Grexit vs. Brexit: International Integration under Endogenous Social Identities*

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Abstract

This paper offers a first step towards introducing social identity into international economics. We develop a simple framework to study the interaction between identity politics and international integration, allowing identities themselves to be endogenous. Contrary to widespread intuitions, we find that a robust union does not require that all members share a common identity. Nor is a common identity likely to emerge as a result of integration. Furthermore, while national identification in the periphery leads to premature breakup, a common identity can sometimes lead to excessively large unions. A union is more fragile when periphery countries have high ex-ante status. Low-status countries are less likely to secede, even when between-country economic differences are large and although union policies impose significant hardship. We trace the implications of the model for likely entrants and defectors from the EU and the Euro.

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1 Introduction

The determinants and consequences of international integration have been central concerns for economists for a long time. The economic benefits of integration are fairly well understood and have been studied since the time of Adam Smith. The costs often stem from having to satisfy divergent needs with a 'one size fits all' policy. For example, the literature on optimal currency unions starting with Mundell (1961) emphasizes that the loss of independent monetary policy hinders the ability to handle idiosyncratic shocks. A major lesson is that integration should take place when fundamental differences between the candidate countries are small and, more generally, when the benefits exceed the costs.[1]

But integration is often shaped by additional forces. Consider European integration. From the beginning, it has been clear that economic considerations were not the main driving force (Schuman, 1950). Economists writing in the 1990s about the looming European Monetary Union recognized that the decision would not depend on the economic advantages and disadvantages. The prospects of developing a European identity that might transcend the bitter national identities of the past, as well as notions of national pride and status, appeared no less central than pure economic considerations (Feldstein, 1997).[2]

Recent European experience can appear equally puzzling from a standard economic perspective. Why did the UK vote to leave the EU despite a near unanimous view among economists that Brexit would have negative consequences for the British economy? And why did Greece join—and *remain*—in the Eurozone despite significant fundamental economic differences from the core, north-European countries, which require different monetary policy? As Den Haan et al. (2016) report, even most economists believe that the British decision to leave the EU was due to non-economic reasons. "Identity politics" has been widely discussed as a prominent cause underlying such decisions.

No doubt, these issues can be extremely complicated. Indeed, entire academic journals are devoted to European integration alone. Similarly, a voluminous literature—in political science, psychology, sociology and history—highlights the complexity of identification processes. Nonetheless, we believe that economics offers powerful tools to help tackle this problem, most importantly for thinking about equilibrium behavior where identities not only shape but also respond to changing economic environments. To make progress, we therefore

[1]See Alesina, Spolaore and Wacziarg (2005) for a review of the costs and benefits of country size. Donaldson (2015) reviews recent work on the gains from market integration.

[2]Indeed, as we illustrate in Section 7, the composition of the Eurozone is hard to understand using the framework of optimal currency areas alone. Countries such as Sweden and Switzerland did not join, although they appeared like natural candidates based upon trade and co-movement in output and prices relative to the core Euro countries (Alesina, Barro and Tenreyro, 2002). On the other hand, countries more likely to require different monetary policy, like Greece and Portugal, did join.

abstract from many of the real-world details to focus on the interplay between integration and identity. An applied theoretical treatment seems particularly appropriate in this case, since the disintegration of a large monetary or political union can have significant implications, and we ought to try to understand the main forces at work before the data become available. Accordingly, in Section 7 we use the model to assess the stability and potential changes to the current composition of the EU and the Eurozone.

The paper studies economic and political unions when potential members of the union may care not just about their own country but also about the union as a whole. We refer to such altruistic motivations as social identities. Specifically, individual i is said to *identify* with group j if her utility is increasing in the material payoffs of members of group j. In other words, her preferences are, to some extent, aligned with group j's. Importantly, identities are not necessarily fixed. A German citizen, for example, may identify as a German but may, to some extent, also identify as a European.

We embed this framework in a simple bargaining model between two countries: the Core and the Periphery. The Core sets a common policy for the union (e.g. monetary policy, debt policy, regulation, immigration policy). The Periphery then chooses whether to join the union and accept the common policy, or leave and set its own policy. Replicating classic results, unions in this model are less likely to be sustained in equilibrium the larger the differences in fundamental economic and political conditions between potential members. The question then arises: what policies does the union adopt and at what point does the union disintegrate? We say that a union is more *accommodating* if its adopted policies better suit the needs of the politically weaker Periphery countries (at some cost to the politically dominant Core countries). We say that a union is more *robust* if it is sustained under larger fundamental differences between members.

For concreteness we use Europe as the running example. Thus, Germany may be thought of as a Core, politically dominant country within the union, while Greece and the UK are Periphery countries that consider whether to remain in 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 the situation in which members of the Core identify nationally and Periphery members identify with Europe.[3]

[3] One should think of these identity profiles as representing the identity of the majority of voters in each country. Shayo (2009) analyzes within-country heterogeneity in identification, showing that the poor are generally more likely than the rich to identify nationalistically, and that this tendency increases with the immigration of foreign workers. For the question at hand, however, adding heterogeneity buys little in the

Consider first the subgame perfect Nash equilibria (SPNE) that emerge under a *given* profile of social identities. A widely held view is that the European union would be more robust if only everyone in Europe identified more as European. Our analysis suggests a more nuanced view. First, consistent with common views as well as survey data, we find that a union is more accommodating when the citizens of the Core identify with Europe. This is because the Core takes into account the interests of the Periphery, and therefore opts for policy concessions even when it would not make any concessions if it was only interested in its own material payoffs. However, a union is *less* accommodating when the Periphery identifies with Europe, essentially because in this case the Core can preserve the union with smaller concessions.

Notably, a union is most robust under the (C, E) profile, i.e. when individuals from the Core identify with their country, while individuals from the Periphery identify with the union as a whole. In particular, this profile yields a more robust union than the profile (E, E) in which everyone identifies with Europe. Essentially, when fundamental differences between the countries are very large, and the Periphery identifies with Europe, the union can still be sustained although at high material costs to the Periphery. When the Core identifies with Europe (but not when it identifies nationally), these costs of maintaining the union are partly internalized, leading to breakup.

Of course, preserving the union is not necessarily a goal in and of itself. When differences are large, the countries may be better off splitting. We show, however, that national identification in the Periphery implies that the union is less robust than is optimal from a material payoff perspective. This echoes the common reaction of economists to the decision of British voters on Brexit, which in turn was associated with strong national identification and weak identification with Europe (see empirical results in Section 2). At the same time, a common identity does not always enhance overall material payoffs. There exist situations where it is materially optimal to dismantle the union, and yet it is sustained if the Periphery identifies with Europe. This complements Alesina and Spolaore (1997)'s result that under democracy nations tend to be too small. We obtain a similar result when individuals identify with their own nations, but not necessarily when they identify with larger units.

