{r}_p(C, E)$ for $R_1(C, E) < r_C^* - r_P^* \leq R_1(E, E)$

(b) $r_P^* < \hat{r}_p(E, E) = \hat{r}_p(C, E)$ for $R_1(E, E) < r_C^* - r_P^* \leq \min \{R_2(C, E), R_2(E, E)\} = R_2(E, E)$;

6. If $R_1(E, E) = R_2(E, E)$ then $r_P^* < \hat{r}_c(E, E) \leq \hat{r}_p(C, E)$ for $R_1(C, E) < r_C^* - r_P^* \leq \min \{R_2(C, E), R_2(E, E)\} = R_2(E, E)$.

Hence the union is more accommodating in the (E, E) than in the (C, E) case. This proves part *a* of the proposition.

b. Similarly, from Lemmas 3,4:

1. $r_P^* \leq \hat{r}_c(E, P) = \hat{r}_c(E, E)$ for $r_C^* - r_P^* < \min \{R_1(E, P), R_1(E, E)\} = R_1(E, P)$

2. If $R_1(E, E) \leq R_2(E, P)$ then:

(a) $r_P^* < \hat{r}_p(E, P) \leq \hat{r}_c(E, E)$ for $R_1(E, P) < r_C^* - r_P^* \leq R_1(E, E)$

(b) $r_P^* < \hat{r}_p(E, P) < \hat{r}_p(E, E)$ for $R_1(E, E) < r_C^* - r_P^* \leq \min \{R_2(E, P), R_2(E, E)\} = R_2(E, P)$

3. If $R_1(E, E) > R_2(E, P)$ then $r_P^* < \hat{r}_p(E, P) \leq \hat{r}_c(E, E)$ for $R_1(E, P) < r_C^* - r_P^* \leq \min \{R_2(E, P), R_2(E, E)\} = R_2(E, P)$.

And from Lemmas 1,2:

4. $r_P^* \leq \hat{r}_c(C, P) = \hat{r}_c(C, E)$ for $r_C^* - r_P^* < \min \{R_1(C, P), R_1(C, E)\} = R_1(C, P)$

5. $r_P^* < \hat{r}_c(C, P) \leq \hat{r}_p(C, E)$ for $R_1(C, P) < r_C^* - r_P^* \leq R_1(C, E)$

6. $r_P^* < \hat{r}_p(C, P) < \hat{r}_p(C, E)$ for $R_1(C, E) < r_C^* - r_P^* \leq \min \{R_2(C, P), R_2(C, E)\} = R_2(C, P)$

This proves part *b* of the proposition. \square

A.4 Is unification optimal from a material-payoff maximizing perspective?

From a pure material payoff perspective, robustness is not necessarily desirable: if differences are large, the countries may be better-off splitting. In this section we compare material payoffs in the SPNE under different identities to what a social planner interested in maximizing

aggregate material payoffs would do. Note that this is a rather narrow exercise, as it does not take full account of individual utility, which includes identity-driven costs and benefits. Let $V_E(r_C, r_P, breakup) = \lambda V_C(r_C, breakup) + (1 - \lambda)V_P(r_P, breakup)$ be the aggregate material payoff.

Definition 5. A union is *materially optimal* if it is sustained if and only if $\max_{r_C, r_P} V_E(r_C, r_P, 0) \geq \max_{r_C, r_P} V_E(r_C, r_P, 1)$.

Proposition 11. *Material Optimality and Robustness.*

a. When the Periphery identifies nationally and βk is sufficiently small, the union is not materially optimal, regardless of Core identity. The union is less robust than what an aggregate-material-payoff maximizer would choose.

b. When the Periphery identifies with Europe, then for any Core identity the union may or may not be materially optimal. If λ is sufficiently small the union is more robust than what an aggregate-material-payoff maximizer would choose.

Thus, there exists a range of fundamental differences $r_C^* - r_P^*$ for which it would be materially optimal to form a union, and yet if the individuals in the Periphery identify with their nation then the union cannot be sustained. This echoes proposition 2: achieving unification primarily requires bolstering the common (European) identity in the Periphery. A common identity, however, does not always enhance overall material payoffs. There exist situations where it is materially optimal to dismantle the union, and yet if the Periphery identifies with Europe the union is sustained nonetheless. The basic reason is that when the Periphery identifies with Europe, the union can be sustained at the expense of the Periphery's material payoff. This could be optimal if the Periphery is relatively small (λ large) but when the Periphery is large, this implies a high aggregate cost.

Proof of Proposition 11:

a. Note first that under breakup it is materially optimal to set $r_C = r_C^*$ and $r_P = r_P^*$. Thus:

$$\max_{r_C, r_P} V_E(r_C, r_P, 1) = -\Delta. \tag{12}$$

Under unification, $V_E(r_C, r_P, 0) = V_E(\tilde{r}, \tilde{r}, 0) = -\lambda(\tilde{r} - r_C^*)^2 - (1 - \lambda)(\tilde{r} - r_P^*)^2$. This is maximized when the common policy is set to $\tilde{r} = \lambda r_C^* + (1 - \lambda)r_P^*$. Thus:

$$\max_{r_C, r_P} V_E(r_C, r_P, 0) = -\lambda(1 - \lambda)(r_C^* - r_P^*)^2. \tag{13}$$

From equations (12), (13) and Definition 5, a materially optimal union will be sustained if and only if $r_C^* - r_P^* \leq \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$. But from Lemmas 1 and 3, $R_2(C, P) = 2\sqrt{\Delta} < \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ (since $\lambda \in (0.5, 1)$) and $R_2(E, P) = \sqrt{\Delta} + \sqrt{\Delta + \frac{\beta k}{1+\gamma\lambda}} < \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ if and only if $\beta k < \frac{1+\gamma\lambda}{\lambda(1-\lambda)}(1 - 2\sqrt{\lambda(1-\lambda)})$. This proves part *a* of the proposition.

b. When the Periphery identifies with Europe, then for any given Core identity ID_C there exist $\lambda \in (0.5, 1)$ and $\gamma > 0$ such that $R_2(ID_C, E)$ may be larger, smaller or equal to $\frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$.¹⁴

Finally, we show that if λ is sufficiently small then $R_2(ID_C, E) > \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ for any given Core identity ID_C . First, note that for a fixed $\Delta > 0$ and $\gamma > 0$ we have:

$$\begin{aligned} \lim_{\lambda \rightarrow 0.5} \left(R_2(C, E) - \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}} \right) &= \lim_{\lambda \rightarrow 0.5} \left(\sqrt{\Delta} + \sqrt{\frac{(1+\gamma)\Delta + \beta k}{1+\gamma-\gamma\lambda}} - \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}} \right) \\ &\geq \lim_{\lambda \rightarrow 0.5} \left(\sqrt{\Delta} + \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}} - \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}} \right) = \sqrt{\Delta} \left(\sqrt{\frac{1+\gamma}{1+\gamma/2}} - 1 \right) > 0. \end{aligned}$$

Thus, for sufficiently small λ , $R_2(C, E) > \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$.

To see that $R_2(E, E) > \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ for small λ , recall from Lemma 4:

$$R_2(E, E) = \begin{cases} \sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\gamma-\gamma\lambda)}} + \sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)}} & \text{if } \gamma(1-\lambda) \leq \sqrt{1+\gamma\lambda} \\ \sqrt{\frac{(1+\gamma)^2\Delta + (1+\gamma)\beta k}{\gamma(1-\lambda)(1+\gamma\lambda)}}, & \text{if } \gamma(1-\lambda) > \sqrt{1+\gamma\lambda} \end{cases}$$

Note that $\lim_{\lambda \rightarrow 0.5} \sqrt{\frac{(1+\gamma)^2\Delta + (1+\gamma)\beta k}{\gamma(1-\lambda)(1+\gamma\lambda)}} > \lim_{\lambda \rightarrow 0.5} \sqrt{\frac{(1+\gamma)^2\Delta}{\gamma(1-\lambda)(1+\gamma\lambda)}} = \frac{(1+\gamma)\sqrt{\Delta}}{\sqrt{\frac{\gamma}{2}(1+\frac{\gamma}{2})}} > 2\sqrt{\Delta} = \lim_{\lambda \rightarrow 0.5} \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ for every $\gamma > 0$.

For the region $\gamma(1-\lambda) \leq \sqrt{1+\gamma\lambda}$, note that $\sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\gamma-\gamma\lambda)}} + \sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)}} \geq \sqrt{\frac{(1+\gamma)\Delta}{(1+\gamma-\gamma\lambda)}} + \sqrt{\frac{(1+\gamma)\Delta}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)}}$. Thus, it is sufficient to show that $\sqrt{\Delta} \left(\sqrt{\frac{1+\gamma}{1+\frac{\gamma}{2}}} + \sqrt{\frac{1+\gamma}{(1+\frac{\gamma}{2})^2}} \right) > 2\sqrt{\Delta}$ if $\frac{\gamma}{2} \leq \sqrt{1+\frac{\gamma}{2}}$. Indeed, in this region of γ , $\sqrt{\Delta} \left(\sqrt{\frac{1+\gamma}{1+\frac{\gamma}{2}}} + \sqrt{\frac{1+\gamma}{(1+\frac{\gamma}{2})^2}} \right) \geq \sqrt{\Delta} \left(\frac{\sqrt{1+\gamma}}{\frac{\gamma}{2}} + \frac{\sqrt{1+\gamma}}{(\frac{\gamma}{2})^2} \right) = \sqrt{\Delta} \frac{\sqrt{1+\gamma}}{\frac{\gamma}{2}} \left(1 + \frac{2}{\gamma} \right) > 2\sqrt{\Delta}$. \square

¹⁴For example, assume $k = 0$. Applying Lemmas 2 and 4, $R_2(C, E) > \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ if $(\lambda, \gamma) = (0.55, 0.1)$; $R_2(C, E) < \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ if $(\lambda, \gamma) = (0.8, 0.2)$; $R_2(E, E) > \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ if $(\lambda, \gamma) = (0.65, 0.7)$; $R_2(E, E) < \frac{\sqrt{\Delta}}{\sqrt{\lambda(1-\lambda)}}$ if $(\lambda, \gamma) = (0.9, 0.8)$. There are other examples where $k \neq 0$.

A.5 Identity effects when union policy maximizes joint welfare

How does the role of social identity differ if the policy is chosen jointly by union members? We consider an alternative specification in which the policy of a union is set to maximize total welfare. In the first stage of the game, both countries decide whether or not to join the union. A union is formed if and only if both countries decide to join. Policies are set in the second stage. Under unification, the policy in both countries is the welfare maximizing one. Under breakup, policies are set independently by each country. To focus on the case with perfect symmetry across the two countries we set $\lambda = 0.5$. The only difference between Core and Periphery is that $r_C^* \geq r_P^*$.

Proposition 12 characterizes the Subgame Perfect Nash Equilibrium (SPNE) under any given profile of social identities. It is considerably simpler than the case analyzed in the main paper: when fundamental differences are low enough, both countries prefer adopting some union-wide policy \tilde{r} rather than suffering the costs of breakup. At some point differences are too large and at least one of the countries prefers to conduct its own policy outside of the union.

Proposition 12. Subgame Perfect Nash Equilibrium (SPNE) in the Symmetric Game. For any profile of social identities (ID_c, ID_p) , there exists a cutoff $\tilde{R} = \tilde{R}(ID_c, ID_p)$ and a policy $\tilde{r} = \tilde{r}(ID_c, ID_p)$ such that:

- if $r_C^* - r_P^* \leq \tilde{R}$ then in SPNE unification occurs and $r_C = r_P = \tilde{r}$;
- if $r_C^* - r_P^* > \tilde{R}$ then in SPNE breakup occurs and $r_C = r_C^*$, $r_P = r_P^*$.
- $\tilde{r} = \arg \max_r \frac{1}{2}U_{C, ID_c}(r_C = r, \text{breakup} = 0) + \frac{1}{2}U_{P, ID_p}(r_P = r, \text{breakup} = 0)$.

Proof. We solve for each of the four social identity profiles.

Case 1 (C, P): Both Core and Periphery identify with their own country

We first solve for the policy under unification \tilde{r} :

$$\begin{aligned} \tilde{r}(C, P) &= \arg \max_r \frac{1}{2}U_{CC}(r_C = r, \text{breakup} = 0) + \frac{1}{2}U_{PP}(r_P = r, \text{breakup} = 0) = \\ &= \arg \max_r \frac{1}{2}(\gamma\sigma_C - (1 + \gamma)(r - r_C^*)^2) + \frac{1}{2}(\gamma\sigma_P - (1 + \gamma)(r - r_P^*)^2) = \\ &= \frac{1}{2}r_C^* + \frac{1}{2}r_P^* \end{aligned}$$

Given \tilde{r} , both countries decide whether to join the union. The Core joins if and only if

$$U_{CC}(r_C = \tilde{r}, breakup = 0) \geq U_{CC}(r = r_C^*, breakup = 1) \iff \\ r_C^* - r_P^* \leq 2\sqrt{\Delta}$$

The Periphery similarly joins the union if and only if $r_C^* - r_P^* \leq 2\sqrt{\Delta}$. Thus, the cutoff at which fundamental differences are too high for a union to be formed is $\tilde{R}(C, P) = 2\sqrt{\Delta}$.

Case 2 (C, E) : Core Identifies with own Country and Periphery identifies with Europe

Applying the same solution steps, the policy under unification is given by

$$\tilde{r}(C, E) = \arg \max_r \frac{1}{2}U_{CC}(r_C = r, breakup = 0) + \frac{1}{2}U_{PE}(r_P = r, breakup = 0) = \\ \frac{1}{2}r_C^* + \frac{1}{2}r_P^* + \frac{\gamma(r_C^* - r_P^*)}{4(1 + \gamma)}$$

The Core joins the union if and only if $r_C^* - r_P^* \leq 2\sqrt{\Delta} \frac{2+2\gamma}{2+\gamma}$. The Periphery joins if and only if $r_C^* - r_P^* \leq 4(1 + \gamma) \sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\frac{\gamma}{2})(2+3\gamma)^2 + \frac{\gamma}{2}(2+\gamma)^2}}$. Thus, the unification cutoff is

$$\tilde{R}(C, E) = \min \left\{ 2\sqrt{\Delta} \frac{2+2\gamma}{2+\gamma}, 4(1 + \gamma) \sqrt{\frac{(1 + \gamma)\Delta + \beta k}{(1 + \frac{\gamma}{2})(2 + 3\gamma)^2 + \frac{\gamma}{2}(2 + \gamma)^2}} \right\}$$

Case 3 (E, P): Core Identifies with Europe and Periphery identifies with own country

The policy under unification is given by

$$\tilde{r}(E, P) = \arg \max_r \frac{1}{2}U_{CE}(r_C = r, breakup = 0) + \frac{1}{2}U_{PP}(r_P = r, breakup = 0) = \\ \frac{1}{2}r_C^* + \frac{1}{2}r_P^* - \frac{\gamma(r_C^* - r_P^*)}{4(1 + \gamma)}$$

The Core joins the union if and only if $r_C^* - r_P^* \leq 4(1 + \gamma) \sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\frac{\gamma}{2})(2+3\gamma)^2 + \frac{\gamma}{2}(2+\gamma)^2}}$. The Periphery joins if and only if $r_C^* - r_P^* \leq 2\sqrt{\Delta} \frac{2+2\gamma}{2+\gamma}$. Thus, the unification cutoff is

$$\tilde{R}(E, P) = \min \left\{ 2\sqrt{\Delta} \frac{2+2\gamma}{2+\gamma}, 4(1 + \gamma) \sqrt{\frac{(1 + \gamma)\Delta + \beta k}{(1 + \frac{\gamma}{2})(2 + 3\gamma)^2 + \frac{\gamma}{2}(2 + \gamma)^2}} \right\}$$

Note that this game is identical to the (C, E) game, except for the fact that the policy is now tilted towards r_P^* .