The above analysis, however, takes social identities as given. During the past three decades it has become abundantly clear throughout the social sciences that ethnic, national or other social identities are changeable – and respond to the social environment in systematic ways (see reviews in Chandra 2012; Shayo 2009). Implicit in such a perspective is the idea that individuals choose (consciously or unconsciously) to identify in a meaningful way with

way of new insights, as the forces of, e.g., changes in national status stemming from integration agreements, operate on elites as well as on the poor.

some of the social categories they belong to, but not with others – and that economic and political processes and institutions can affect the incentives individuals face when forming social identity attachments. Indeed, the founders of the European Union were quite aware of this possibility, and believed that economic integration would promote European solidarity (Schuman 1950). Thus, while in principle we can analyze the equilibrium policies under any specific profile of social identities, it is unclear whether this identity profile would in fact be sustained given the economic and political conditions that stem from these policies.

To address this problem, we incorporate insights from social identity research to endogenize the decision whether to identify with one's country or with the union as a whole. Beyond the fact that people tend to identify more with groups they are more similar to, an extensive literature in social psychology consistently finds that people tend to identify more with high-status groups than with low-status groups (see discussion of the literature below). But the status of both the union and of the potential member states is itself endogenous to the economic policy, which in turn depends on the identity profile. We therefore employ an equilibrium concept—Social Identity Equilibrium (SIE)—in which both identities and policies are jointly determined.

Consider first a baseline case, in which similarity to the group does not affect identification decisions and the countries are ex-ante symmetric in status. We show that in this case, in almost any equilibrium in which the union is sustained, the identity profile is (C, E). Given any other identity profile, and fundamental differences sufficiently small such that the union can be sustained in SPNE, the chosen policies lead to a status advantage for the politically dominant Core, which implies that non-(C, E) profiles would not in fact be chosen by individuals. From this perspective, the expectation that unification *by itself* would lead to the emergence of a common identity across the union seems misplaced: the very success of a union tends to enhance national identification in the union's dominant Core countries. This last conclusion extends to the more general case when perceived similarity is important. Nationalism is of course shaped by many forces, but it is a mistake to expect unification per-se to act as an automatic antidote.

The more general result (stated in Proposition 8) is that when the Periphery has lower status than the Core, unification can be sustained in SIE despite relatively high fundamental differences between the countries. The basic reason is that if agents are allowed to choose their identity, 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 vis-a-vis the Periphery, which accentuate the Core's status advantage. Furthermore, we find that when the Periphery has equal or higher status than the Core, disintegration can occur at relatively low levels of fundamental differences. Such equilibria are always characterized by national identification in the Periphery. Beyond helping to explain the Brexit vote, one implication is that British national identification is unlikely to subside if and when Brexit takes place.

In Section 7 we compile data from various sources to gauge the main theoretical variables in the model for European countries today. This allows us to evaluate, in light of the model, the plausibility of different countries joining, remaining or leaving the EU. The UK and Sweden appear to be at the highest risk of breaking up with the EU. Italy and Portugal are at a lower risk of breakup than Spain, Ireland and Greece. The union with Austria, Belgium, the Czech Republic, Slovakia, Slovenia and Hungary appears quite solid. In terms of entry, Iceland currently seems to be the most likely candidate to join the EU. Switzerland and Norway are unlikely to join, despite low fundamental economic and political differences from the core European countries. Turkey is unlikely to become a member, in large part due to high political differences. This section also helps shed light on the composition of the Eurozone and the risks it faces.

Related literature. A prominent result in the literature on economic integration is that countries with substantial dissimilarities should maintain policy independence (e.g. De Grauwe, 2014). We build on the work in political economy—starting with Alesina and Spolaore (1997) and Bolton and Roland (1997)—on the breakup and unification of countries, which highlights the tradeoff between economic gains to unification and the costs of heterogeneity. We start with a simple model that features this tradeoff and examine both how the introduction of social identity can modify the political equilibrium and how the political equilibrium affects identification patterns.

Many of the explanations of public attitudes towards integration have focused on economic factors. While standard economic models help explain some of the variation in attitudes towards international trade, non-economic factors appear to play an important role (Mayda and Rodrik, 2005). A burgeoning literature in political science examines public support for European integration in general and for specific policies like Eurozone bailouts. Attention has increasingly turned from economic factors to identity concerns which appear no less important—and which often interact with economic factors in significant ways (Bechtel, Hainmueller and Margalit 2014; Hooghe and Marks 2004, 2009; Serricchio, Tsakatika and Quaglia 2013; Van Klingeren, Boomgaarden and De Vreese 2013). Indeed, the interaction between integration policies and identity is a prominent concern in many European countries. However, it is not clear what the equilibrium is. Does a common identity necessarily produce a more stable union? And what identity patterns can we plausibly expect to emerge?

The paper also builds on the growing economic literature on identity and how group membership shapes behavior (Akerlof and Kranton 2000, 2010; Bénabou and Tirole 2011;

Benjamin, Choi and Strickland 2010; Carvalho 2013; Chen and Li 2009; Hett, Kröll and Mechtel 2017; Holm 2016; Shayo and Zussman 2011, 2017) and on the endogenous formation of preferences (Bisin and Verdier 2001; Rotemberg 1994). We further relate to the literature showing that cultural affiliation is associated with economic exchange. As in our model, the influence appears to run in both directions. Thus, Guiso, Sapienza and Zingales (2009) show that trade and investment flows between countries are associated with bilateral trust, which in turn is related to cultural similarities, while Maystre et al. (2014) argue theoretically and provide evidence that bilateral trade reduces bilateral cultural distance. Note however that while *culture* is often conceptualized as a set of norms and beliefs that evolve very slowly (e.g., Guiso, Sapienza and Zingales 2006; Spolaore and Wacziarg 2013; Tabellini 2008; Voigtländer and Voth 2012), a large body of social science research shows that *identities* are quite flexible and can adjust to changes in the social environment even in the short run (see review in Sambanis, Schulhofer-Wohl and Shayo 2012). Status, in particular, is a central group characteristic in both theory and empirical research in social psychology. The basic argument is that a low group status results in unfavorable comparisons between the in-group and relevant other groups. As a result, members of lower status groups show less social identification than members of groups with higher status.[4] This pattern is also observed in Indian household consumption data (Atkin, Shayo and Sihra, 2018). In what follows we examine whether these insights might help us better understand the political economy of integration.

2 Some Empirical Results

We begin by documenting several important facts. Figure 1 shows Eurobarometer data on national versus European identification in Greece and the UK. Specifically, it shows the proportion of the population that reports seeing itself as *British (Greek) only* rather than *British (Greek) and European*; *European and British (Greek)*; or *European only.* Since the early 2000's, the British have tended to identify much more with their country than with Europe. Greeks, remarkably, have tended to identify more with Europe. This remained true

[4] Ellemers, Kortekaas and Ouwerkerk (1999). Empirically, identification is measured using either observed allocation decisions between ingroup and outgroup members or self-reported feelings and attitudes toward the ingroup and the outgroup. A meta-analysis of 92 experimental studies (including 145 independent samples) with high-status/low-status manipulation confirms that high status group members favor their ingroup over the outgroup significantly more than do low status group members (Bettencourt et al., 2001). Similar results emerge from field studies. Double-major university students identify more with their higher-status department, and are more likely to identify with a given department the lower is the status of the other department they major in (Roccas, 2003). And winning sports teams have long been shown to generate more identification (e.g. Cialdini et al. 1976).

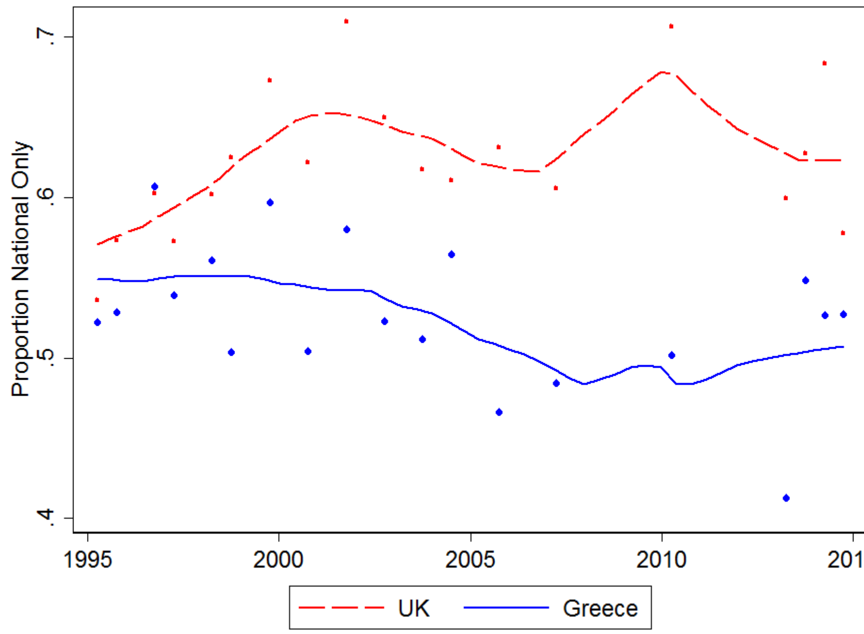


Figure 1: National vs. European identity in the UK and Greece

Note: Eurobarometer data. Each dot is a nationally representative sample. Lines are kernel-weighted local polynomial regressions. 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*. We thank Franz Buscha for sharing the data.

even at the height of the debt crisis and continued to hold despite harsh austerity measures imposed on Greece and despite very high rates of disapproval with EU policy (reported in Stokes, 2016).

Data we collected in the UK prior to the Brexit vote (in May 2016) also indicated a very low level of European identification in the UK, compared to British identification. A month later (in late June 2016), we asked the same respondents whether and how they voted. As Figure 2 shows, British identification is strongly associated with voting to leave the EU. Of voters who saw themselves as "British only", 66% voted Leave, 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).

Table 1 shows this relationship using a linear probability model (cols 1-5) and a probit (col 6). Consistent with Figure 2, the association in column 1 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 percentage points less likely to vote Leave. The difference appears even larger

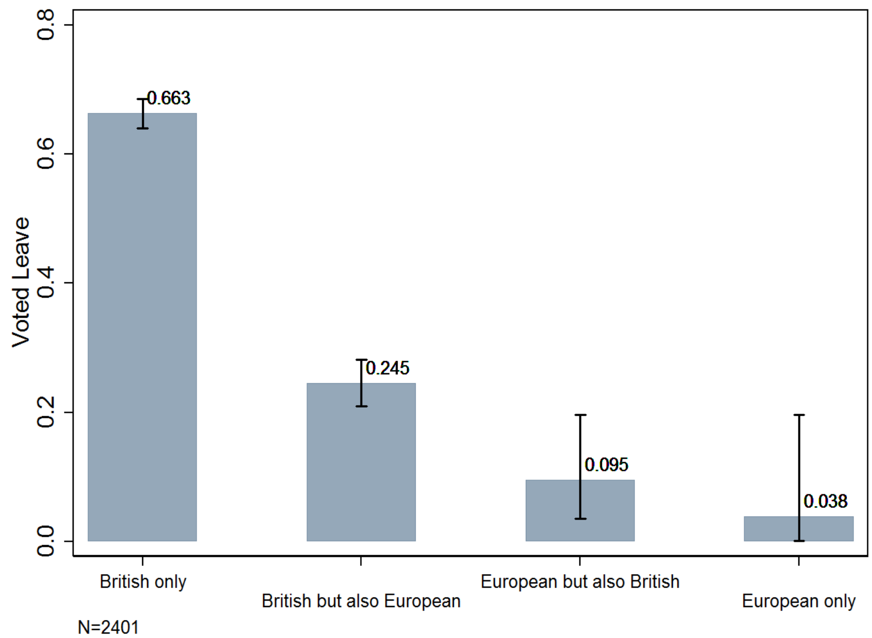


Figure 2: British Identification and Voting to Leave the EU

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.

among those who place a higher weight on being European. In columns 2-5 we progressively add controls for demographics (age, gender and an indicator for being born in the UK), household income and education. Consistent with other studies, older, less-educated, and native voters were more likely to support Brexit (see Becker, Fetzer and Novy, 2017). Higher income individuals and females appear less likely to vote Leave, but these associations are imprecisely estimated and weaken once we control for education (cols 4-6). To account for geographical variation in voting patterns, column 5 further controls for the county of residence. Remarkably, the association between voting and British/European identification remains very strong in all specifications. It is perhaps also worth noticing that adding variables such as income, age and education does not greatly increase the explanatory power of the regression beyond what is explained by the identity variable alone, measured a month before the referendum.

To sum up, significant fundamental differences between Greece and the core north-European countries have not prevented Greece from joining the Euro, and unaccommodating

Table 1: Voting for Brexit and British/European Identity

	OLS					Probit
	(1)	(2)	(3)	(4)	(5)	(6)
Identity						
British but also European	-0.419***	-0.412***	-0.406***	-0.372***	-0.365***	-0.394***
	(0.021)	(0.021)	(0.021)	(0.022)	(0.023)	(0.023)
European but also British	-0.568***	-0.518***	-0.515***	-0.481***	-0.463***	-0.526***
	(0.039)	(0.044)	(0.045)	(0.045)	(0.046)	(0.050)
European only	-0.625***	-0.535***	-0.527***	-0.491***	-0.474***	-0.587***
	(0.039)	(0.047)	(0.047)	(0.049)	(0.047)	(0.062)
Neither European nor British	-0.116**	-0.094*	-0.105*	-0.085	-0.085	-0.080
	(0.056)	(0.054)	(0.054)	(0.054)	(0.053)	(0.057)
Age		0.020***	0.021***	0.019***	0.019***	0.023***
		(0.004)	(0.004)	(0.004)	(0.004)	(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	-0.032*	-0.025	-0.032*	-0.031
		(0.018)	(0.018)	(0.018)	(0.019)	(0.022)
Born in UK		0.089**	0.090**	0.084**	0.075**	0.121**
		(0.038)	(0.038)	(0.037)	(0.038)	(0.050)
ln(HH Income)			-0.038***	-0.020	-0.021	-0.022
			(0.013)	(0.013)	(0.013)	(0.016)
Education						
GSCE, GNQV or equivalent				-0.010	-0.004	-0.013
				(0.044)	(0.045)	(0.054)
A-Levels or equivalent				-0.028	-0.030	-0.029
				(0.046)	(0.046)	(0.055)
Professional qualifications				0.026	0.030	0.032
				(0.048)	(0.048)	(0.058)
Academic degree				-0.146***	-0.138***	-0.166***
				(0.046)	(0.047)	(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.