Case 4 (E, E) : Both Core and Periphery identify with Europe

The policy under unification is given by

$$\begin{aligned} \tilde{r}(E, E) = \arg \max_r \frac{1}{2}U_{CE}(r_C = r, \text{breakup} = 0) + \frac{1}{2}U_{PE}(r_P = r, \text{breakup} = 0) = \\ \frac{1}{2}r_C^* + \frac{1}{2}r_P^* \end{aligned}$$

The Core joins the union if and only if $r_C^* - r_P^* \leq 2\sqrt{\Delta + \frac{\beta k}{1+\gamma}}$. The Periphery similarly joins if and only if $r_C^* - r_P^* \leq 2\sqrt{\Delta + \frac{\beta k}{1+\gamma}}$. Thus, the unification cutoff is

$$\tilde{R}(E, E) = 2\sqrt{\Delta + \frac{\beta k}{1+\gamma}}$$

Proposition 13. *Robustness.* The union is most robust under the (E, E) profile.

Proof. It is straightforward to notice that $\tilde{R}(E, E) \geq \tilde{R}(C, P)$. To show that $\tilde{R}(E, E) > \tilde{R}(E, P) = \tilde{R}(C, E)$ we consider two cases.

First, consider the case where $\tilde{R}(C, E) = \tilde{R}(E, P) = 4(1+\gamma)\sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\frac{\gamma}{2})(2+3\gamma)^2 + \frac{\gamma}{2}(2+\gamma)^2}}$. Then we observe that

$$\begin{aligned} 2\sqrt{\Delta + \frac{\beta k}{1+\gamma}} &> 4(1+\gamma)\sqrt{\frac{(1+\gamma)\Delta + \beta k}{(1+\frac{\gamma}{2})(2+3\gamma)^2 + \frac{\gamma}{2}(2+\gamma)^2}} \iff \\ \frac{1}{\sqrt{1+\gamma}} &> \frac{2(1+\gamma)}{\sqrt{(2+\gamma)(5\gamma^2 + 7\gamma + 2)}} \iff \\ 5\gamma^3 + 17\gamma^2 + 16\gamma + 4 &> 2\gamma^3 + 6\gamma^2 + 6\gamma + 2 \end{aligned}$$

for any $\gamma \geq 0$.

Second, consider the case where $\tilde{R}(C, E) = \tilde{R}(E, P) = 2\sqrt{\Delta \frac{2+2\gamma}{2+\gamma}}$. Note that this implies $\frac{\Delta}{2+\gamma} \leq \frac{(1+\gamma)\Delta + \beta k}{5\gamma^2 + 7\gamma + 2}$. We observe that

$$\begin{aligned} 2\sqrt{\Delta + \frac{\beta k}{1+\gamma}} &> 2\sqrt{\Delta \frac{2+2\gamma}{2+\gamma}} \iff \\ \frac{(1+\gamma)\Delta + \beta k}{2\gamma^2 + 4\gamma + 2} &> \frac{\Delta}{2+\gamma} \end{aligned}$$

and since $\frac{(1+\gamma)\Delta+\beta k}{2\gamma^2+4\gamma+2} > \frac{(1+\gamma)\Delta+\beta k}{5\gamma^2+7\gamma+2} \geq \frac{\Delta}{2+\gamma}$ we are done. \square

Proposition 14. *Accommodation.* *The union is most accommodating under the (E, P) profile.*

Proof. It is straightforward to see that $\tilde{r}(E, P) < \tilde{r}(C, P) = \tilde{r}(E, E) < \tilde{r}(C, E)$.

A.6 Ex-post Status Gaps

The ex-post status of the Periphery (S_P) and the Core (S_C) are endogenously determined in SPNE. This section details the ex-post status gap for any given identity profile. This will be used for deriving the results in Section 5.

Define $SG_{(ID_C, ID_P)}(r_C^* - r_P^*)$ as the ex-post status gap between the Core and the Periphery, i.e. $S_C - S_P$, in SPNE given identity profile (ID_C, ID_P) when the level of fundamental differences between the countries is $r_C^* - r_P^*$.

Case 1 (C, P): Both Core and Periphery identify with their own country

The ex-post status gap can be derived directly from equation (3) and Lemma 1:

$$SG_{(C,P)}(r_C^* - r_P^*) = \begin{cases} \sigma_C - \sigma_P + (r_C^* - r_P^*)^2 & \text{if } r_C^* - r_P^* \leq R_1(C, P) \\ \sigma_C - \sigma_P - (r_C^* - r_P^*)^2 + 2\sqrt{\Delta}(r_C^* - r_P^*) & \text{if } R_1(C, P) < r_C^* - r_P^* \leq R_2(C, P) \\ \sigma_C - \sigma_P & \text{if } r_C^* - r_P^* > R_2(C, P) \end{cases} \quad (14)$$

Case 2 (C, E) : Core Identifies with own Country and Periphery identifies with Europe

Equation (3) and Lemma 2 imply:

$$SG_{(C,E)}(r_C^* - r_P^*) = \begin{cases} \sigma_C - \sigma_P + (r_C^* - r_P^*)^2 & \text{if } r_C^* - r_P^* \leq R_1(C, E) \\ \sigma_C - \sigma_P - (r_C^* - r_P^*)^2 + 2\sqrt{\frac{(1+\gamma)\Delta+\beta k}{1+\gamma-\gamma\lambda}}(r_C^* - r_P^*) & \text{if } R_1(C, E) < r_C^* - r_P^* \leq R_2(C, E) \\ \sigma_C - \sigma_P & \text{if } r_C^* - r_P^* > R_2(C, E) \end{cases} \quad (15)$$

Case 3 (E, P): Core Identifies with Europe and Periphery identifies with own country

Equation (3) and Lemma 3 imply:

$$SG_{(E,P)}(r_C^* - r_P^*) = \begin{cases} \sigma_C - \sigma_P + \frac{1-\gamma+2\gamma\lambda}{1+\gamma} (r_C^* - r_P^*)^2 & \text{if } r_C^* - r_P^* \leq R_1(E, P) \\ \sigma_C - \sigma_P - (r_C^* - r_P^*)^2 + 2\sqrt{\Delta}(r_C^* - r_P^*) & \text{if } R_1(E, P) < r_C^* - r_P^* \leq R_2(E, P) \\ \sigma_C - \sigma_P & \text{if } r_C^* - r_P^* > R_2(E, P) \end{cases} \quad (16)$$

Case 4 (E, E): Both Core and Periphery identify with Europe

Finally, equation (3) and Lemma 4 imply:

$$SG_{(E,E)}(r_C^* - r_P^*) = \begin{cases} \sigma_C - \sigma_P + \frac{1-\gamma+2\gamma\lambda}{1+\gamma} (r_C^* - r_P^*)^2 & \text{if } r_C^* - r_P^* \leq R_1(E, E) \\ \sigma_C - \sigma_P - (r_C^* - r_P^*)^2 + 2\sqrt{\frac{(1+\gamma)\Delta+\beta k}{1+\gamma-\gamma\lambda}} (r_C^* - r_P^*) & \text{if } R_1(E, E) < r_C^* - r_P^* \leq R_2(E, E) \\ \sigma_C - \sigma_P & \text{if } r_C^* - r_P^* > R_2(E, E) \end{cases} \quad (17)$$

A.7 Proof of Proposition 4:

Assume $\sigma_C = \sigma_P = \sigma_E$.

a. The Core identifies nationally if $U_{CC} > U_{CE}$ or, using equation (6), if $S_C - S_P > 0$. The Core identifies with Europe if $S_C - S_P < 0$. Similarly, from equation (7), the Periphery identifies nationally if $S_C - S_P < 0$ and with Europe if $S_C - S_P > 0$. When $S_C - S_P = 0$, both are indifferent between identifying nationally and identifying with Europe.

Given these choices of social identities, by Definition 4, an SIE in which the social identity profile is (C, E) exists if and only if $SG_{(C,E)}(r_C^* - r_P^*) \geq 0$. (The function $SG_{(ID_C, ID_P)}(r_C^* - r_P^*)$ is defined in section A.6). But under $\sigma_C = \sigma_P = \sigma_E$, it turns out that $SG_{(C,E)}(r_C^* - r_P^*) \geq 0$ for *any* level of fundamental differences $r_C^* - r_P^*$. To see this, notice that from equation (15) and Lemma 2:

- $SG_{(C,E)}(r_C^* - r_P^*) = 0$ when $r_C^* - r_P^* = 0$ and when $r_C^* - r_P^* > R_2(C, E)$;
- $SG_{(C,E)}(r_C^* - r_P^*)$ is increasing for $r_C^* - r_P^* \leq R_1(C, E)$;
- $SG_{(C,E)}(r_C^* - r_P^*)$ is decreasing for $R_1(C, E) < r_C^* - r_P^* \leq R_2(C, E)$;
- $SG_{(C,E)}(R_2(C, E)) > 0$.

We conclude that an SIE exists for any level of fundamental differences between the countries.

b. Suppose the union is sustained in SIE. From the proof of part *a* we know that the (C, E) profile is sustained in SIE under any level of $r_C^* - r_P^*$. And from Lemma 2, under the (C, E) profile unification takes place when $r_C^* - r_P^* \leq R_2(C, E)$.

Consider now other identity profiles $(ID_C, ID_P) \neq (C, E)$ under the assumed ex-ante status restrictions. From equation (17), $SG_{(E,E)}(r_C^* - r_P^*) > 0$ when $0 < r_C^* - r_P^* \leq R_2(E, E)$. Since the Core identifies with Europe only if $S_C - S_P \leq 0$, the social identity profile (E, E) cannot hold in SIE when fundamental differences are such that $0 < r_C^* - r_P^* \leq R_2(E, E)$. Similarly, from equations (14) and (16), $SG_{(ID_C,P)}(r_C^* - r_P^*) > 0$ when $0 < r_C^* - r_P^* < R_2(ID_C, P)$. Since the Periphery identifies nationally only if $S_C - S_P \leq 0$, any social identity profile (ID_C, P) cannot hold in SIE when $0 < r_C^* - r_P^* < R_2(ID_C, P)$. Finally, since unification can only be sustained under profile (ID_C, ID_P) when $r_C^* - r_P^* \leq R_2(ID_C, ID_P)$, we conclude that in almost any SIE in which the union is sustained, the social identity profile is (C, E) . There are two exceptions:

1. When $r_C^* - r_P^* = 0$. From Proposition 1 we know that unification takes place in SPNE under any identity profile. And from equations (14)-(17) it is clear that under the assumed ex-ante status restrictions $SG_{(ID_C, ID_P)}(0) = 0$ for all (ID_C, ID_P) . Hence, all social identity profiles can hold in SIE with unification.
2. When $r_C^* - r_P^* = R_2(ID_C, P)$. In this case both the (C, P) and (E, P) profiles can hold in an SIE with unification.

c. From the proof of Proposition 2, $R_2(C, E) > R_2(C, P)$. Thus, from the proof of part *b* above, when $r_C^* - r_P^* \leq R_2(C, P)$, SIE implies unification.

Next, note that for any identity profile (ID_C, ID_P) , if $r_C^* - r_P^* > R_2(ID_C, ID_P)$ then equations (14)-(17) imply $SG_{(ID_C, ID_P)}(r_C^* - r_P^*) = 0$. Hence, there exists an SIE in which breakup occurs and the social identity profile is (ID_C, ID_P) . Moreover, for fundamental differences such that $R_2(C, P) = R_2(E, P) \leq r_C^* - r_P^* \leq R_2(C, E)$, multiple SIE's exist, with and without unification.

d. This statement follows directly from the discussion of the (E, E) case in part *b* above and from the discussion of the case $r_C^* - r_P^* > R_2(ID_C, ID_P)$ in part *c* above. \square

A.8 Proof of Proposition 5:

Assume $\sigma_C > \sigma_E > \sigma_P$. Thus, $\frac{\sigma_E - \sigma_C}{1 - \lambda}, \frac{\sigma_P - \sigma_E}{\lambda} < 0$. From Equation (15) and Lemma 2 it then follows that

$$SG_{(C,E)}(r_C^* - r_P^*) > \max \left\{ \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}, \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} \right\}$$

for any level of fundamental differences $r_C^* - r_P^*$. But from Definition 4 and equations (6) and (7), this implies that an SIE in which the social identity profile is (C, E) exists for any level of fundamental differences between the countries.

Furthermore, from equations (14), (16) and (17) it follows that for every social identity profile $(ID_C, ID_P) \neq (C, E)$, we have that

$$SG_{(ID_C, ID_P)}(r_C^* - r_P^*) > \max \left\{ \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}, \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} \right\}$$

for every $r_C^* - r_P^*$. Hence, either the Core would not identify with ID_C or the Periphery would not identify with ID_P in the SPNE given (ID_C, ID_P) . Thus, no social identity profile $(ID_C, ID_P) \neq (C, E)$ can hold in SIE. It follows that for every $r_C^* - r_P^*$ there exists a unique SIE in which the identity profile has the Core identifying nationally and the Periphery identifying with Europe. From Lemma 2 we know that unification occurs in this SIE if and only if $r_C^* - r_P^* \leq R_2(C, E)$. \square

A.9 Proof of Proposition 6:

Assume $\sigma_P > \sigma_E > \sigma_C$. Furthermore, we provide here the proof for the case in which $\sigma_E > \lambda\sigma_C + (1 - \lambda)\sigma_P$, corresponding to Panel B in Figure 3. The proof is similar for the case $\sigma_E \leq \lambda\sigma_C + (1 - \lambda)\sigma_P$.

a. Consider an SIE in which the social identity profile is (E, P) . From Definition 4 and equations (6) and (7), such an SIE exists if and only if

$$SG_{(E, P)}(r_C^* - r_P^*) \leq \min \left\{ \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}, \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} \right\} = \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}. \quad (18)$$

From equation (16), it immediately follows that condition (18) holds when $r_C^* - r_P^* = 0$ and when $r_C^* - r_P^* \geq R_2(E, P)$.

Next, focus on the intermediate level of fundamental differences $r_C^* - r_P^* \in (0, R_2(E, P))$. By contradiction, suppose that there exists some $r_C^* - r_P^*$ in this region such that there does not exist an SIE. Denote this level of $r_C^* - r_P^*$ by \bar{r} . Then, from condition (18) it follows that $SG_{(E, P)}(\bar{r}) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$. In addition $SG_{(C, E)}(\bar{r}) < \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}$, since given Definition 4 and equations (6) and (7), an SIE in which the social identity profile is (C, E) holds if and only if $SG_{(C, E)}(r_C^* - r_P^*) \geq \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}$. Finally, note that $SG_{(E, P)}(r_C^* - r_P^*) \leq SG_{(E, E)}(r_C^* - r_P^*) \leq SG_{(C, E)}(r_C^* - r_P^*)$ for every $r_C^* - r_P^*$ (this can be algebraically verified from equations (15)-(17) and Lemmas 2-4). Thus, it must be the case that $\sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} < SG_{(E, E)}(\bar{r}) < \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}$. But by Definition 4 and equations (6) and (7), this means that an SIE in which the identity profile is (E, E) exists when $r_C^* - r_P^* = \bar{r}$. We therefore conclude that an SIE exists for every level of $r_C^* - r_P^*$.

b. From equations (14)-(17) it follows that for any (ID_C, ID_P) ,

$$SG_{(ID_C, ID_P)}(r_C^* - r_P^*) < \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} = \min \left\{ \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}, \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} \right\}$$

whenever $r_C^* - r_P^* \geq R_2(ID_C, ID_P)$. Equations (6) and (7) then imply that for any (ID_C, ID_P) , whenever $r_C^* - r_P^* \geq R_2(ID_C, ID_P)$ in SIE the Core identifies with Europe while the Periphery identifies nationally. Thus, in any SIE in which breakup occurs, the social identity profile must be (E, P) .

c. From Proposition 1 and the proof of Proposition 2, we know that when $r_C^* - r_P^* < R_2(E, P)$ unification occurs in any SIE (since $R_2(E, P) \leq R_2(ID_C, ID_P)$ for every (ID_C, ID_P)). Similarly, when $r_C^* - r_P^* \geq R_2(C, E)$ breakup occurs in any SIE (since $R_2(C, E) > R_2(ID_C, ID_P)$ for every (ID_C, ID_P)). Consider then the intermediate region of fundamental differences such that $R_2(E, P) < r_C^* - r_P^* \leq R_2(C, E)$.