EU policies have not led to a Greek exit from the Eurozone. To be sure, leaving the Euro has costs. But unlike the Brexit case, in the case of Greece there was genuine debate among economists regarding the balance of costs and benefits.[5] As suggested by Figure 1, this was accompanied by relatively high levels of identification with Europe. At the same time, Britain not only stayed out of the Eurozone but voted to leave the European Union, despite the latter being relatively accommodating to British demands and with the overwhelming view among economists that leaving would have negative consequences.[6] It is also noteworthy that more than 18 months after the referendum, with the costs and difficulties of a

[5]Prominent economists like Joseph Stiglitz have argued that for Greece "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).

[6]See Ipsos-MORI, Bloomberg and Financial Times surveys of economists prior to the referendum.

Brexit in plain sight, UK polls did not register any meaningful drop in support for Brexit.

3 Model

Consider a simple sequential game between two players, the "Core" of an economic union, denoted C, and a Periphery country P that considers joining or exiting the union. As in Alesina and Spolaore (1997), unification entails economic gains to both countries (e.g. from increased trade), but means they both need to share a common policy (e.g. same immigration or monetary policy). For concreteness, we use the European Union and the Eurozone as the running examples of a union, but the model may also apply to other unions such as the UK or Spain (with "Castile" being the Core and the Basque Country and Catalonia being Periphery counties). In the EU context, Germany would be a Core country. Greece during 2010-2016 is one example of a Periphery country considering exit from the Eurozone ("Grexit"), while the UK during the 2016 Brexit debate is an example of a Periphery country considering exit from the EU. Denote by E the super-ordinate category which includes both the Core and the Periphery (i.e. Europe as a whole). Let $\lambda \in (0.5, 1)$ be the proportion of the total population of E who are members of the Core.

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 legal authority, human rights, regulation and immigration policy. Let r_i^* be country i's ideal policy, from a standard, material payoff perspective. That is, it is the policy the country's citizens would most prefer in the absence of any identity concerns regarding other countries. Thus, differences in r_i^* capture fundamental differences in economic conditions and preferences across countries (in Table 2 we compute some rough measures of these differences). Without loss of generality, we assume that $r_C^* \geq r_P^*$. For example, Germany requires higher interest rates than Greece or higher immigration rates than the UK.[7]

[7] In this paper we take fundamental differences between countries as given. This is a natural first step. However, in the long run fundamental differences may be endogenous to both integration and identification choices. Note that it is not clear in which direction this process would work. On the one hand integration can lead to specialization (Ricardo, 1817) and as we show below, it can also lead to policies that favor the Core at the expense of the Periphery. On the other hand, closer trade links may lead to more closely correlated business cycles, and hence closer r_i^*s (Frankel and Rose, 1998), and unions may actively seek to homogenize their populations (Weber 1976; Alesina and Reich 2013). 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 financial crisis. However, there is little evidence that EU countries have become more similar in fundamental values or in major institutional features (Alesina, Tabellini and Trebbi, 2017). In Section

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 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 almost any union. This is essential for understanding some of the fundamental difficulties in the vision of a union that automatically engenders solidarity among its members.

Unification entails a per-capita benefit to both countries (or equivalently, breakup entails a cost) of size $\triangle$. This can come from, e.g., gains from trade, economies of scale in the production of public goods, or other potential benefits of unification such as reducing the risk of conflict. The material payoff of a representative agent in country i has the following form:

$$V_i(r_i, breakup) = -(r_i - r_i^*)^2 - \Delta * breakup \tag{1}$$

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", that is, once the Core sets the policy, the policy remains in place even if the Periphery rejects it. This makes sense if union policies are complex and cannot be changed overnight (e.g., even if the UK leaves the EU, it may take time for the EU to revise all policies and 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. The conclusions are qualitatively similar (except for part b of Proposition 4).

As we shall see, unification in this model occurs when the cross-country differences in ideal policies are small and the benefits to unification are large. This captures the main factors highlighted in the literature on the formation and breakup of unions. Our main focus is on how the equilibrium changes when we take into account social identities. Individuals may identify with their own country, e.g. as German, Greek or British. But they may also identify as European. We then ask two questions. The first question concerns the way policies are set and whether unification takes place, under different configurations of social identities. The more challenging question inquires what configurations of social identities and policies can hold in equilibrium, when both identities and policies can adjust to the changing environment.

We define social identification in terms of preferences. Think of an individual that belongs to several social groups, denoted by j. An individual i *that identifies* with group j cares about the payoffs of the members of group j. Another way to think about it is that i's preferences

6.2 we analyze changes in the salience or the importance that individuals attach to inter-country differences, which arguably can vary even in the short run.

are to some degree aligned with group j's preferences. Furthermore, an individual that identifies with group j may also prefer to be similar to typical members of group j. Formally, let S_j be the *status* of group j and let d_{ij} be the *perceived distance* between individual i and group j.

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

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

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

Shayo (2009) provides a detailed discussion of the role of status and perceived distance in social identification. The status of a group is affected by the material payoffs of its members, but we also allow for other, exogenous factors which can impact a group's status (history, culture, international prestige, etc.). Such factors will play a role once identity is endogenously determined. Thus, the status of country j is:

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

where σ_j captures all exogenous factors that affect the status of country j. In Section 7 (Table 2) we propose an empirical measure of S_j for European countries.

The status of Europe is given by:

$$S_E = \sigma_E + \lambda V_C + (1 - \lambda) V_P \tag{4}$$

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.

Next, think of each individual as characterized by a vector of attributes. The perceived distance between individual i and group j is then the (possibly weighted) Euclidean distance between individual i and the average (or "prototypical") member of group j in the attribute space, with weights representing the relative salience of different attributes. We consider two dimensions. The first is the ideal-policy dimension, r_i^*. The second captures differences between the countries (e.g. cultural or linguistic) that are *not* reflected in the ideal policies. Let $q_i = 1[i \in C]$ be an indicator for being a member of the Core. Perceived distance is then:

$$d_{ij}^2 = (r_i^* - \overline{r}_j^*)^2 + w(q_i - \overline{q}_j)^2 \text{ for } i \in \{C, P\}, j \in \{i, E\} \tag{5}$$

where $\overline{r}_i^* = r_i^*$ and $\overline{q}_i = q_i$ for $i \in \{C, P\}$; $\overline{r}_E^* = \lambda r_C^* + (1 - \lambda) r_P^*$; $\overline{q}_E = \lambda$; and $w \geq 0$. Perceived distance can be important for analyzing identity choice, as individuals are less likely to identify with groups that they perceive as very different from themselves.