From the proofs of parts *a* and *c* above, for every level of fundamental differences in this region there exists an SIE with an (E, P) social identity profile in which breakup occurs. Furthermore, since $SG_{(ID_C, P)}(r_C^* - r_P^*) < \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$ throughout this region for every Core identity ID_C , it follows that in any SIE in this region in which the Periphery identifies nationally, breakup must occur. We are thus left to show that there exist levels of fundamental differences in this intermediate region for which an SIE with unification exists.

To see this, recall that an SIE in which the social identity profile is (C, E) holds if and only if $SG_{(C, E)}(r_C^* - r_P^*) \geq \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}$. Since $SG_{(C, E)}(r_C^* - r_P^*)$ is continuous at $R_2(E, P)$, if $SG_{(C, E)}(R_2(E, P)) > \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}$ then there exist levels of $r_C^* - r_P^*$ throughout this intermediate range for which this SIE holds (i.e., there exists an $\epsilon > 0$ such that for every $R_2(E, P) \leq r_C^* - r_P^* < R_2(E, P) + \epsilon$ we have that $SG_{(C, E)}(r_C^* - r_P^*) \geq \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda}$). It is easy to verify that this can indeed be the case. From the proof of Proposition 2 we know that $R_2(E, P) < R_2(C, E)$ so unification occurs in this SIE. We have thus shown that there exists a subset I^* of $[R_2(C, P), R_2(C, E)]$ such that if fundamental differences are in this subset, both unification and breakup can occur. However, in any SIE in I^* in which unification occurs, the Periphery identifies with the union. Note that this does not imply an SIE with unification is possible throughout the $[R_2(C, P), R_2(C, E)]$ interval. For this to be the case, it is required that $S_C - S_P(R_2(C, E)) \geq \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda} \iff \sigma_E - \sigma_C \leq \frac{\gamma\lambda(1-\lambda)\Delta}{1+\gamma-\gamma\lambda}$. This is more likely when σ_C , γ , Δ , and λ are high, and σ_E is low. \square

A.10 Proof of Proposition 7:

Throughout the proof we assume that Condition 1 holds. Note that in particular this implies that the (E, E) identity profile cannot be sustained in SIE.

Suppose first that $\beta = 0$. From Propositions 4 and 5 we know that when $\sigma_C \geq \sigma_P$ there exists an SIE with unification as long as $r_C^* - r_P^* \leq R_2(C, E)$. Part (c) of Proposition 6 tells us that when $\sigma_C < \sigma_P$ there exists a subset $I^* \subseteq [R_2(C, P), R_2(C, E)]$ such that if $r_C^* - r_P^* \in I^*$, both unification and breakup can occur. As apparent from the proof, $R_2(C, E)$ might or might not be part of this subset, depending on the parameter specification. Thus, we have that $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) \leq \overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$, and there exist parameter values such that the inequality is strict.

Turning to part (b), Propositions 4 and 6 imply that when $\sigma_C \leq \sigma_P$ there exists an SIE with breakup $r_C^* - r_P^* > R_2(C, P)$. Furthermore, Proposition 5 tells us that when $\sigma_C > \sigma_P$ breakup occurs in SIE if and only if $r_C^* - r_P^* > R_2(C, E)$. We therefore conclude that $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) \leq \underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$.

Next, consider the $\beta > 0$ case.

For any given $(\beta, w, \gamma, \Delta, \lambda, \sigma_E)$ define $\overline{M}_C \equiv \overline{M}(\cdot | \sigma_P < \sigma_C)$ as the maximal level of fundamental differences under which an SIE with unification can be sustained under $\sigma_P < \sigma_C$. Similarly, define $\overline{M}_P \equiv \overline{M}(\cdot | \sigma_P \geq \sigma_C)$. We break down by two cases according to the various values \overline{M}_P can take in the range of $[R_2(C, P), R_2(C, E)]$. Since condition 1 holds, both \overline{M}_C and \overline{M}_P lies in this range. For each case we then show that $\overline{M}_C \geq \overline{M}_P$.

1. Consider first the trivial case where $\overline{M}_P = R_2(C, P)$. Since $\overline{M}_C \in [R_2(C, P), R_2(C, E)]$ then we have that $\overline{M}_C \geq \overline{M}_P$.
2. Next, assume $\overline{M}_P \in (R_2(C, P), R_2(C, E))$. In this case \overline{M}_P is the solution of $SG_{(C, E)}(\overline{M}_P / \sigma_P \geq \sigma_C) = \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (\overline{M}_P)^2]$. Simple algebra shows that $SG_{(C, E)}(\overline{M}_P / \sigma_P < \sigma_C) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (\overline{M}_P)^2]$. This implies that \overline{M}_C has to be the solution of $SG_{(C, E)}(\overline{M}_C / \sigma_P < \sigma_C) = \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (\overline{M}_C)^2]$ and that $\overline{M}_C > \overline{M}_P$.
3. Finally, assume $\overline{M}_P = R_2(C, E)$. It then follows that $SG_{(C, E)}(R_2(C, E) / \sigma_P \geq \sigma_C) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (R_2(C, E))^2]$. This in turn implies that $SG_{(C, E)}(R_2(C, E) / \sigma_P < \sigma_C) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (R_2(C, E))^2]$ and therefore $\overline{M}_C = \overline{M}_P$.

This gives us $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) \leq \overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$ when $\beta > 0$, which completes the proof of part (a) of the proposition.

We now proceed to the proof of part (b) for the case $\beta > 0$. Denote $\sigma_E^* = \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (r_C^* - r_P^*)^2]$. Condition 1 implies that

$SG_{(ID_C, ID_P)}(r_C^* - r_P^*) \in \left(\sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda} - \frac{\beta(1 - \lambda)}{\gamma} [w + (r_C^* - r_P^*)^2], \sigma_E^* \right)$ for any identity profile (ID_C, ID_P) and $(r_C^* - r_P^*) \geq R_2(ID_C, ID_P)$.

The definition of SIE then implies that there exists an SIE with breakup for every $(r_C^* - r_P^*) > R_2(ID_C, ID_P)$, i.e. $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) = \underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C) = R_2(C, P)$. Note that if $\sigma_E^* < \sigma_E < \sigma_C + \frac{\beta(1 - \lambda)^2}{\gamma} \left(w + 2\Delta + 2\sqrt{\Delta^2 + \frac{\beta\Delta k}{1 + \gamma\lambda} + \frac{\beta k}{1 + \gamma\lambda} - \frac{\gamma k}{(1 + \gamma\lambda)(1 - \lambda)}} \right)$ then there exist parameter values such that the inequality is strict, i.e. $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) < \underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$. This follows from the observation that when $\sigma_E^* < \sigma_E$ the identity indifference curves intersect. Consider then parameter values such that

$SG_{(C, P)}(R_2(C, P)) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (R_2(C, P))^2]$ for $\sigma_P < \sigma_C$, but

$$SG_{(C, P)}(R_2(C, P)) \in \left(\sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda} - \frac{\beta(1 - \lambda)}{\gamma} [w + (R_2(C, P))^2], \right. \\ \left. \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (R_2(C, P))^2] \right)$$

for $\sigma_P \geq \sigma_C$. According to our definition of SIE, This implies $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C) > \underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) = R_2(C, P)$. \square

A.11 Proof of Proposition 8:

a. Consider the case where $\sigma_P < \sigma_C$. Proposition 5 states that whenever $\beta = 0$ any SIE (with either breakup or unification) must involve the (C, E) profile. To complete the parameter state space, consider $\beta > 0$. In this case, we verify that $SG_{ID_C, ID_P}(r_C^* - r_P^*) > \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda} - \frac{\beta(1 - \lambda)}{\gamma} [w + (r_C^* - r_P^*)^2]$ for any (ID_C, ID_P) and $(r_C^* - r_P^*)$ such that $r_C^* - r_P^* > R_2(ID_C, ID_P)$. In other words, the Core must identify nationally in any SIE that involves breakup.

The Periphery might also identify nationally under breakup. To see why this can be the case, consider (for example) the case where $SG_{(C, P)}(R_2(C, P)) \in \left[\sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda} - \frac{\beta(1 - \lambda)}{\gamma} [w + R_2(C, P)^2], \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + R_2(C, P)^2] \right]$. This is possible when $\sigma_E < \sigma_C + \frac{\beta w(1 - \lambda)^2}{\gamma}$. Based on Definition 4 and equations (6) and (7) this condition implies the existence of an SIE with breakup and a (C, P) profile. Thus, if $\sigma_P < \sigma_C$ then in any SIE with breakup the Core must identify nationally but the Periphery can identify either nationally or with Europe.

b. Consider the case where $\sigma_P > \sigma_C$. Proposition 6 tells us that whenever $\beta = 0$ any SIE with breakup must involve the (E, P) social identity profile. To complete the parameter state space, consider $\beta > 0$. In this case $SG_{(ID_C, ID_P)}(r_C^* - r_P^*) < \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (r_C^* - r_P^*)^2]$ for any (ID_C, ID_P) and $r_C^* - r_P^* > R_2(ID_C, ID_P)$. Thus, in any SIE

with breakup the Periphery must identify nationally. The Core might also identify nationally. For example, this would in fact be the case when $\sigma_E < \sigma_C + \frac{\beta(1-\lambda)^2 w}{\gamma}$. Under this parameterization, $SG_{(C,P)}(r_C^* - r_P^*) \in (\sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma} [w + (r_C^* - r_P^*)^2], \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (r_C^* - r_P^*)^2])$ for any $r_C^* - r_P^* > R_2(C, P)$, which implies existence of an SIE with breakup and a (C, P) identity profile. Thus, if $\sigma_P > \sigma_C$ then in any SIE with breakup the Periphery must identify nationally but the Core can identify either nationally or with Europe. \square

A.12 Proof of Proposition 9:

Suppose $\sigma_P < \sigma_C$. For the $\beta = 0$ case, Proposition 5 states that any SIE (with breakup or unification) must involve the (C, E) profile. For the $\beta > 0$ case, it is enough to note that under Condition 1, $SG_{ID_C, ID_P}(r_C^* - r_P^*) > \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma} [w + (r_C^* - r_P^*)^2]$ for any (ID_C, ID_P) and $(r_C^* - r_P^*)$ such that $r_C^* - r_P^* \leq R_2(ID_C, ID_P)$. In other words, the Core must identify nationally in any SIE that involves breakup. Part (a) is therefore immediate.

Next, suppose $\sigma_P > \sigma_C$ and $\beta = 0$. The proof of Proposition 6 shows that the (E, P) , (C, E) and (E, E) profiles can be sustained under an SIE with unification. To see that the (C, P) profile can also be sustained under unification, consider (for example) the case where $\sigma_E < \sigma_E^*$. For an SIE with unification and a (C, P) profile to exist, it has to be the case that $\frac{\sigma_E - \sigma_C}{1-\lambda} < SG_{(C,P)}(r_C^* - r_P^*) - (\sigma_C - \sigma_P) < \frac{\sigma_P - \sigma_E}{\lambda}$ for some $r_C^* - r_P^* < R_2(C, P)$. It is easy to verify that the set of parameters for which this inequality is satisfied is non-empty.

Finally, assume that $\sigma_C < \sigma_P$ and $\beta > 0$, and consider the following parameter specifications:

- When $\sigma_E < \sigma_C + \frac{\beta(1-\lambda)^2 w}{\gamma}$ we have that $SG_{(C,P)}(r_C^* - r_P^*) \in (\sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma} [w + (r_C^* - r_P^*)^2], \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (r_C^* - r_P^*)^2])$ for $r_C^* - r_P^* \rightarrow 0$, which implies existence of an SIE with unification and a (C, P) identity profile. It is also easy to verify the existence of parameter values such that $SG_{(C,E)}(r_C^* - r_P^*) > \sigma_C - \sigma_P + \max \left\{ \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma} [w + (r_C^* - r_P^*)^2], \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (r_C^* - r_P^*)^2] \right\}$ for some $r_C^* - r_P^* < R_2(C, E)$. This in turn implies the existence of an SIE with unification and a (C, E) identity profile.
- When $\sigma_E > \sigma_C + \frac{\beta(1-\lambda)^2 w}{\gamma}$ we have that $SG_{(E,P)}(r_C^* - r_P^*) < \min \{ \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma} [w + (r_C^* - r_P^*)^2], \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + (r_C^* - r_P^*)^2] \}$ for $r_C^* - r_P^* \rightarrow 0$, which implies existence of an SIE with unification and a (E, P) identity profile.

This completes the proof of part (b). \square

A.13 Proof of Proposition 10

First, we focus on $\underline{M}(\beta, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P)$. Fixing $(k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P)$ we denote $\underline{M}_0(\beta) = \underline{M}(\beta, k, w, \gamma, \Delta, \lambda | \sigma_C = \sigma_P)$. Similarly, $\underline{M}_C(\beta) = \underline{M}(\beta, k, w, \gamma, \Delta, \lambda | \sigma_C > \sigma_P)$ and $\underline{M}_P(\beta) = \underline{M}(\beta, k, w, \gamma, \Delta, \lambda | \sigma_C < \sigma_P)$. Suppose first that $0 < \beta_1 < \beta_2$. As part of the proof of Proposition 7, we have shown that $\underline{M}_0(\beta) = \underline{M}_P(\beta) = R_2(C, P)$ for any β . Thus, $\underline{M}_0(\beta_1) \geq \underline{M}_0(\beta_2)$ and $\underline{M}_P(\beta_1) \geq \underline{M}_P(\beta_2)$. We will now show that $\underline{M}_C(\beta_1) \geq \underline{M}_C(\beta_2)$. To do so, consider the following characterization of $\underline{M}_C(\beta)$, which can be derived directly from the ex-post status gap equations (14)-(17), the IIC's (6) and (7) and the definition of SIE.

Remark 1. Characterization of $\underline{M}_C(\beta)$ for $\beta > 0$.

- a. $\underline{M}_C(\beta) = R_2(C, P)$ if and only if $SG_{C,P}(R_2(C, P)) \leq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + R_2(C, P)^2]$.
- b. $R_2(C, P) < \underline{M}_C(\beta) < R_2(C, E)$ if and only if $SG_{C,P}(R_2(C, P)) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + R_2(C, P)^2]$ and $SG_{C,P}(R_2(C, E)) < \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + R_2(C, E)^2]$. In this case $\underline{M}_C(\beta)$ is given by the solution to $SG_{C,P}(\underline{M}_C(\beta)) = \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + \underline{M}_C(\beta)^2]$.
- c. $\underline{M}_C(\beta) = R_2(C, E)$ if and only if $SG_{C,P}(R_2(C, E)) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma} [w + R_2(C, E)^2]$.