Note that for an individual who identifies with her country, utility simplifies to $U_{ii} = (1 + \gamma) V_i + \gamma \sigma_i$. Identifying with Europe implies a degree of altruism towards members of the other country.

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.

4 Integration under Fixed Social Identities

It is useful to begin with a general characterization of the Subgame Perfect Nash Equilibrium (SPNE) outcome under any given profile of identities. The SPNE is the first buliding block of our proposed solution concept, SIE (defined in Section 6). SPNE 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 (functions of r_C^* and r_P^*) $\widehat{r}_C = \widehat{r}_C(ID_c, ID_p)$ and $\widehat{r}_P = \widehat{r}_P(ID_c, ID_p)$, such that $R_1 \le R_2$, $\widehat{r}_P < \widehat{r}_C$ and:*

a. if $r_C^* - r_P^* \le R_1$ then in SPNE unification occurs and $r_C = r_P = \widehat{r}_C$;

b. if $R_1 < r_C^* - r_P^* \le R_2$ then in SPNE unification occurs and $r_C = r_P = \widehat{r}_P$;

c. if $r_C^* - r_P^* > R_2$ then in SPNE breakup occurs and $r_C = r_C^*$, $r_P = r_P^*$.

Proofs are in Appendix A. Figure 3 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. Now, 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 $\hat{r}_P$ which would keep the Periphery in the union and still be preferable to breakup. In equilibrium the Periphery country is exactly indifferent

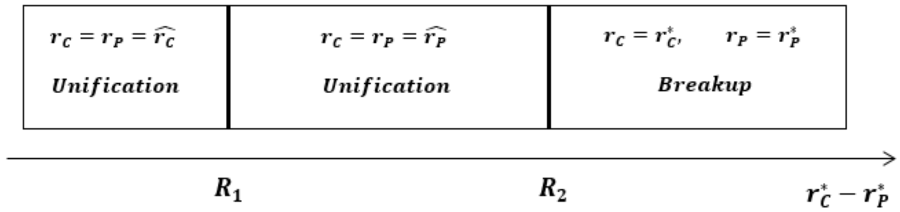


Figure 3: General Characterization of SPNE

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^*.

4.1 Preliminary results

We now state two preliminary but important results, and then discuss in some detail the SPNE under each of the possible identity profiles.

Proposition 2. ***Robustness***

a. The union is more robust when the Core identifies with the nation than when it identifies with Europe: $R_2(C, ID_P) \geq R_2(E, ID_P)$ *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: $R_2(ID_C, E) > R_2(ID_C, P)$ *for all* $ID_C \in \{C, E\}$*.*

Proposition 3. ***Accommodation***

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.

This naturally leads to the following corollary:

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

These results are not trivial: public discussions often assume that a union would be most robust, and perhaps most accommodating, under a common, (E, E) identity profile. To understand the mechanisms, we now discuss each of the four possible social identity profiles.

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 economic analysis of economic integration, in which each country is only interested in its own material payoffs. The (closed form) cutoffs for unification and the policies in this case are given in Lemma 1 in Appendix A.

To get a sense of the basic features of this case, the left panel in Figure 4 plots the equilibrium utilities of the agents in the two countries as a function of the fundamental differences $r_C^* - r_P^*$ between them (for a given Δ). Utility in both Core (top graph) and Periphery (bottom) is non-increasing in the economic differences: both Core and Periphery individuals are better off when fundamental differences between the countries are low and no major concessions are needed for the union to be sustained. For the Periphery, utility starts to decline as soon as its ideal policy differs from the Core's. However, since the Core cares only about its own material payoff, it continues to gain the maximum utility as long as it is able to impose $\widehat{r}_C(C,P) = r_C^*$ on the union. Core utility starts to decline only when it starts making concessions, setting its policy to $\widehat{r}_P(C,P)$. At this point the Periphery is kept at its reservation utility: the utility it gains under breakup. Finally, once fundamental differences are large enough, breakup occurs and policies are set to their ideal levels. Utilities therefore no longer depend on $r_C^* - r_P^*$.

Case 2 (C,E) : **Core Identifies with own Country and Periphery identifies with Europe**
The equilibrium in this game is characterized in Lemma 2 in Appendix A. The cutoffs and policies are illustrated in Figure 5.

Comparing this case to Case 1 provides some important insights into the workings of social identity. First, $R_1(C,E) > R_1(C,P)$. Because the Periphery is now concerned not only with its own material payoff but also with Europe as a whole, it accepts r_C^* at relatively high levels of fundamental differences. Indeed, $R_1(C,E)$ is increasing in λ which captures the importance of the Core in European material payoffs.

Second, $\widehat{r}_P(C,E) > \widehat{r}_P(C,P)$. In other words, even when the Core makes concessions in order to sustain the union, these concessions are smaller than what was needed when the Core identified nationally. The basic reason is that the Periphery internalizes the wider policy implications for Europe of a more accommodating policy. Hence, the larger the concessions the Core makes, the larger the cost of dismantling the union from the point of view of the Periphery. This means that by making concessions the Core reduces the Periphery's reservation utility, which in effect allows the Core to preserve the union with smaller concessions. This is illustrated in the bottom right panel of Figure 4: in the middle

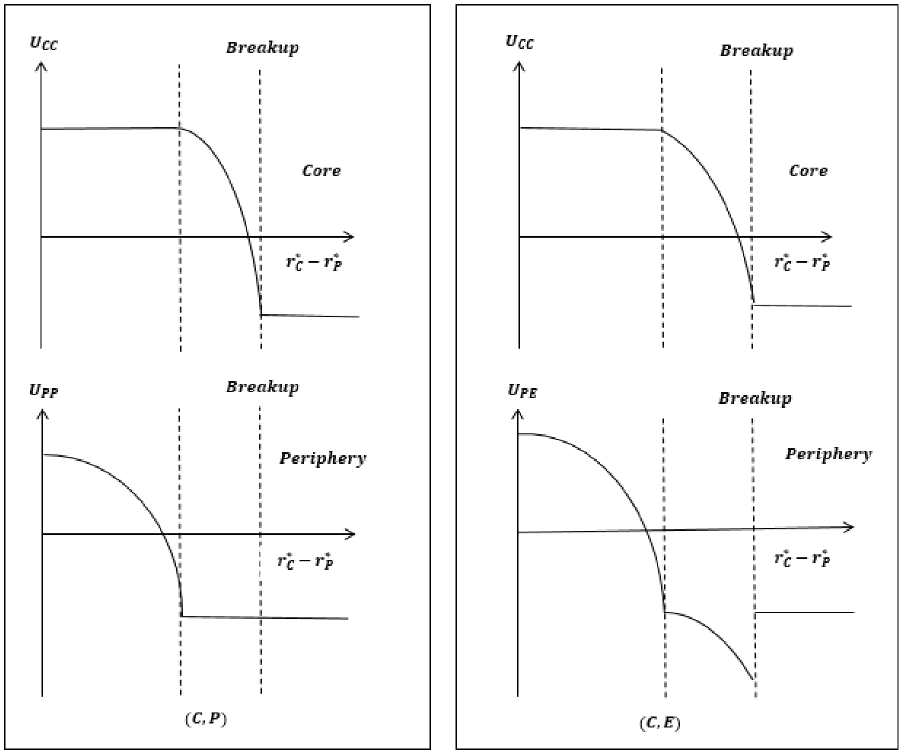


Figure 4: Utilities when the Core Identifies with Own Country: Cases 1-2
Note: The figure is drawn for $\beta = 0$.