Consider first the case where $\underline{M}_C(\beta_2) = R_2(C, P)$. Since $\underline{M}_C(\beta) \geq R_2(C, P)$ for any $\beta > 0$ we get $\underline{M}_C(\beta_2) \leq \underline{M}_C(\beta_1)$. Next, consider the case where $R_2(C, P) < \underline{M}_C(\beta) < R_2(C, E)$. Recall that the $SG_{C,P}(\cdot)$ is not a function of β , implying that $SG_{C,P}(\underline{M}_C(\beta_2)) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta_1\lambda}{\gamma} [w + \underline{M}_C(\beta_2)^2]$. Furthermore, since $SG_{C,P}(\cdot)$ is a constant function for $r_C^* - r_P^* \geq R_2(C, P)$, Remark 1 implies that $\underline{M}_C(\beta_2) < \underline{M}_C(\beta_1)$. Finally, consider the case where $\underline{M}_C(\beta_2) = R_2(C, E)$. Applying the same arguments, it is straightforward to see that $\underline{M}_C(\beta_1) = R_2(C, E)$. To conclude, we have shown that $\underline{M}_C(\beta_2) \leq \underline{M}_C(\beta_1)$ for $0 < \beta_1 < \beta_2$. We will now proceed to show that this is also the case when $\beta_1 = 0$. As mentioned above $\underline{M}_0(\beta) = \underline{M}_P(\beta) = R_2(C, P)$ for every $\beta > 0$. This is also the case when $\beta_1 = 0$ (see Propositions 4 and 6). Indeed $\underline{M}_0(\beta_2) = \underline{M}_0(\beta_1)$ and $\underline{M}_P(\beta_2) = \underline{M}_P(\beta_1)$. Since $\underline{M}_C(\beta) \leq R_2(C, E)$ for any β (Proposition 2) and $\underline{M}_C(\beta_1) = R_2(C, E)$ (Proposition 5) we conclude that $\underline{M}_C(\beta_2) \leq \underline{M}_C(\beta_1)$. We have thus proved that $\underline{M}(\beta, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P)$ is weakly decreasing in β .

Next, we shift our focus to $\overline{M}(\beta, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P)$. Fixing $(k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P)$ we denote $\overline{M}_0(\beta) = \overline{M}(\beta, k, w, \gamma, \Delta, \lambda | \sigma_C = \sigma_P)$, $\overline{M}_C(\beta) = \overline{M}(\beta, k, w, \gamma, \Delta, \lambda | \sigma_C > \sigma_P)$ and $\overline{M}_P(\beta) = \overline{M}(\beta, k, w, \gamma, \Delta, \lambda | \sigma_C < \sigma_P)$. Suppose first that $0 < \beta_1 < \beta_2$. We will prove that $\overline{M}_0(\beta)$ is weakly decreasing in β . The proof for $\overline{M}_C(\beta)$ and $\overline{M}_P(\beta)$ essentially applies the same steps.

There are three cases to consider. First, suppose $\overline{M}_0(\beta_2) = R_2(C, P)$. Since $\overline{M}_0(\beta) \geq R_2(C, P)$ for any $\beta > 0$ we immediately have that $\overline{M}_0(\beta_2) \leq \overline{M}_0(\beta_1)$. Next, consider the case where $R_2(C, P) < \overline{M}_0(\beta_2) < R_2(C, E)$. This implies that $SG_{C,E}(\overline{M}_0(\beta_2)) >$

$\frac{\beta_1 \lambda}{\gamma} [w + \overline{M}_0(\beta_2)]^2$. Furthermore, since $SG_{C,E}(\cdot)$ is a strictly decreasing function for $r_C^* - r_P^* \in (R_2(C, P), R_2(C, E))$, we have that $\overline{M}_0(\beta_2) < \overline{M}_0(\beta_1)$. Finally, consider the case where $\overline{M}_0(\beta_2) = R_2(C, E)$. Applying the same arguments, it is straightforward to derive that in this case $\overline{M}_0(\beta_1) = R_2(C, E)$. To sum up, we have shown that $\overline{M}_0(\beta_2) \leq \overline{M}_0(\beta_1)$ for $0 < \beta_1 < \beta_2$.

To conclude the proof of part (a), we are left to show that $\overline{M}(\beta_1, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P) \geq \overline{M}(\beta_2, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P)$ when $\beta_1 = 0$. First, note that $\overline{M}_0(\beta_1) = \overline{M}_C(\beta_1) = R_2(C, E)$ (see propositions 4 and 5). Since $\overline{M}_0(\beta)$ and $\overline{M}_C(\beta)$ are at most equal to $R_2(C, E)$ for any β , we are done for the $\sigma_C \geq \sigma_P$ case. Consider next the case of $\sigma_C < \sigma_P$. In what follows we provide the proof for the $\sigma_E \geq \sigma_E^*$ specification, while the proof for the alternative follows the same steps. It is useful to first characterize \overline{M}_P for the $\beta = 0$ case. This is presented in the following Remark, which is an immediate application of the ex-post status gap equations, the social identity choice and the definition of an SIE.

Remark 2. Characterization of \overline{M}_P for $\beta = 0$ and $\sigma_E \geq \sigma_E^$.*

- a. $\overline{M}_P = R_2(C, P)$ if and only if $SG_{(C,E)}(R_2(C, P)/\sigma_C < \sigma_P) \leq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$.
- b. $R_2(C, P) < \overline{M}_P < R_2(C, E)$ if and only if $SG_{(C,E)}(R_2(C, P)/\sigma_C < \sigma_P) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$ and $SG_{(C,E)}(R_2(C, E)/\sigma_C < \sigma_P) < \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$. In this case \overline{M}_P is given by the solution to $SG_{(C,E)}(\overline{M}_P/\sigma_C > \sigma_P) = \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$.
- c. $\overline{M}_P = R_2(C, E)$ if and only if $SG_{(C,E)}(R_2(C, E)/\sigma_C < \sigma_P) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$. In this case $SG_{(C,E)}(\overline{M}_P/\sigma_C < \sigma_P) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$.

There are three cases to consider. First, suppose $\overline{M}_P(\beta_2) = R_2(C, P)$. Since $\overline{M}_P(\beta) \geq R_2(C, P)$ for any $\beta \geq 0$ we have $\overline{M}_P(\beta_2) \leq \overline{M}_P(\beta_1)$. Next, consider the case where $R_2(C, P) < \overline{M}_P(\beta_2) < R_2(C, E)$. This implies that $SG_{C,E}(\overline{M}_P(\beta_2)) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$. Furthermore, since $SG_{C,E}(\cdot)$ is a strictly decreasing function for $r_C^* - r_P^* \in (R_2(C, P), R_2(C, E))$, Remarks 1 and 2 then together imply that $\overline{M}_P(\beta_2) < \overline{M}_P(\beta_1)$. Finally, consider the case where $\overline{M}_P(\beta_2) = R_2(C, E)$. Applying the same arguments, it is straightforward to derive that in this case $\overline{M}_P(\beta_1) = R_2(C, E)$. We therefore conclude that $\overline{M}_P(\beta_2) \leq \overline{M}_P(\beta_1)$ for any $0 \leq \beta_1 < \beta_2$.

A.14 Additional Comparative Statics on β :

Proposition 15. *Suppose European status satisfies Condition 1.*

- a. *Suppose $\beta_1 < \beta_2$. For every $r_C^* - r_P^* \in (\overline{M}(\beta_2, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P), \overline{M}(\beta_1, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P))$ there exists an SIE with unification in which the Periphery identifies with Europe. Furthermore, if $\sigma_C > \sigma_P$ and $\beta_1 > 0$ then in any SIE with unification in which:*

$$r_C^* - r_P^* \in (\overline{M}(\beta_2, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P), \overline{M}(\beta_1, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P))$$

the Core identifies nationally.

b. Denote by $\widetilde{EE}(\beta)$ the set of all $(r_C^* - r_P^*)$ such that an SIE with unification and a (E, E) profile can be sustained. If $\sigma_C > \sigma_P$ then $\widetilde{EE}(\beta)$ remains unchanged when β changes. However when $\sigma_C \leq \sigma_P$ then for every $\beta_1 < \beta_2$ we have $\widetilde{EE}(\beta_2) \subseteq \widetilde{EE}(\beta_1)$ and there exist $\beta_1 < \beta_2$ such that $\widetilde{EE}(\beta_2) \subset \widetilde{EE}(\beta_1)$.

Proof.

a. Suppose $\beta_1 < \beta_2$ and $\overline{M}(\beta_2, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P) < \overline{M}(\beta_1, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P)$. From Proposition 9 we know that when $\sigma_C > \sigma_P$ then in any SIE with unification the Core identifies nationally. Specifically, this holds for any SIE with unification with fundamental differences in the range $r_C^* - r_P^* \in (\overline{M}(\beta_2, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P), \overline{M}(\beta_1, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P))$.

Next, we show that for every $r_C^* - r_P^* \in (\overline{M}(\beta_2, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P), \overline{M}(\beta_1, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P))$ there exists an SIE with unification in which the Periphery identifies with Europe. In what follows we specify in detail the proof for the $\sigma_C = \sigma_P$ and $\beta_1 > 0$ case. Similar steps apply for the alternative specifications. There are two cases to consider when $\overline{M}_0(\beta_2) < \overline{M}_0(\beta_1)$:

1. $\overline{M}_0(\beta_1) > R_2(C, P) = \overline{M}_0(\beta_2)$: In this case $SG_{(C,E)}(\overline{M}_0(\beta_1)/\sigma_C = \sigma_P) = \frac{\beta_1 \lambda}{\gamma} [w + \overline{M}_0(\beta_1)^2]$. Since $SG_{C,E}(\cdot)$ is a strictly decreasing function for $r_C^* - r_P^* \in (\overline{M}_0(\beta_2), R_2(C, E))$, we have that $SG_{(C,E)}(r_C^* - r_P^*/\sigma_C = \sigma_P) > \frac{\beta_1 \lambda}{\gamma} [w + (r_C^* - r_P^*)^2]$ for any $r_C^* - r_P^* \in (\overline{M}_0(\beta_2), \overline{M}_0(\beta_1))$. From the definition of an SIE it then follows that throughout this region of fundamental differences there exists an SIE with unification in which the Periphery identifies with Europe.
2. $\overline{M}_0(\beta_1) > \overline{M}_0(\beta_2) > R_2(C, P)$: In this case $SG_{(C,E)}(\overline{M}_0(\beta_1)/\sigma_C = \sigma_P) \geq \frac{\beta_1 \lambda}{\gamma} [w + \overline{M}_0(\beta_1)^2]$ and the same arguments apply.

b. First, note that when $\sigma_C > \sigma_P$ the (E, E) profile cannot be sustained in SIE, so \widetilde{EE} remains unchanged ($\widetilde{EE}(\beta_1) = \widetilde{EE}(\beta_2) = \emptyset$). When $\sigma_C = \sigma_P$ then $\widetilde{EE}(\beta) = \emptyset$ for $\beta > 0$ and $\widetilde{EE}(\beta) = \{0, R_2(E, E)\}$ for $\beta = 0$ (Proposition 4). Thus, in the no ex-ante status differences case we have that $\widetilde{EE}(\beta_2) \subseteq \widetilde{EE}(\beta_1)$. Moreover, when $\beta_1 = 0$ we get $\widetilde{EE}(\beta_2) \subset \widetilde{EE}(\beta_1)$. Finally, we turn to the $\sigma_C < \sigma_P$ case, and provide the proof for the $\beta_1 > 0$ specification. The same steps apply when $\beta_1 = 0$.

Given parameters $(\beta, k, w, \gamma, \Delta, \lambda, \sigma_C, \sigma_P)$ the set $\widetilde{EE}(\beta)$ is characterized by all levels of fundamental differences $(r_C^* - r_P^*) < R_2(E, E)$ that satisfy the following inequality (see Definition 4 and the social identity choice given in equations (6) and (7)):

$$\frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta \lambda}{\gamma} [w + (r_C^* - r_P^*)^2] \leq SG_{(E,E)}(r_C^* - r_P^*) - (\sigma_C - \sigma_P) \leq \frac{\sigma_C - \sigma_E}{1 - \lambda} - \frac{\beta(1 - \lambda)}{\gamma} [w + (r_C^* - r_P^*)^2] \quad (19)$$

Now, simple algebra shows that any $(r_C^* - r_P^*)$ that satisfies this inequality when $\beta = \beta_2$, must also satisfy it when $\beta = \beta_1 < \beta_2$. Thus, $\widetilde{EE}(\beta_2) \subseteq \widetilde{EE}(\beta_1)$. \square

A.15 SIE when ex-ante European status is very high

Proposition 16. *If σ_E is sufficiently high and $\beta k > 0$, then there exist parameter values such that $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P > \sigma_C) \geq \underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$.*

Proof. Recall that $\sigma_E < \lambda\sigma_C + (1 - \lambda)\sigma_P + \frac{\beta w \lambda (1 - \lambda)}{\gamma}$. In this case the identity indifference curves do not intersect, as depicted in the right panel of Figure 3. Now, for the $\sigma_P < \sigma_C$ case, $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C) = R_2(C, P)$. This is due to the fact that

$$SG_{(C,P)}(r_C^* - r_P^*) \in \left[\sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta \lambda}{\gamma} [w + (r_C^* - r_P^*)^2] + \frac{\beta k}{\gamma(1 - \lambda)}, \right. \\ \left. \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda} - \frac{\beta(1 - \lambda)}{\gamma} [w + (r_C^* - r_P^*)^2] - \frac{\beta k}{\gamma(1 - \lambda)} \right]$$

for any $r_C^* - r_P^* > R_2(C, P)$.

On the other hand, when $\sigma_P \geq \sigma_C$ and $\sigma_E > \sigma_C + \frac{\beta(1 - \lambda)^2}{\gamma} \left(w + 2\Delta + 2\sqrt{\Delta^2 + \frac{\beta \Delta k}{1 + \gamma \lambda}} + \frac{\beta k}{1 + \gamma \lambda} - \frac{\gamma k}{(1 + \gamma \lambda)(1 - \lambda)} \right)$ then $SG_{(C,P)}(R_2(C, P)) < \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1 - \lambda} - \frac{\beta(1 - \lambda)}{\gamma} [w + (R_2(C, P))^2] - \frac{\beta k}{\gamma(1 - \lambda)}$. In other words, an SIE with breakup and a (C, P) identity profile cannot be sustained under this parameter specification. Finally, note that given $\beta k > 0$, we have that $R_2(ID_C, ID_P) > R_2(C, P)$ for any (ID_C, ID_P) . Taken together, this implies $\underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P > \sigma_C) > \underline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$. \square

Proposition 17. *If both σ_E and βk are sufficiently high then there exist parameter values such that $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) > \overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$.*

Proof. If $\sigma_E > \lambda\sigma_C + (1 - \lambda)\sigma_P + \frac{\beta w \lambda (1 - \lambda)}{\gamma}$ we have that the identity indifference curves (IIC) intersect, as shown in the left panel of Figure 3. From the ex-post status gap equations 14-17, the identity indifference curves in equations 6-7 and the definition of SIE, the following statements can easily be algebraically verified:

- The (E, E) identity profile can hold in SIE under $\sigma_P \geq \sigma_C$. In particular, when $\sigma_P \geq \sigma_C$ there are parameter values \mathbf{p} such that there exists an SIE with unification and a (E, E) identity profile at $r_C^* - r_P^* = R_2(E, E)$.
- The (E, E) identity profile cannot hold in SIE under $\sigma_P < \sigma_C$. This implies that the maximum value that $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$ can take is $R_2(C, E)$.

If $\gamma^2 \lambda (1 - \lambda) \Delta < \beta k$ then $R_2(E, E) > R_2(C, E)$. Thus, there exist parameter values such that $\overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) > \overline{M}(\mathbf{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$. \square

B Integration when Policy is Flexible

The model we have discussed throughout the paper is a sticky policy model. Having set the policy for the union, the Core cannot adjust it in case the Periphery chooses to leave the union. This is reasonable when the compound policy is complex and cannot be changed immediately (e.g. laws and regulations or immigration policies). However, some policies (e.g. interest rates) might be more easily adaptable in the short run.

In what follows we analyze the case in which the Core's policy is flexible in the sense that it is able to freely adjust it in case of breakup. As in the sticky policy model, the Core moves first and sets the policy instrument at some level $r_C = \hat{r}$. The Periphery then either accepts or rejects this policy. If it accepts then $r_P = r_C = \hat{r}$. If it rejects then both countries (rather than the Periphery alone) are free to set their own policies. We restrict attention to the $\beta = 0$ case.

B.1 Integration given Social Identities

It is again useful to begin with a general characterization of the Subgame Perfect Nash Equilibrium (SPNE) outcome under any given profile of identities. The following Proposition replicates Proposition 1 for the case of a flexible policy (see discussion and analysis of this result in Section 3).

Proposition B.1. *Subgame Perfect Equilibrium (SPNE).* *For any profile of social identities (ID_c, ID_p) there exist cutoffs $\widetilde{R}_1 = \widetilde{R}_1(ID_c, ID_p)$ and $\widetilde{R}_2 = \widetilde{R}_2(ID_c, ID_p)$ and policies (functions of r_C^* and r_P^*) $\widetilde{r}_C = \widetilde{r}_C(ID_c, ID_p)$ and $\widetilde{r}_P = \widetilde{r}_P(ID_c, ID_p)$ such that $\widetilde{R}_1 \leq \widetilde{R}_2$, $\widetilde{r}_P < \widetilde{r}_C$ and:*

- a. *If $r_C^* - r_P^* \leq \widetilde{R}_1$ then in SPNE unification occurs and $r_C = r_P = \widetilde{r}_C$.*
- b. *If $\widetilde{R}_1 < r_C^* - r_P^* \leq \widetilde{R}_2$ then in SPNE unification occurs and $r_C = r_P = \widetilde{r}_P$.*
- c. *If $r_C^* - r_P^* > \widetilde{R}_2$ then in SPNE breakup occurs and $r_C = r_C^*$, $r_P = r_P^*$.*

Proof. Taking the social identities as given, we solve the sequential bargaining game for each of the social identity profiles when the policy is flexible. From Lemmas B.1-B.4 we will then obtain Proposition B.1.

Case 1 (C, P) : Both Core and Periphery identify with their own country.

Lemma B.1.

- a. $\widetilde{R}_1(C, P) = \sqrt{\Delta}$, $\widetilde{R}_2(C, P) = 2\sqrt{\Delta}$

$$\text{b. } \widetilde{r}_C(C, P) = r_C^*, \widetilde{r}_P(C, P) = r_P^* + \sqrt{\Delta}$$

Proof. Given the (C, P) social identity profile, the solution is identical to the sticky policy case. When the Periphery identifies nationally, it accepts r_C to the same extent of fundamental differences between the countries, regardless of whether or not the Core is able to adjust its policy in the case of breakup (see proof of Proposition 1). When the Periphery is concerned only with its own material payoff, it does not care whether or not the Core is able to adjust its policy. This in turn leads the Core to set its policy exactly as it did when the policy was sticky. The proof is thus identical to the proof of Lemma 1. \square

Case 2 (C, E) : Core Identifies with own Country and Periphery identifies with Europe

Lemma B.2.

$$\text{a. } \widetilde{R}_1(C, E) = \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$$

$$\widetilde{R}_2(C, E) = \begin{cases} \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}} & \text{if } 1 + \gamma - 2\gamma\lambda < 0 \\ \frac{(1+\gamma)\sqrt{\Delta}}{1+\gamma-\gamma\lambda} & \text{if } 1 + \gamma - 2\gamma\lambda = 0 \\ 2\sqrt{\Delta} & \text{if } 1 + \gamma - 2\gamma\lambda > 0 \end{cases}$$

$$\text{b. } \widetilde{r}_C(C, E) = r_C^*, \widetilde{r}_P(C, E) = \frac{(1+\gamma-\gamma\lambda)r_P^* + \gamma\lambda r_C^* + \sqrt{(1+\gamma)^2\Delta - \gamma\lambda(1+\gamma-\gamma\lambda)(r_C^* - r_P^*)^2}}{1+\gamma}$$

Proof. Recall that Core utility is given by equation (8) and that Periphery utility is given by equation (10).

When the Periphery identifies with Europe, utility depends on whether it accepts r_C or not (in which case it sets r_P to r_P^*). Clearly, whenever breakup occurs in the flexible policy model (i.e. the Periphery rejects r_C) the Core will set its policy to r_C^* in order to maximize own material payoffs. Thus, Periphery utility is:

$$U_{PE} = \begin{cases} -(1 + \gamma - \gamma\lambda)(r_C - r_P^*)^2 - \gamma\lambda(r_C - r_C^*)^2 + \gamma\sigma_E & \text{if } \textit{Accepts} \\ -(1 + \gamma)\Delta + \gamma\sigma_E & \text{if } \textit{Rejects} \end{cases} \quad (20)$$

Solving the game by backward induction, the Periphery is willing to accept r_C if and only if $U_{PE}|_{\textit{accepts}} \geq U_{PE}|_{\textit{rejects}}$. First note that when fundamental differences are such that $r_C^* - r_P^* > \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$, we have that $U_{PE}|_{\textit{accepts}} < U_{PE}|_{\textit{rejects}}$ for every r_C . Thus, breakup

will occur throughout this range of fundamental differences, regardless of the policy set by the Core. Because the Periphery is aware of the Core being able to set its policy to r_C^* in case of breakup, and because it cares about the Core's material payoffs, breakup will occur when differences between the countries are sufficiently large.

When the Core identifies nationally, its chosen policy when there is no threat of secession is r_C^* , which we denote by $\widetilde{r}_C(C, E)$. Note that when $r_C^* - r_P^* \leq \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$ the Core is indeed able to set its policy to r_C^* without suffering the cost of breakup (given $r_C = r_C^*$, $U_{PE}|_{accepts} \geq U_{PE}|_{rejects}$ if and only if $r_C^* - r_P^* \leq \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$). We denote this cutoff by $\widetilde{R}_1(C, E)$.

When $\widetilde{R}_1(C, E) < r_C^* - r_P^* \leq \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$, the Core decides between the following two options:

1. Set the policy that maximizes utility under breakup, which is r_C^* . Utility will then be:

$$U_{CC}|_{breakup} = -(1 + \gamma)\Delta + \gamma\sigma_C$$

2. Set the policy that maximizes utility under the constraint that the union is sustained (i.e choose among the policies that would be accepted by the Periphery). This policy, which we denote by $\widetilde{r}_P(C, E)$, solves the following maximization problem:

$$Max_{r_C} - (1 + \gamma)(r_C - r_C^*)^2 + \gamma\sigma_C \quad s.t \quad U_{PE}|_{accepts} \geq U_{PE}|_{rejects}$$

The solution is:

$$\widetilde{r}_P(C, E) = \frac{(1 + \gamma - \gamma\lambda)r_P^* + \gamma\lambda r_C^* + \sqrt{(1 + \gamma)^2\Delta - \gamma\lambda(1 + \gamma - \gamma\lambda)(r_C^* - r_P^*)^2}}{1 + \gamma}.$$

Utility will then be:

$$U_{CC}|_{unification} = -\frac{[(1 + \gamma - \gamma\lambda)(r_P^* - r_C^*) + \sqrt{(1 + \gamma)^2\Delta - \gamma\lambda(1 + \gamma - \gamma\lambda)(r_C^* - r_P^*)^2}]^2}{1 + \gamma} + \gamma\sigma_C.$$

In SPNE the Core sets the policy to $\widetilde{r}_P(C, E)$ if and only if $U_{CC}|_{unification} \geq U_{CC}|_{breakup}$. This condition is satisfied when one of the following holds:

1. $r_C^* - r_P^* \leq \frac{(1+\gamma)\sqrt{\Delta}}{1+\gamma-\gamma\lambda}$
2. $r_C^* - r_P^* > \frac{(1+\gamma)\sqrt{\Delta}}{1+\gamma-\gamma\lambda}$ and $r_C^* - r_P^* \leq 2\sqrt{\Delta}$

Recalling that breakup necessarily occurs whenever $r_C^* - r_P^* > \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$ (see above),

we have that the cutoff for breakup, which we denote by $\widetilde{R}_2(C, E)$, is:

$$\widetilde{R}_2(C, E) = \begin{cases} \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}} & \text{if } 1 + \gamma - 2\gamma\lambda < 0 \\ \frac{(1+\gamma)\sqrt{\Delta}}{1+\gamma-\gamma\lambda} & \text{if } 1 + \gamma - 2\gamma\lambda = 0. \\ 2\sqrt{\Delta} & \text{if } 1 + \gamma - 2\gamma\lambda > 0 \end{cases}$$

In summary, the SPNE in the flexible model for the (C, E) social identity profile is:

1. If $r_C^* - r_P^* \leq \widetilde{R}_1(C, E)$ then unification occurs and $r_C = r_P = \widetilde{r}_C(C, E)$.
2. If $\widetilde{R}_1(C, E) < r_C^* - r_P^* \leq \widetilde{R}_2(C, E)$ then unification occurs and $r_C = r_P = \widetilde{r}_P(C, E)$.
3. If $r_C^* - r_P^* > \widetilde{R}_2(C, E)$ then breakup occurs and $r_C = r_C^*$, $r_P = r_P^*$.

When the Periphery cares about the Core's material payoffs its reserve utility (i.e. the utility gained in case of breakup) is higher relative to the sticky model case. When the Core can respond to breakup by adjusting its policy to r_C^* , breakup is less costly from a material payoff perspective. Thus, the Periphery's utility from breakup is higher when the policy is flexible. As a result the concessions the Core has to make in the intermediate range of fundamental differences in order to keep the Periphery in the union are larger (i.e. $\widetilde{r}_P(C, E) < r_P(C, E)$) and the union is less robust (i.e. $\widetilde{R}_2(C, E) < R_2(C, E)$). \square

Case 3 (E, P) : Core identifies with Europe and Periphery identifies with own Country

Lemma B.3.

- a. $\widetilde{R}_1(E, P) = \frac{1+\gamma}{1+\gamma\lambda}\sqrt{\Delta}$, $\widetilde{R}_2(E, P) = 2\sqrt{\Delta}$
- b. $\widetilde{r}_C(E, P) = \frac{(1+\gamma\lambda)r_C^* + \gamma(1-\lambda)r_P^*}{1+\gamma}$, $\widetilde{r}_P(E, P) = r_P^* + \sqrt{\Delta}$

Proof. As in the (C, P) case, when the Periphery identifies nationally the SPNE in the flexible model is identical to the SPNE in the sticky model. The proof is thus identical to the proof of Lemma 3. \square

Case 4 (E, E) : Both Core and Periphery identify with Europe

Lemma B.4.

- a. $\widetilde{R}_1(E, E) = \sqrt{\frac{(1+\gamma)^3\Delta}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)^2 + \gamma^3\lambda(1-\lambda)^2}}$

$$\widetilde{R}_2(E, E) = \begin{cases} 2\sqrt{\Delta} & \text{if } 1 + \gamma - 2\gamma\lambda > 0 \\ \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}} & \text{if } 1 + \gamma - 2\gamma\lambda \leq 0 \end{cases}$$

$$\text{b. } \widetilde{r}_C(E, E) = \frac{(1+\gamma\lambda)r_C^* + \gamma(1-\lambda)r_P^*}{1+\gamma}$$

$$\widetilde{r}_P(C, E) = \frac{(1+\gamma-\gamma\lambda)r_P^* + \gamma\lambda r_C^* + \sqrt{(1+\gamma)^2\Delta - \gamma\lambda(1+\gamma-\gamma\lambda)(r_C^* - r_P^*)^2}}{1+\gamma}$$

Proof. Core utility is again given by equation (11). As in the (C, E) case, Periphery utility is given by equation (20).

The Periphery is willing to accept r_C if and only if $U_{PE}|_{\text{accepts}} \geq U_{PE}|_{\text{rejects}}$. First note that, as in the (C, E) case, when fundamental differences are such that $r_C^* - r_P^* > \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$ we have that $U_{PE}|_{\text{accepts}} < U_{PE}|_{\text{rejects}}$ for every r_C . Thus, breakup will occur throughout this range of fundamental differences, regardless of the policy set by the Core.

When the Core identifies with Europe, its chosen policy when there is no threat of secession is $\frac{(1+\gamma\lambda)r_C^* + \gamma(1-\lambda)r_P^*}{1+\gamma}$ (see proof of Lemmas 3 and 4). We denote this policy by $\widetilde{r}_C(E, E)$. Note that when $r_C^* - r_P^* \leq \sqrt{\frac{(1+\gamma)^3\Delta}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)^2 + \gamma^3\lambda(1-\lambda)^2}}$ the Core is indeed able to set its policy to $\widetilde{r}_C(E, E)$ without suffering the cost of breakup (given $r_C = \widetilde{r}_C(E, E)$, $U_{PE}|_{\text{accepts}} \geq U_{PE}|_{\text{rejects}}$ if and only if $r_C^* - r_P^* \leq \sqrt{\frac{(1+\gamma)^3\Delta}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)^2 + \gamma^3\lambda(1-\lambda)^2}}$). We denote this cutoff by $\widetilde{R}_1(E, E)$.

When $\widetilde{R}_1(E, E) < r_C^* - r_P^* \leq \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$ the Core decides between the following two options:

1. Set the policy that maximizes utility under breakup, which is r_C^* . In this case utility is:

$$U_{CE}|_{\text{breakup}} = -(1+\gamma)\Delta + \gamma\sigma_E$$

2. Set the policy that maximizes utility under the constraint that the union is sustained (i.e. choose among the policies that would be accepted by the Periphery). This policy, which we denote by $\widetilde{r}_P(C, E)$, solves the following maximization problem:

$$\text{Max}_{r_C} - (1+\gamma\lambda)(r_C - r_C^*)^2 - \gamma(1-\lambda)(r_C - r_P^*)^2 + \gamma\sigma_E \quad \text{s.t.} \quad U_{PE}|_{\text{accepts}} \geq U_{PE}|_{\text{rejects}}.$$

The solution is:

$$\widetilde{r}_P(E, E) = \frac{(1+\gamma-\gamma\lambda)r_P^* + \gamma\lambda r_C^* + \sqrt{(1+\gamma)^2\Delta - \gamma\lambda(1+\gamma-\gamma\lambda)(r_C^* - r_P^*)^2}}{1+\gamma}.$$

Utility will then be:

$$U_{CE}|_{unification} = -(1+\gamma\lambda) \frac{\left[(1+\gamma-\gamma\lambda)(r_P^* - r_C^*) + \sqrt{(1+\gamma)^2\Delta - \gamma\lambda(1+\gamma-\gamma\lambda)(r_C^* - r_P^*)^2} \right]^2}{(1+\gamma)^2} \\ - \gamma(1-\lambda) \frac{\left[\gamma\lambda(r_C^* - r_P^*) + \sqrt{(1+\gamma)^2\Delta - \gamma\lambda(1+\gamma-\gamma\lambda)(r_C^* - r_P^*)^2} \right]^2}{(1+\gamma)^2} + \gamma\sigma_E.$$

In SPNE the Core sets the policy to $\widetilde{r}_P(E, E)$ if and only if $U_{CE}|_{unification} \geq U_{CE}|_{breakup}$. This condition is satisfied when one of the following holds:

1. $1 + \gamma - 2\gamma\lambda \leq 0$
2. $1 + \gamma - 2\gamma\lambda > 0$ and $r_C^* - r_P^* \leq 2\sqrt{\Delta}$

Recalling that breakup necessarily occurs whenever $r_C^* - r_P^* > \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}}$ (see above), we have that the cutoff for breakup, which we denote by $\widetilde{R}_2(E, E)$, is:

$$\widetilde{R}_2(E, E) = \begin{cases} 2\sqrt{\Delta} & \text{if } 1 + \gamma - 2\gamma\lambda > 0 \\ \sqrt{\frac{1+\gamma}{\gamma\lambda}} \sqrt{\frac{(1+\gamma)\Delta}{1+\gamma-\gamma\lambda}} & \text{if } 1 + \gamma - 2\gamma\lambda \leq 0 \end{cases}$$

In summary, the SPNE in the flexible model for the (E, E) social identity profile is:

1. If $r_C^* - r_P^* \leq \widetilde{R}_1(E, E)$ then unification occurs and $r_C = r_P = \widetilde{r}_C(E, E)$.
2. If $\widetilde{R}_1(E, E) < r_C^* - r_P^* \leq \widetilde{R}_2(E, E)$ then unification occurs and $r_C = r_P = \widetilde{r}_P(E, E)$.
3. If $r_C^* - r_P^* > \widetilde{R}_2(E, E)$ then breakup occurs and $r_C = r_C^*$, $r_P = r_P^*$. \square

B.1.1 Robustness and Accommodation in the Flexible Model

Our main results regarding the robustness of unions and the degree to which they accommodate the Periphery continue to hold when the policy is a flexible one. They are stated in Propositions B.2 and B.3. Proofs rely on simple algebra and follow the proofs of the equivalent Propositions 2 and 3 from the sticky policy model (See Appendix A).