range, as fundamental differences increase, the very act of making concessions drives down the Periphery's utility and allows for smaller concessions.[8]

Finally, the union is sustained under larger fundamental differences than would be possible when each country only cares about itself ($R_2(C,E) > R_2(C,P)$). It is worth noting that 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 positively on three factors: the cost of breakup $\triangle$, the size of the Core λ, and the weight γ that the Periphery places on European status. An increase in any one of these tends to make breakup more costly for the Periphery when it identifies with Europe. This allows the union to be sustained under larger differences – essentially at the expense of the Periphery's material payoffs. We return to this point when we discuss material optimality in section 4.2.[9]

[8]This consideration does not arise if the Core is perfectly flexible in its ability to change policy once the Periphery secedes. In this case, the Periphery's reservation utility is constant in the middle range. Nonetheless, it is still the case that the union is more robust when the Core identifies with the nation than when it identifies with Europe. See Appendix B.1 for details.

[9]It is perhaps interesting to observe that once fundamental differences are so large that the union cannot be sustained even though the Periphery identifies as European, the Core does not make any concessions, and hence the Periphery does not suffer any utility loss stemming from losses to Europe brought about by policy concessions. This yields a discontinuous jump in Periphery utility at breakup.

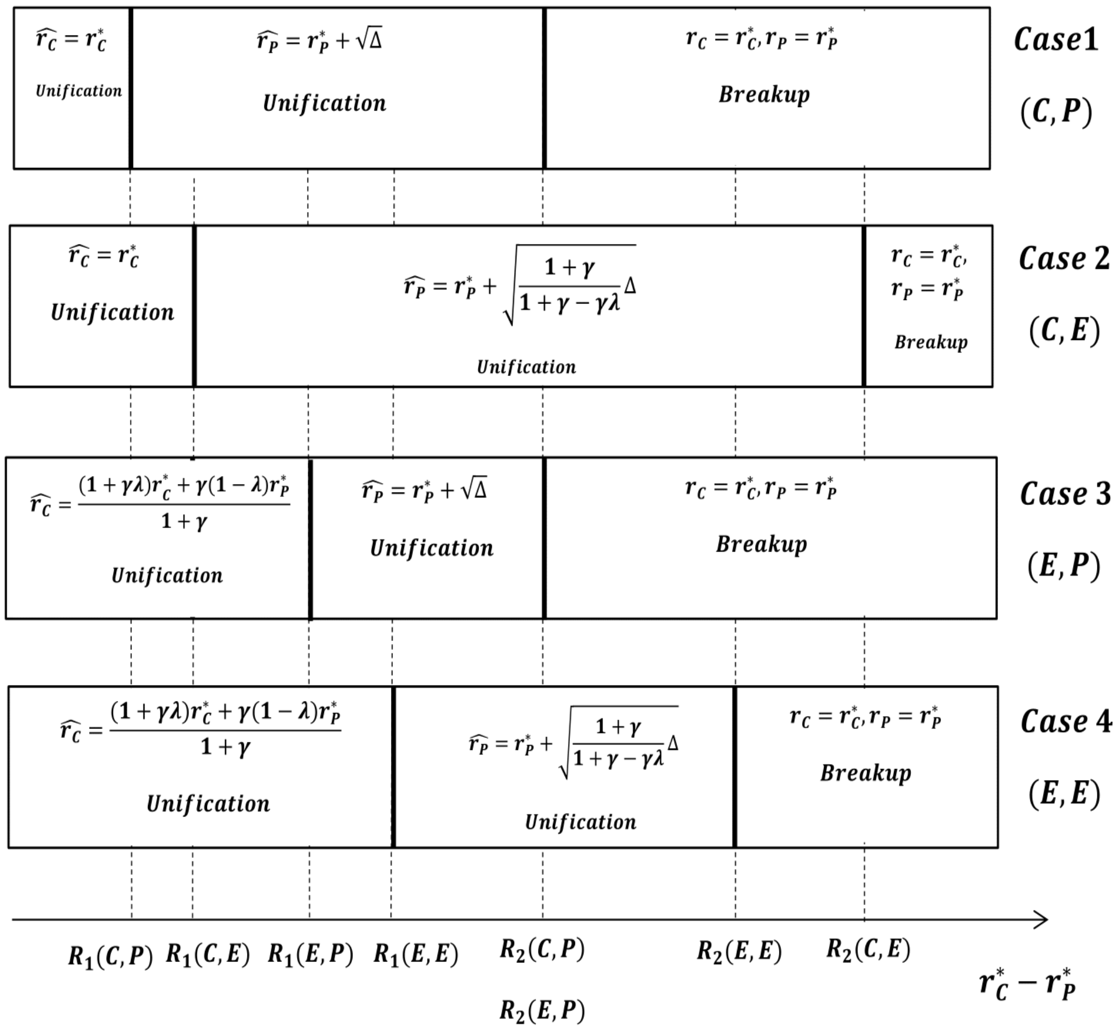


Figure 5: SPNE under Different Social Identity Profiles

Note: See Lemmas 1-4 in Appendix A. The figure is drawn for the case where $R_1(C,E) < R_1(E,P)$ and $R_1(E,E) < R_2(E,E)$.

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

This case is characterized in Lemma 3 in Appendix A. Again, it is instructive to compare this case to the benchmark Case 1 (C,P). First, $\widehat{r}_C(E,P) < \widehat{r}_C(C,P)$. That is, at low levels of fundamental differences, the union is more accommodating since the Core now internalizes, to some extent, the policy effects on Europe as a whole. Thus, policy is set as some weighted average between the ideal policies of the two countries, with the weights reflecting their relative size and the extent of the Core's altruism towards Europe. As seen in Figure 6, top left panel, larger differences in policy needs between the Core and the Periphery are now reflected in utility losses to the Core.