Proposition B.2. *Robustness in the flexible model.*

a. *The union is equally robust when the Core identifies with the nation and when it identifies with Europe: $\widetilde{R}_2(C, ID_P) = \widetilde{R}_2(E, ID_P)$ for all $ID_P \in \{P, E\}$.*

b. *The union is strictly more robust when the Periphery identifies with Europe than when it identifies with the nation: $\widetilde{R}_2(ID_C, E) \geq \widetilde{R}_2(ID_C, P)$ for all $ID_C \in \{C, E\}$.*

Proposition B.3. Accommodation in the flexible model.

a. For any given Periphery identity, the union is more accommodating if Core members identify with Europe rather than with their nation.

b. For any given Core identity, the union is more accommodating if members of the Periphery identify with their nation rather than with Europe.

As in the sticky policy model, an important corollary follows.

Corollary 1. *The union is most robust and least accommodating under the (C, E) profile.*

B.2 Ex-post Status Gaps in the Flexible Policy Model

The ex-post status of the Periphery (S_P) and the Core (S_C) are endogenously determined in SPNE. This section details the ex-post status gap for any given identity profile. This will be used for deriving the results in Section B.3.

Define $\widetilde{SG}_{(ID_C, ID_P)}(r_C^* - r_P^*)$ as the flexible policy model ex-post status gap between the Core and the Periphery (i.e. $S_C - S_P$) in SPNE, given identity profile (ID_C, ID_P) when the level of fundamental differences between the countries is $r_C^* - r_P^*$.

When the Periphery identifies nationally the policies and cutoffs in SPNE in the flexible model are identical to those in the sticky one (see Lemmas B.1 and B.3). Thus, $\widetilde{SG}_{(C, P)}(r_C^* - r_P^*)$ is given by equation (14) and $\widetilde{SG}_{(E, P)}(r_C^* - r_P^*)$ is given by equation (16). However, when the Periphery identifies with Europe the policies and cutoffs in SPNE in the flexible model are different, and as a result so are the ex-post status gaps. These are directly derived from equation (3) and Lemmas B.2 and B.4:

$$\widetilde{SG}_{(C, E)}(r_C^* - r_P^*) = \begin{cases} \sigma_C - \sigma_P + (r_C^* - r_P^*)^2 & \text{if } r_C^* - r_P^* \leq \widetilde{R}_1(C, E) \\ \sigma_C - \sigma_P - \frac{1}{1+\gamma}(1 + \gamma - 2\gamma\lambda)(r_C^* - r_P^*)^2 + & \text{if } \widetilde{R}_1(C, E) < r_C^* - r_P^* \leq \widetilde{R}_2(C, E) \\ \frac{1}{1+\gamma}2(r_C^* - r_P^*)\sqrt{(1 + \gamma)^2\Delta - \gamma\lambda(1 + \gamma - \gamma\lambda)(r_C^* - r_P^*)^2} & \\ \sigma_C - \sigma_P & \text{if } r_C^* - r_P^* > \widetilde{R}_2(C, E) \end{cases} \quad (21)$$

$$\widetilde{SG}_{(E, E)}(r_C^* - r_P^*) = \begin{cases} \sigma_C - \sigma_P + \frac{1-\gamma+2\gamma\lambda}{1+\gamma}(r_C^* - r_P^*)^2 & \text{if } r_C^* - r_P^* \leq \widetilde{R}_1(E, E) \\ \sigma_C - \sigma_P - \frac{1}{1+\gamma}(1 + \gamma - 2\gamma\lambda)(r_C^* - r_P^*)^2 + & \text{if } \widetilde{R}_1(E, E) < r_C^* - r_P^* \leq \widetilde{R}_2(E, E) \\ \frac{1}{1+\gamma}2(r_C^* - r_P^*)\sqrt{(1 + \gamma)^2\Delta - \gamma\lambda(1 + \gamma - \gamma\lambda)(r_C^* - r_P^*)^2} & \\ \sigma_C - \sigma_P & \text{if } r_C^* - r_P^* > \widetilde{R}_2(E, E) \end{cases} \quad (22)$$

B.3 Social Identity Equilibrium (SIE) in the Flexible Policy Model

We now allow social identities to be endogenous. Since the problem of choosing social identity (Section 4) is unaffected by the Core's ability to adjust its policy in case of breakup, we directly proceed to the analysis of Social Identity Equilibrium. Our main equilibrium results continue to hold in the flexible policy model. Propositions B.4, B.5 and B.6 state these results. Proofs are obtained by tracing the same steps introduced in the proofs for the equivalent Propositions 4, 5 and 6 from the benchmark sticky model.

Proposition B.4. *When there are no ex-ante differences in status, i.e. $\sigma_C = \sigma_P = \sigma_E$ then:*

- a. *An SIE exists.*
- b. *In almost any SIE in which the union is sustained, the social identity profile is (C, E) . The only exceptions are when $r_C^* = r_P^*$ and when $r_C^* - r_P^* = \widetilde{R}_2(C, P)$; in these cases other identity profiles can also be sustained under unification.*
- c. *When fundamental differences are smaller than $\widetilde{R}_2(C, P)$, SIE implies unification. When fundamental differences are larger than $\widetilde{R}_2(C, E)$, SIE implies breakup. For fundamental differences between $\widetilde{R}_2(C, P)$ and $\widetilde{R}_2(C, E)$, both unification and breakup can occur in SIE.*
- d. *The profile (E, E) can be sustained either when fundamental differences are zero or under breakup and large fundamental differences.*

Proposition B.5. *When the Core has ex-ante higher status, and the Periphery has ex-ante lower status than Europe, i.e. $\sigma_C > \sigma_E > \sigma_P$, then there exists a unique SIE. Furthermore the social identity profile is (C, E) , and the union is sustained if and only if fundamental differences are smaller than $\widetilde{R}_2(C, E)$.*

Proposition B.6. *When the Core has ex-ante lower status, and the Periphery has ex-ante higher status than Europe, i.e. $\sigma_P > \sigma_E > \sigma_C$, then:*

- a. *An SIE exists.*
- b. *Breakup can occur when fundamental differences are smaller than $\widetilde{R}_2(C, E)$.*
- c. *In any SIE in which breakup occurs, the social identity profile is (E, P) .*
- d. *There exists an intermediate range of fundamental differences in which both unification and breakup can occur. However, in any SIE in this range in which unification occurs, the Periphery identifies with the union.*

e. *The profile (E,E) can be sustained only when fundamental differences between the countries are at some intermediate range.*

C Data Appendix

C.1 Individual-Level Data from the Brexit Referendum

A month before the Brexit referendum we asked a representative sample of English voters whether they saw themselves as British only or also as European. After the referendum, we followed up to ask how they voted. Figure C.1 reports the results. Of voters who saw themselves as “British only”, 66% voted to leave the EU, 28% voted Remain, and the rest did not vote. In contrast, only 24.5% of voters who saw themselves as “British but also European” voted Leave (71% voted Remain).

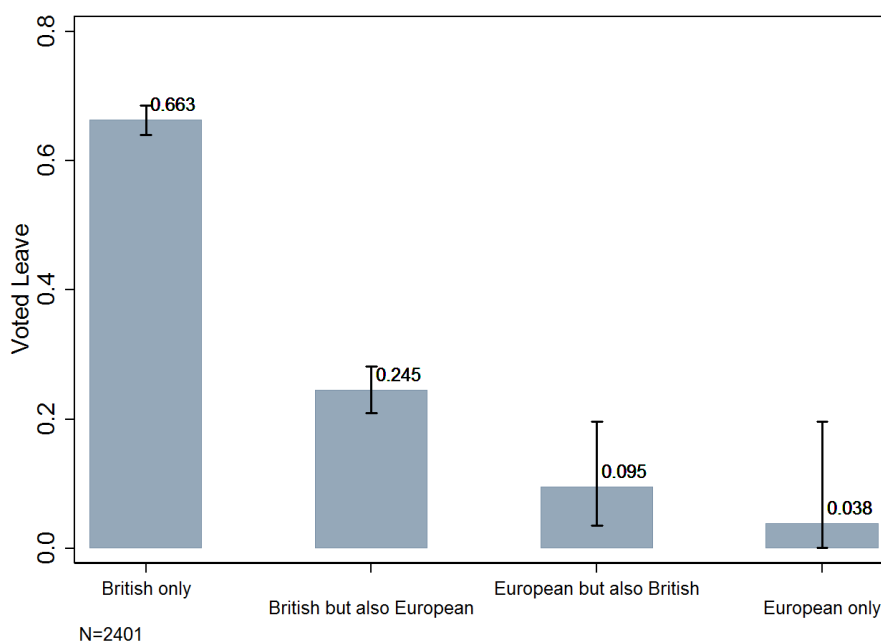


Figure C.1: British Identification and Voting to Leave the EU

Note: Data collected by the authors from a representative sample of voters residing in England (i.e. excluding Scotland, Wales and Northern Ireland). A month prior to the referendum (in May 16-22, 2016), voters were asked the following question: *Do you see yourself as...? British only; British but also European; European but also British; European only; Neither European nor British.* For each of the first four respondent groups, the figure shows the proportion (and 95% CI) who voted “Leave” in the referendum on June 23, 2016.

Table C.1 shows this relationship using a linear probability model (cols 1-5) and a probit (col 6). The association is highly significant both statistically and economically. Relative to those who see themselves as British only (the omitted category), individuals who see themselves as both British and European are more than 40 pp less likely to vote Leave (col 1). The gap seems even larger among those who place a higher weight on their European identity. In columns 2-4 we progressively add controls for age, gender, being born in the UK, income, and education. Column 5 further adds geographic controls, finding that voting

Table C.1: Voting for Brexit and British/European Identity

	OLS					Probit
	(1)	(2)	(3)	(4)	(5)	(6)
Identity						
British but also European	-0.419*** (0.021)	-0.412*** (0.021)	-0.406*** (0.021)	-0.372*** (0.022)	-0.365*** (0.023)	-0.394*** (0.023)
European but also British	-0.568*** (0.039)	-0.518*** (0.044)	-0.515*** (0.045)	-0.481*** (0.045)	-0.463*** (0.046)	-0.526*** (0.050)
European only	-0.625*** (0.039)	-0.535*** (0.047)	-0.527*** (0.047)	-0.491*** (0.049)	-0.474*** (0.047)	-0.587*** (0.062)
Neither European nor British	-0.116** (0.056)	-0.094* (0.054)	-0.105* (0.054)	-0.085 (0.054)	-0.085 (0.053)	-0.080 (0.057)
Age		0.020*** (0.004)	0.021*** (0.004)	0.019*** (0.004)	0.019*** (0.004)	0.023*** (0.005)
Age Square		-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Female		-0.025 (0.018)	-0.032* (0.018)	-0.025 (0.018)	-0.032* (0.019)	-0.031 (0.022)
Born in UK		0.089** (0.038)	0.090** (0.038)	0.084** (0.037)	0.075** (0.038)	0.121** (0.050)
ln(HH Income)			-0.038*** (0.013)	-0.020 (0.013)	-0.021 (0.013)	-0.022 (0.016)
Education						
GSCE, GNQV or equivalent				-0.010 (0.044)	-0.004 (0.045)	-0.013 (0.054)
A-Levels or equivalent				-0.028 (0.046)	-0.030 (0.046)	-0.029 (0.055)
Professional qualifications				0.026 (0.048)	0.030 (0.048)	0.032 (0.058)
Academic degree				-0.146*** (0.046)	-0.138*** (0.047)	-0.166*** (0.055)
County FE	No	No	No	No	Yes	No
Observations	2,485	2,485	2,462	2,462	2,462	2,462
R-squared / Pseudo R-squared	0.154	0.187	0.190	0.205	0.224	0.162

Notes: Dependent variable equals 1 if voted "Leave" and 0 if voted "Remain" or did not vote in the Brexit referendum on June 23, 2016. The Identity variable was measured in May 16-22, 2016, the omitted category is "British only". The omitted category for education is no formal qualifications. Column 5 controls for 49 counties. Column 6 reports marginal effects from a probit regression. Robust standard errors in parenthesis.

*** is significant at 1%; ** is significant at 5%; * is significant at the 10% level.

is strongly associated with British/European identification even within county of residence. Consistent with other studies, older, less-educated, and native voters were more likely to support Brexit (see Becker et al., 2017). However, adding variables such as income, age and education does not dramatically increase the explanatory power of the regression beyond what is explained by the identity variable alone, measured a month before the referendum.¹⁵

¹⁵Removing the identity variable from columns 4 and 5 produces R^2 of 0.0998 and 0.125, respectively.

C.2 Joining the European Monetary Union

This appendix briefly explores the composition of the eurozone in light of the model. Focusing on the formation of the eurozone, we compare the predictions of our theory to those of the standard Optimum Currency Area (OCA) framework which is focused on material costs and benefits alone. The exercise here is exploratory and tentative in nature: a much more thorough empirical investigation is required to disentangle identity from other economic and political effects. Nonetheless, we find that while the standard international integration framework does not fully explain the composition of the eurozone, augmenting it with identity politics can help bridge some of the gap.

The theory of OCA emphasizes three main classes of costs and benefits (see Silva and Tenreyro 2010 for a review). First is the difficulty in addressing asymmetric shocks under a common monetary policy (e.g. Mundell (1961); McKinnon (1963); Kenen (1969)). At the same time, joining a currency union helps reduce transaction costs and promote trade (Mundell, 1961; Rose and Honohan, 2001). Hence, countries should be more likely to join a currency union the greater the comovement between their business cycles, and the more they trade with each other (Alesina et al. 2002). Finally, joining a union can help countries with limited ability to commit to a monetary rule and thereby overcome the inflation-bias problem (e.g. Alesina and Barro 2002; Clerc et al. 2011; Aguiar et al. 2015; Chari et al. 2020).

We begin by computing empirical measures for the OCA criteria, building on Alesina et al. (2002). Specifically, we look at comovement in prices and in output, as well as trade, for European countries relative to France and Germany (the Core members of the union). In terms of our model, these measures from the OCA literature can also be taken as proxies for fundamental differences in optimal policy, inasmuch as countries for whom it is economically optimal to join a currency union have similar optimal monetary policies. For the most part we restrict attention to countries that, at least at some point, were members of the EU, which is a prerequisite for joining the euro. For each country i , we compute the correlation coefficient ρ_y^i between the annual growth rate of real per-capita GDP of that country and the growth rate of the combined real per-capita GDP in Germany and France. The correlation is calculated over the period following the reunification of Germany and before the launch of the euro i.e., 1992-1999. Similarly we compute the correlation coefficient ρ_p^i between the annual inflation rate of country i and the combined inflation rate in Germany and France over the 1992-1999 period. Finally, let T_{it} be country i 's trade (average of imports and exports) with Germany and France in year t , as a percentage of i 's GDP. Our measure of trade relations T_i is the average T_{it} in 1992-1999.

Overall, 19 of the 28 countries that were at some point members of the EU, joined the

Table C.2: Which Countries Joined the Eurozone?