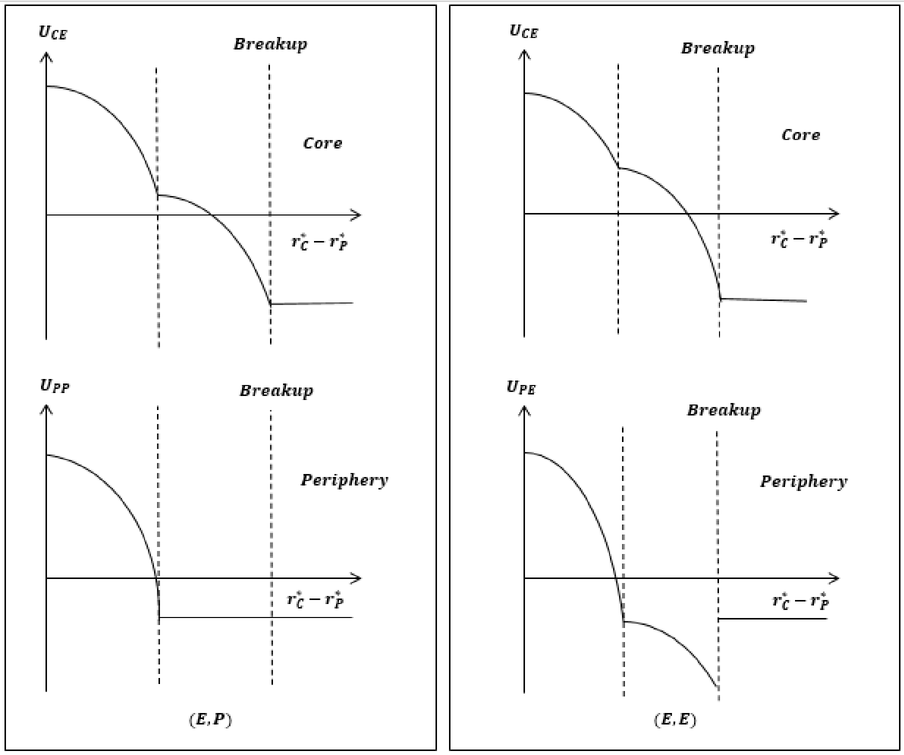


Figure 6: Utilities when the Core Identifies with Europe: Cases 3-4
Note: The figure is drawn for the case where $R_1(E,E) < R_2(E,E)$ and $\beta = 0$.

This, however, does not imply that the union is more robust. At some point, this policy which takes into account wider European considerations—$\widehat{r}_C(E,P)$—is not sufficient to keep the Periphery in the union.[10] Further concessions need to be made. However, since the Periphery cares only about its own payoffs, the policy required to keep it in the union is exactly the same as in Case 1. Hence $\widehat{r}_P(E,P) = \widehat{r}_P(C,P)$. Moreover, breakup occurs at the same level of fundamental differences as in Case 1: $R_2(E,P) = R_2(C,P)$. 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 (Figure 6, bottom left panel). Hence the only factor shifting European material payoffs is Core material payoffs. Once fundamental differences are such that these payoffs are higher under breakup than under unification, breakup takes place. The upshot is that, perhaps surprisingly, the fact that the Core identifies with Europe does not prohibit or even delay breakup.

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

Finally, consider the case that, on the face of it, would seem like the most favorable for

[10] The reason is that the Core identifies with Europe as a whole and not exclusively with the Periphery. Since European status depends more on the Core's than on the Periphery's material payoffs, the chosen policy is not the ideal policy from the Periphery's perspective, even if the Core places a very high weight on European status.

European integration: when everyone identifies with Europe. The full characterization is in Lemma 4 in Appendix A.

The main takeaway from this case is that the union is less robust when everyone identifies with Europe than when only the Periphery does ($R_2(E,E) < R_2(C,E)$). Essentially, when the Core identifies with Europe, it takes into account the fact that when fundamental differences between the countries are sufficiently large, the Periphery would be better off outside the union, conducting its own policy. These considerations do not arise when the Core identifies with own country, and the union is sustained at the Periphery's expense.

Regarding policy, as in Case 3, at low levels of fundamental differences, policy is accommodating. The Core—being concerned with both own and European payoffs—sets the policy at some weighted average of r_C^* and r_P^*. And as in Case 2, the fact that the Periphery identifies with Europe allows the Core to set its most preferred policy over a wider range than would be possible if the Periphery only cared about itself ($R_1(E,E) > R_1(E,P)$). Furthermore, the Periphery's identity allows the union to be sustained with lower concessions in the middle range between R_1 and R_2 (i.e the union is less accommodating) which in turn makes the union more robust under the (E,E) profile than under either the (C,P) or (E,P) profiles.

4.2 Is unification optimal from a material-payoff maximizing perspective?

Robustness is not necessarily a good thing. If differences are large, the countries may be better-off splitting. A natural approach to evaluating the welfare properties of the SPNE under different identities, is to compare them to what a social planner interested in maximizing aggregate material payoffs would do. 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 4. A union is *materially optimal* if it is sustained if and only if $\underset{r_C, r_P}{max} V_E(r_C, r_P, 0) \geq \underset{r_C, r_P}{max} V_E(r_C, r_P, 1)$.

Proposition 4. ***Material Optimality and Robustness.***

a. When the Periphery identifies nationalistically, 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 optimal to form a union, and yet if the individuals in the Periphery identify with their nation then the union cannot be sustained. This does not depend on Core identity. Thus, if a union is clearly desirable from a material payoff perspective, achieving unification requires bolstering the common (European) identity in the Periphery, not in the Core.

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. This result complements Alesina and Spolaore's (1997) result that under democracy nations tend to be too small. We obtain a similar result when individuals identify with their own nations, but not necessarily when they identify with larger units. The basic reason, again, is that when the Periphery identifies with Europe, the union is 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.

5 Choice of Social Identity

We now turn to the determination of social identity itself, which forms the second building block of our proposed solution concept. We assume that individual i chooses to identify with group j rather than with group j' if identifying with the former yields higher utility. This is consistent with extensive evidence (discussed in the introduction) showing that individuals are more likely to identify with groups that have higher status.

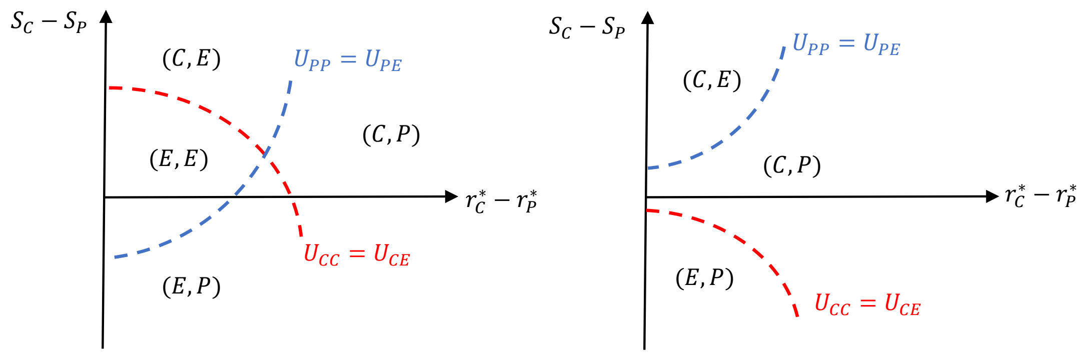
Consider then the choice of identity as a function of the (ex-post) status gap between the two countries, $S_C - S_P$, for a given policy.[11] An individual from country i chooses identity j to solve:

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

Thus, an individual in the Core country 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, own material payoff V_i does not depend on the choice of identity. Hence identification with own country takes place if $\gamma S_C - \beta d_{CC} > \gamma S_E - \beta d_{CE}$. Using equations 3-5 this condition can be written as:

$$S_C - S_P > \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma}\left[w + (r_C^* - r_P^*)^2\right]. \tag{6}$$

[11] In general, the status gap will be a function of the fundamental differences between the countries, and the policies chosen given these differences. The status gap functions are made explicit in Appendix A.5.