	EU Members				EEA
	(1)	(2)	(3)	(4)	(5)
Comovements in Output	0.011 (0.172)	0.036 (0.176)	0.244* (0.141)	0.302* (0.149)	0.299** (0.150)
Comovements in Prices	0.670*** (0.082)	0.553*** (0.084)	0.424*** (0.125)	0.771*** (0.173)	0.923*** (0.150)
Trade	1.693 (1.109)	1.165 (1.127)	0.475 (1.001)	2.002 (1.228)	2.931*** (1.008)
Historical Inflation		-0.003*** (0.001)	-0.004*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
Diplomatic Rank	-----		-0.004*** (0.001)	-0.002 (0.001)	0.000 (0.001)
HDI Rank	-----			-0.019** (0.009)	-0.026*** (0.006)
R-squared	-----		0.368	0.460	0.587
Observations	28	28	28	28	31

Notes: Dependent variable is an indicator for the country adopting the euro. Trade, GDP and inflation Data are from the IMF. Comovements and trade are all relative to France and Germany, during 1992-1999. Historical inflation is from 1980-1999. Diplomatic Rank is from Renshon (2016). Human Development Index (HDI) Rank is from UN Human Development Reports. Both rank variables are from 1999 and take larger numbers the higher the country's status in the world. Columns 1-4 include countries that were at some point members of the EU. Column 5 adds countries in the European Economic Area (Iceland, Norway, and Switzerland). We do not have data for Liechtenstein). OLS, robust standard errors in parentheses. *** is significant at 1%; ** is significant at 5%; * is significant at the 10% level.

eurozone. Column 1 in Table C.2 shows the correlation between joining and the above three measures. Given the endogeneity of the right-hand-side variables, the results should not be interpreted as causal. All three coefficients have the expected sign, although the association is statistically significant only for price comovement. A 10 percentage points increase in the inflation correlation ρ_p^i is associated with close to 7 percentage points increase in the likelihood of joining the euro. Together, these three variables can explain almost 37% of the variation in entry.

Another potential reason for joining a currency union is inflation. Countries that lack domestic institutions that can ensure a low-inflationary environment may benefit from joining a monetary union with a credible Core country or set of countries that can serve as an anchor (e.g. Barro and Gordon 1983; Alesina and Barro 2002; Aguiar et al. 2015). However, it is less clear in this case that the Core countries would necessarily find it optimal to form a monetary

union with the bad-institutions countries.¹⁶ Column 2 in Table C.2 adds the average annual inflation rate between 1980-1999 to proxy for the (lack of) internal discipline in monetary policy.¹⁷ The results offer little evidence that countries with higher historical inflation were more likely to join the eurozone: if anything, the association is in the opposite direction.¹⁸

Turning to our model, Proposition 7 suggests that low-status countries may join the union at higher levels of fundamental differences than high-status countries. There is no single way of quantifying country status, but several measures are readily available. One follows the convention in the field of International Relations of using diplomatic exchange data to assess country status. Specifically, Renshon (2016) develops a network-centrality measure of country i 's international status, based on the number of diplomats sent to country i , taking into account the importance (status) of the sending country. This produces a diplomatic ranking of countries with larger numbers corresponding to higher status. Countries in our data range from 27 to 188. A second (and more intuitive for economists) proxy for country status is its rank in the Human Development Index (HDI), a summary measure of three dimensions: health, education and standard of living. HDI rank in our data ranges from 97 to 150. The two rankings are positively—but not perfectly—correlated ($\rho = .31$).¹⁹

Column 3 in Table C.2 adds diplomatic rank. Consistent with Proposition 7, countries with higher status according to this measure are significantly less likely to join the euro. Adding the HDI rank in column 4 shows an additional negative effect. Taken together, adding the status variables increases the explanatory power of the regression to $R^2 = .69$. Column 5 further includes countries in the European Economic Area (Iceland, Norway, and Switzerland) which are not members of the EU, but presumably could easily join and be eligible for the euro. The results are similar.

Notice that while both the diplomatic and the HDI rankings are plausible measures of

¹⁶See Chari et al. 2020 for an analysis of the conditions where this can benefit the Core countries. In an influential paper, Fleming (1971) argued that stable and similar inflation rates across countries stabilize the terms of trade. This in turn reduces the likelihood of reducing the incidence of external imbalances and the need for nominal exchange-rate adjustment. Indeed, this is reflected in one of the conditions for accession to the euro established in the Maastricht Treaty: A country can join the union only if its inflation rate were no higher than 1.5 percentage points above the average of the three best-performing member states.

¹⁷Following Alesina et al. (2002), we use a 20 year period that precedes the unification process to capture inflation rates that would arise in the absence of a currency union. Using inflation in the 1992-1999 window yields very similar results.

¹⁸Adding the variance of past inflation does not affect the results. Inflation variance itself is very weakly associated with joining the euro. Looking within countries over time, section C.3 below finds no clear association between gaps in optimal monetary policy and changes in popular support for the euro.

¹⁹We use a country's rank on the HDI to be consistent with the diplomatic rank data. Results are qualitatively similar when using the HDI index. As we discuss in section C.4 below, the HDI and the diplomatic rank measures are also appealing as they can explain over 85% of the variation across European countries in the Best Countries Ranking (BCR) - an elaborate ranking of countries that is only available after 2016.

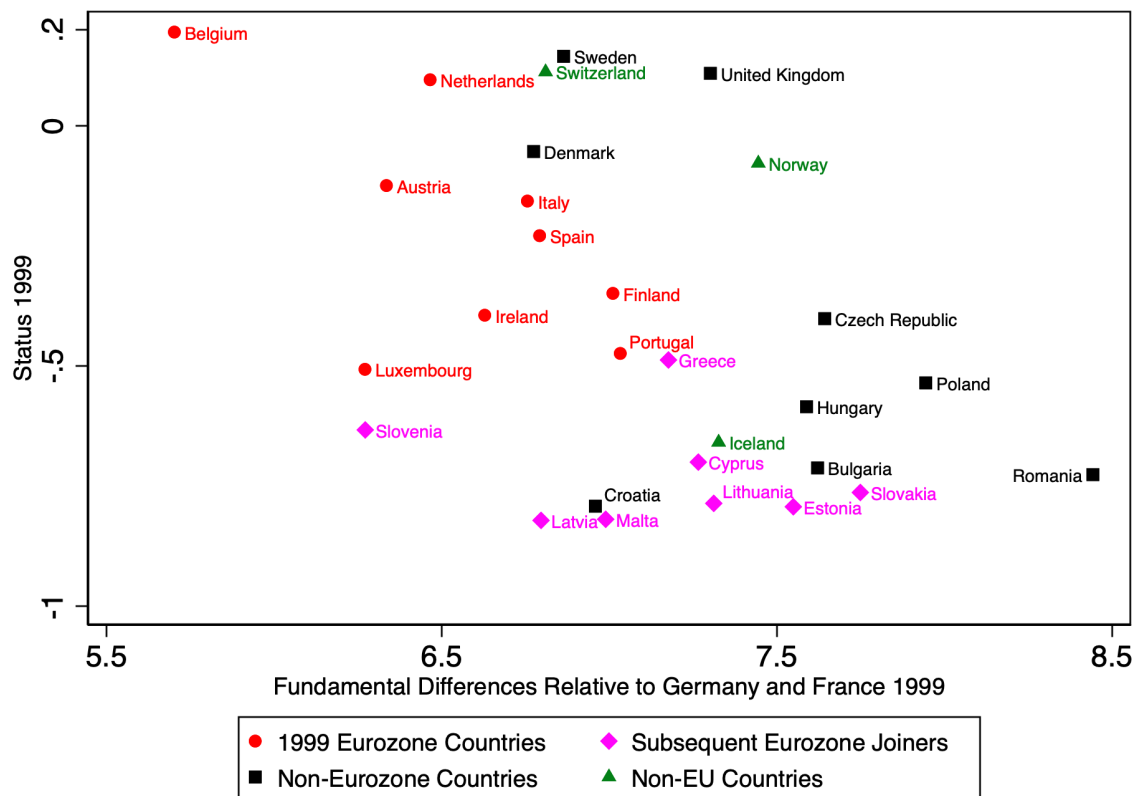


Figure C.2: Euro Membership, Fundamental Differences and Status in 1999

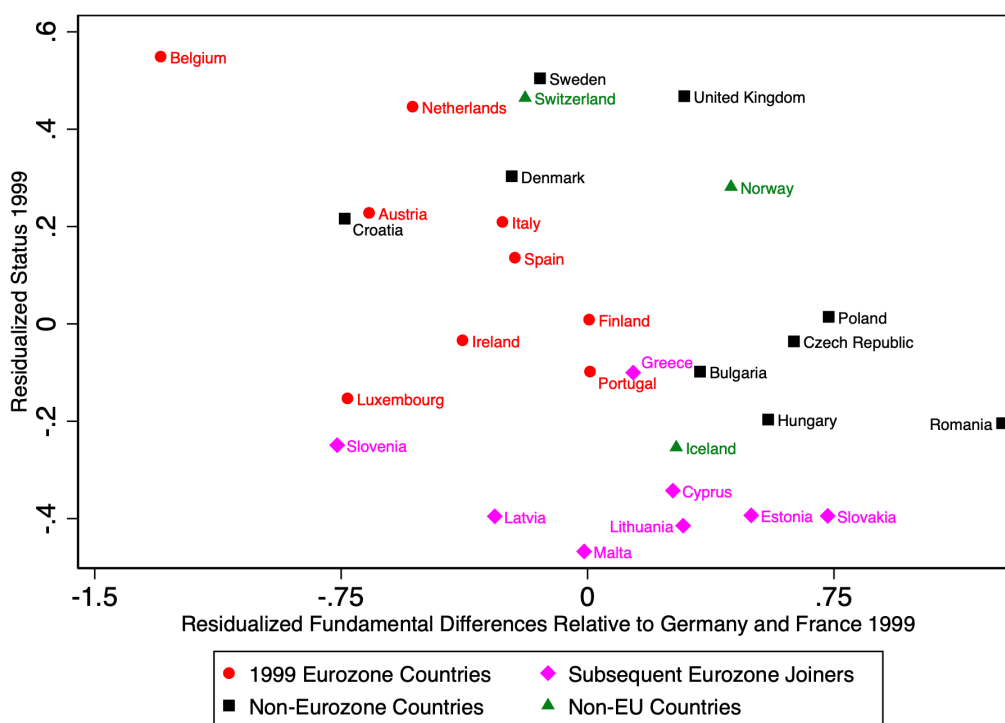
Notes: EEA member countries. Fundamental differences computed from comovement and trade data for 1992-1999. Status computed from HDI and diplomatic rankings for 1999.

status, neither has an obvious counterpart in the OCA framework. For example, while comovement of output is important, conditional on that it is not clear how lower levels of output in the periphery affect the optimality of both core and periphery countries entering into a currency union. Still, country status is obviously correlated with many other factors that could affect the observed association.

Figure C.2 provides a graphic illustration to help see which countries drive the results in Table C.2. To do that, we combine the comovement and trade variables into an index of fundamental differences from France and Germany. We also combine the two rank variables into a single index of country status relative to France and Germany. (details are provided in section C.4 below). The red circles show the initial members of the Eurozone. Consistent with OCA, this set includes the countries with the lowest difference from the Core (Slovenia was not a member of the EU until 2004). However, at intermediate levels of fundamental differences, there seems to be some interesting variation. Countries that had high status at the time—the United Kingdom, Sweden, Denmark—did not join the Eurozone (in Denmark

despite closely pegging the Danish Krone to the euro). At the same time, consistent with Proposition 7, countries with lower status than these non-joiners, but with similar and even larger differences did join (notably Finland and Portugal). Even more interesting is the set of countries that adopted the euro in *subsequent* years (the pink diamonds in Figure C.2). While high status countries stayed out, most of the joiners in the ensuing years were relatively high-distance low-status countries in 1999. The patterns are fairly similar when conditioning on pre-1999 inflation (Figure C.3).

Figure C.3: Eurozone Membership, Fundamental Differences and Status in 1999, Conditional on Inflation in 1980-1999



Note: Fundamental economic differences and status from Table C.3, after controlling for the country’s average inflation rate 1980-1999. For the following countries, IMF inflation data starts at year $t > 1980$ and we take the average inflation from year t to 1999. These countries (and first year t) are: Croatia (1993); Czech Republic (1996); Latvia (1993); Lithuania (1996); Netherlands (1981); Slovakia (1994); Slovenia (1993).

Turning to identification patterns, Propositions 8 and 9 do not provide sharp predictions regarding low-status periphery countries. However, Proposition 8b says that in any SIE with breakup, a high-status Periphery identifies nationally. Figure C.4 shows Eurobarometer data from 1999 on whether people in different countries see themselves more as European or as members of their nation. Data are available for all members of the EU in 1999. Of course, these surveys are merely suggestive, but high status countries that did not join the union did

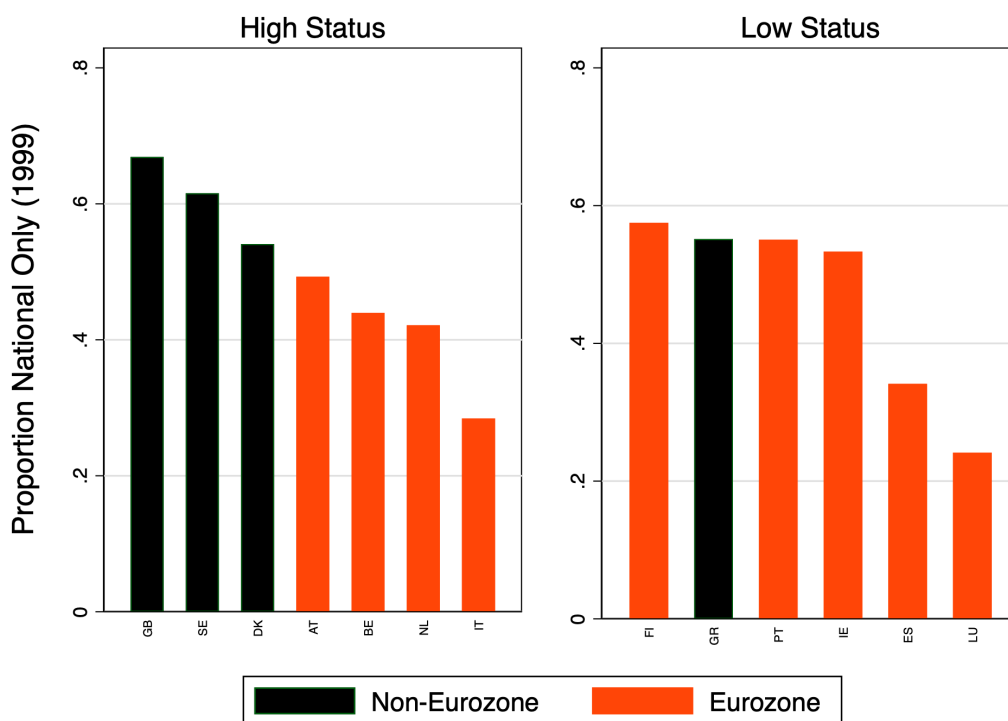


Figure C.4: National vs. European Identity in EU countries (1999)

Note: Eurobarometer data. The figure includes countries that were part of the European Union in 1999, excluding France and Germany. Each bar corresponds to a nationally representative sample. The figure shows the proportion choosing the first answer from the following question: *Do you see yourself as...1. [Nationality] only; 2. [Nationality] and European; 3. European and [Nationality]; 4. European only.* The left panel includes countries with a status index (see Appendix C.4) above the median across all countries, and the right panel those below. Red (black) bars correspond to countries that were (not) part of the Eurozone in 1999.

seem to have relatively high levels of national identification compared to European identity.²⁰

Taken together, while a standard international integration framework does not fully explain the composition of the European Monetary Union, augmenting it with identity politics goes some way in bridging the gap.

C.3 Changes in Support for the Euro

The patterns in Table C.2 and Figure C.2 are based on cross-country comparisons and may therefore reflect additional differences between countries that may drive integration

²⁰Unfortunately, at present we do not have revealed-preference measures of social identity as defined in the model. Furthermore, even in survey data, to the best of our knowledge, there currently exist no measures of identification with the Core—which in the European case includes both France and Germany. A French or a German citizen saying they identify with “Europe”, may very well refer primarily to the core north European countries. We return to this point in the conclusion.

decisions. Figure C.5 shows within-country changes over time. Specifically, we look at changes in support for “a European Monetary Union with one single currency, the euro” from 2008 to 2012 (the peak of the debt crisis), against within-country changes in economic conditions. The figure includes the members of the Eurozone as of 2008, excluding France and Germany (the Core). While institutions surely vary across European countries, they arguably changed far less during the crisis years than did economic conditions. The logic of OCA theory would then suggest that countries that moved further away from the core in terms of ideal monetary policy should display mitigated support for the common currency.

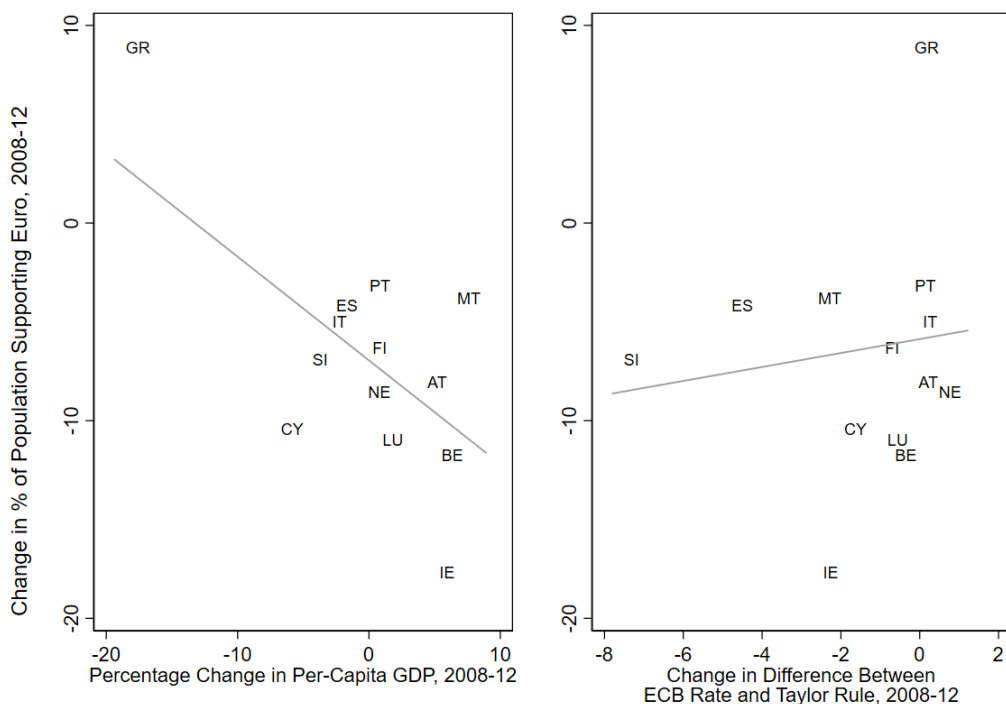


Figure C.5: Support for the Monetary Union and the Financial Crisis

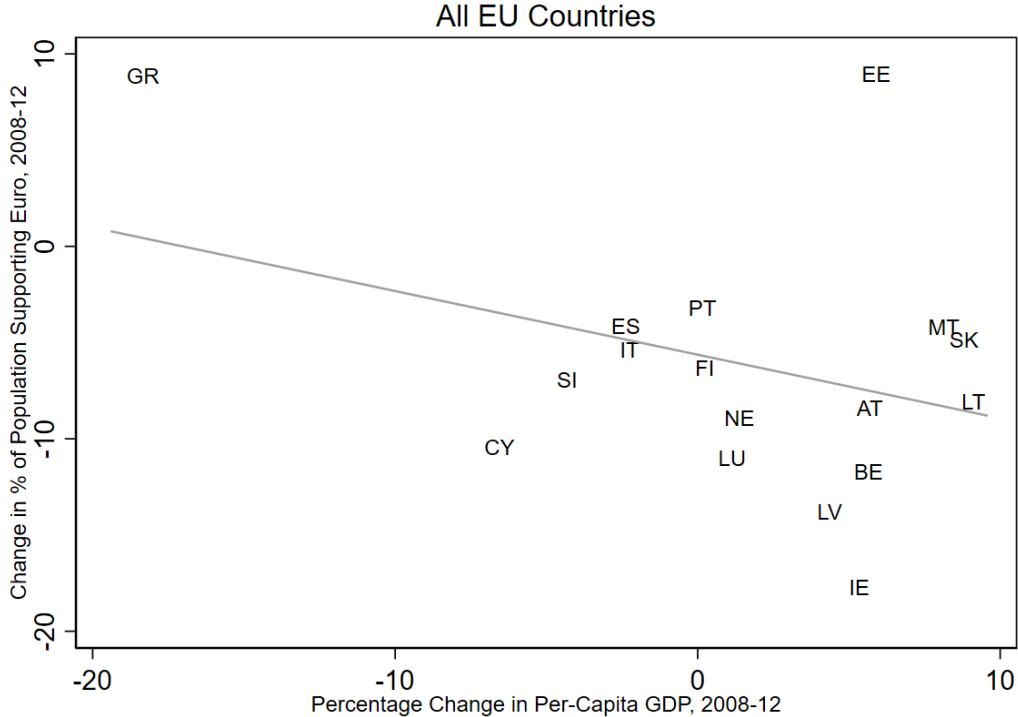
Note: The figure includes countries that were members of the Eurozone in 2008. All variables are within-country changes from 2008-2012. Share supporting the euro (vertical axis) from the Eurobarometer. GDP per capita from the IMF (USD, current prices). Right panel shows the change in the absolute difference between ECB main refinancing operations (MRO) interest rate and country-specific optimal rate using Taylor (1993). A positive value implies the absolute difference between the ECB and the country rates increased between 2008 and 2012, and a negative value means it shrank. The ECB rate is the mean annual rate. The Taylor-rule rate for country i is $r_i^* = p + .5y + .5(p - 2) + 2$, where p is the rate of inflation over the previous year, $y = 100(Y - Y^*)/Y^*$ where Y is real GDP and Y^* is trend real GDP. Data on p, Y, Y^* from the IMF.

As Figure C.5 (left panel) shows, several Eurozone countries experienced very slow or even negative growth in this period—notably in southern Europe—and required more expansionary monetary policies than the ECB administered.²¹ However, popular support for the

²¹The ECB has famously *raised* its interest rates in April and July 2011. In subsequent years the ECB

monetary union did not decline more in these countries. As a more direct measure of the gap between the country’s optimal monetary policy and the union’s policy, the right panel in Figure C.5 uses the absolute difference between the ECB interest rate and the country-specific optimal interest rate using the Taylor rule. Again, there is little evidence that countries that moved closer to the ECB rate (a negative change in the absolute difference) came to support the monetary union more. Figures C.6–C.7 show these relationships across all EU countries (including those that were not in the Eurozone but were still asked the above question), as well as for different time windows surrounding the crisis. The patterns again reveal no clear association between gaps in optimal monetary policy and support for the monetary union. Fiscal transfers seem unlikely to explain these patterns. In exchange for bailout loans, some southern countries actually accepted severe austerity measures, including cuts in benefits, that were widely resented by the domestic population (in addition to unaccommodating monetary policy).

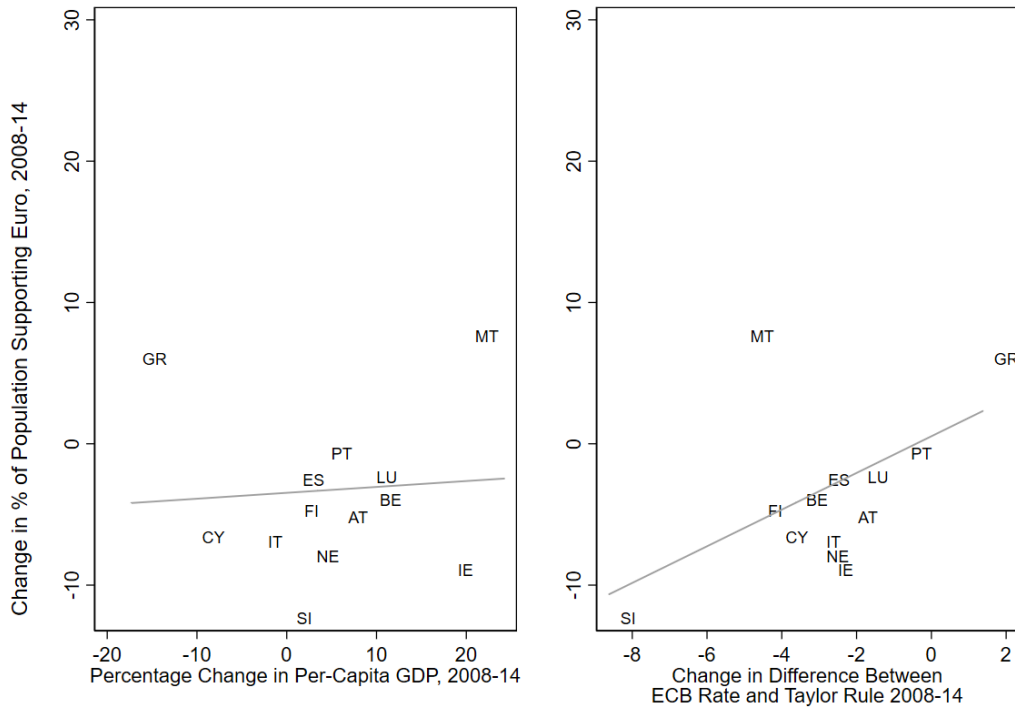
Figure C.6: Support for the Monetary Union and the Financial Crisis - EU Countries



Note: The figure includes countries that were members of the European Union in 2008. All variables are within-country changes from 2008-2012. Share supporting the Euro (vertical axis) from the Eurobarometer. GDP per capita from the IMF (USD, current prices).

gradually reduced rates, reaching historically low levels in late 2013 and in 2014.

Figure C.7: Support for the Monetary Union and the Financial Crisis - 2008-2014



Note: The figure includes countries that were members of the Eurozone in 2008. All variables are within-country changes from 2008-2014. Share supporting the Euro (vertical axis) from the Eurobarometer. GDP per capita from the IMF (USD, current prices). Right panel shows the change in the absolute difference between ECB main refinancing operations (MRO) interest rate and country-specific optimal rate using Taylor (1993). A positive value implies the absolute difference between the country-specific rate and the ECB rate increased between 2008 and 2014, and a negative value means it shrank. The ECB rate is the mean annual rate. The Taylor-rule rate for country i is $r_i^* = p + .5y + .5(p - 2) + 2$, where p is the rate of inflation over the previous year, $y = 100(Y - Y^*)/Y^*$ where Y is real GDP and Y^* is trend real GDP. Data on p, Y, Y^* from the IMF.

C.4 Country-Level Data

Constructing summary statistics for fundamental differences and country status

We define the distance in output comovement as $\delta_y^i = 1 - \rho_y^i$. Similarly we define the distance in price comovement as $\delta_p^i = 1 - \rho_p^i$. Our measure of distance on the trade dimension is then $\delta_{Trade}^i = 1 - T_i$.

These measures are reported in Appendix Table C.3. As one way of summarizing the data, we construct an index of fundamental differences by taking a simple average of the three differences ($\delta_p^i, \delta_y^i, \delta_{Trade}^i$), divided by their standard deviation.

For status, An appealing measure of country status is the Best Countries Ranking (BCR) published by U.S. News & World Report.²² This report provides an overall score for each of the 80 countries studied. It is based on a survey of over 21,000 people from across the globe who evaluate countries on a list of 65 attributes. The attributes are grouped in nine categories such as Cultural Influence, Entrepreneurship, Heritage, Openness for Business, Power, and Quality of Life. While BCR scores are not available for 1999 (the year the euro was launched), the HDI and Renshon's (2016) international status ranking explain more than 85% of the variation in BCR across European countries. We can thus use these two indices from 1999 to impute a status score for each country. Specifically, we regress the BCR score (normalized to be in $[0, 1]$) of all available European countries on the country's HDI ranking in 2015 and on Renshon's (2016) international status ranking in 2005 (the latest data available). This regression has $R^2 = 85.8$. We then use the estimated coefficients to impute a BCR score for 1999. The status of country i relative to the European Core countries (France and Germany) is defined as $\exp(BCR_score) - \text{mean}[\exp(BCR_score)|Core]$. The indices are reported in Table C.3. Perhaps not surprisingly, Switzerland, the UK and Sweden enjoy very high status whereas Latvia and Malta have the lowest status within our set of countries.

²²The study and model used to score and rank countries were developed by Y&R's BAV Consulting and David Reibstein of the Wharton School. For details, see <https://media.beam.usnews.com/ce/e7/fdca61cb496da027ab53bef37a24/171110-best-countries-overall-rankings-2018.pdf>. We use the 2017 report, published in March 2017.

Table C.3: Fundamental Differences and Status: Europe 1999

	Comovements in Prices	Comovements in Output	Trade as % of GDP	Fundamental Differences	Pre-1999 Inflation	Status 1999
	(1)	(2)	(3)	(4)	(5)	(6)
Belgium	0.91	0.90	0.21	5.70	3.48	0.20
Luxembourg	0.90	0.34	0.18	6.27	3.47	-0.51
Slovenia	0.95 *	0.69 *	0.14 *	6.27	14.07 *	-0.63
Austria	0.91	0.88	0.12	6.34	2.95	-0.12
Netherlands	0.81	0.71	0.13	6.47	2.24	0.10
Ireland	0.94	0.66	0.09	6.63	5.82	-0.39
Italy	0.95	0.90	0.05	6.76	7.76	-0.16
Denmark	0.91	0.76	0.07	6.77	4.45	-0.05
Spain	0.91	0.87	0.06	6.79	7.28	-0.23
Latvia	0.93 *	0.82 *	0.06	6.80	28.89 *	-0.82
Switzerland	0.71	0.68	0.09	6.81	2.81	0.11
Sweden	0.87	0.87	0.05	6.86	5.55	0.14
Croatia	0.81 *	0.67 *	0.06 *	6.96	233.71 *	-0.79
Malta	0.36	0.05	0.17	6.99	2.71	-0.82
Finland	0.93	0.61	0.05	7.01	4.79	-0.35
Portugal	0.61	0.73	0.07	7.03	11.23	-0.47
Greece	0.69	0.81	0.03	7.18	15.23	-0.49
Cyprus	0.87	0.49	0.03	7.27	4.76	-0.70
United Kingdom	0.83	0.36	0.04	7.30	5.14	0.11
Lithuania	0.89 ****	-0.16 ****	0.08 ***	7.31	9.65 ****	-0.79
Iceland	0.78	0.34	0.04	7.33	21.45	-0.66
Norway	0.78	0.11	0.05	7.44	5.39	-0.08
Estonia	0.89 **	-0.36 **	0.06 *	7.55	19.60 **	-0.79
Hungary	-0.43	0.65 *	0.12 *	7.59	15.57	-0.58
Bulgaria	-0.24	0.83	0.08	7.62	95.07	-0.71
Czech Republic	0.38	-0.83 ****	0.15 ****	7.64	7.57	-0.40
Slovakia	0.35 **	-0.54 **	0.11 *	7.75	8.73 **	-0.76
Poland	-0.08	0.21	0.07	7.94	72.35	-0.54
Romania	-0.29	-0.16	0.05	8.44	62.65	-0.73
Mean	0.65	0.44	0.09	7.06	23.60	-0.41
SD	0.41	0.47	0.05	0.58	46.18	0.34

Columns 1 and 2 show the correlations in annual inflation rate and in annual gdp per-capita growth rate during 1992-1999 between each country and Germany and France (as one combined economy). Column 3 shows trade with France and Germany, as percentage of GDP, in 1992-1999. * = Data available starting in 1993. ** = Data available starting in 1994. *** = Data available starting in 1995. **** = Data available starting in 1996. Column 4 shows the mean of δp , δy , and $\delta Trade$, as described in the text. Historical inflation rates (col 5) are computed as the average annual inflation rates between 1980-1999. Columns 1-5 are based on IMF data. Status (col 6) is the (exp of) the Best Country Ranking score, relative to the mean of France and Germany, imputed based on 1999 HDI (UN Development Programme) and country status ranking (Renshon 2016).