A. $\boldsymbol{\sigma_E > \sigma_E^*}$, $\boldsymbol{\beta > 0}$

B. $\boldsymbol{\sigma_E < \sigma_E^*}$, $\boldsymbol{\beta > 0}$

Figure 7: Choice of Social Identity

In other words, a Core individual identifies with her own country when the status gap between the two countries is sufficiently high and (for $\beta > 0$) when the distance between the countries is large. This is more likely to occur when the exogenous sources of Core status, captured by σ_C, are high while those of Europe (σ_E) are low. Similarly, a Periphery individual identifies with her own country if:

$$S_C - S_P < \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (r_C^* - r_P^*)^2\right]. \tag{7}$$

Figure 7 illustrates how the identity profile is determined. Dashed lines represent "identity indifference curves". These depict the combinations of $r_C^* - r_P^*$ and $S_C - S_P$ such that individuals are indifferent between identifying with their own nation and with the union. Thus for example, combinations of $r_C^* - r_P^*$ and $S_C - S_P$ which are located above the Core's identity indifference curve (labeled $U_{CC} = U_{CE}$) imply that $U_{CC} > U_{CE}$. Hence, individuals in the Core identify nationally in this region.

Consider Panel A, in which ex-ante European status is above some threshold σ_E^*.[12] We see that, for low differences between the countries, three identity profiles are possible. If ex-post Core status is sufficiently high relative to the Periphery's, 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, depending on the weight β that individuals place on perceived distance from their group, 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

[12] $\sigma_E^* \equiv \lambda\sigma_C + (1-\lambda)\sigma_P + \frac{\beta\lambda}{\gamma}\left[w + (r_C^* - r_P^*)^2\right]$.

identity profile cannot be sustained if differences between the countries are too large. The flip side is that when differences between countries are large, the identity profile (C, P) becomes possible. Panel B shows the situation when ex-ante European status is *lower* than σ_E^*. In this case, the (E, E) profile cannot be sustained.

6 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 in equilibrium, when both are endogenously determined? Economists tend to treat ethnic and national identities as exogenously given, rather than as a choice variable that responds to the economic environment.[13] Psychologists emphasize the flexibility of social identity attachments, but do not analyze the equilibrium. In the context of integration, the problem can be illustrated using Figure 7. From the analysis in Section 4 we know the SPNE policies for each value of the fundamental differences between the countries and for each profile of identities. However, some of these identity profiles will not in fact be chosen if the status gap that results from these SPNE policies does not lie in the corresponding region. In what follows we therefore analyze a concept of *Social Identity Equilibrium (SIE),* adapted from Shayo (2009). SIE requires not only that the policies implemented in both countries be a SPNE given the social identity profile, but also that the social identities themselves be optimal given these policies. Formally:

Definition 5. 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 the profile of social identities (ID_c, ID_p);

ii. $ID_i = \underset{ID_i \in \{i,E\}}{argmax}\, U_{i,ID_i}(r_C, r_P, breakup)$ for all $i \in \{C, P\}$.

To help see the mechanism, Section 6.1 analyzes SIE when perceived distances do not affect identification decisions. Graphically, this means that the slope of the identity indifference curves in Figure 7 is zero. Section 6.2 examines the general case when $\beta \geq 0$.

[13] See e.g. the literature reviewed in Alesina and Ferrara (2005). Closely related to our approach are models of preference choice (Rotemberg, 1994), cultural transmission (Bisin and Verdier, 2001), cultural assimilation (Lazear, 1999) and investment in one's self-view or moral identity (Bénabou and Tirole, 2011).

6.1 SIE without perceived distance ($\beta = 0$)

We begin our analysis with the case of no ex-ante status differences between the countries and Europe. An important special case would be when status is completely determined by material payoffs so that $\sigma_j = 0$ for all $j \in \{C, P, E\}$.

Proposition 5. *Suppose $\beta = 0$ and 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 $r_C^* - r_P^* = R_2(C,P)$; in these cases other identity profiles can also be sustained under unification.*

c. *For any fundamental differences in $[R_2(C,P), R_2(C,E)]$, 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.*

The main flavor of this Proposition is illustrated in Figure 8. Given the parameter restrictions, all the identity indifference curves coincide and are flat. The solid red curve shows the status gap in the SPNE under the (C,E) profile. At any level of fundamental differences below $R_2(C,E)$, the status gap is above the identity indifference curve. 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). It can also be shown that the SPNE for all other identity profiles imply a status gap which is strictly *above* the identity indifference curve, for all fundamental differences greater than zero and below the respective R_2's. Thus, if unification is sustained in SPNE, the identity profile cannot be an equilibrium. If fundamental differences are above the relevant R_2, the status gap is zero and the profile can be sustained in SIE, but since differences are above R_2 the SIE must involve breakup. The proof provides more details.

In a sense, Proposition 5 complements Corollary 1. Not only is the union most robust when the social identity profile is (C,E), in the baseline case (C,E) is the unique identity profile that holds in any SIE in which the union is sustained, except for very special cases. Nonetheless, there is a wide range of fundamental differences—from $R_2(C,P)$ to $R_2(C,E)$—in which both unification and breakup can occur.

It is worth noting that an SIE with the social identity profile (E,E) is unlikely to be sustained under unification, unless fundamental differences are negligible. This runs against

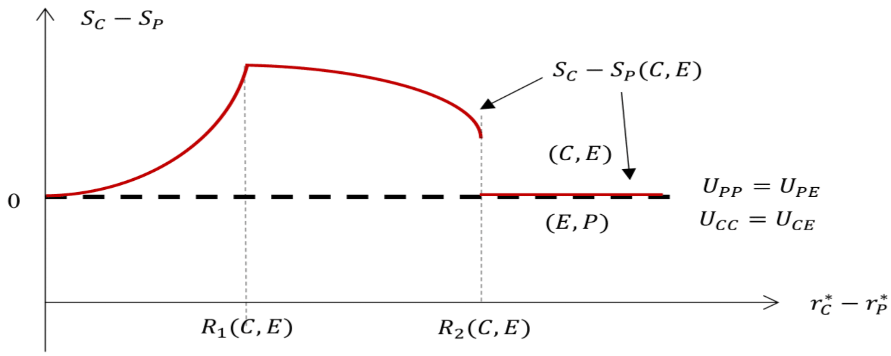


Figure 8: SIE under No Ex-Ante Differences in Status and $\beta = 0$

the idea of an "ever-closer union" which holds that joining the union itself ultimately brings the member countries closer together (see discussion in Spolaore, 2015). Indeed, the very success of the union tends to push Core countries towards more national identities. Furthermore, a union with a (C, E) profile is unlikely to be very accommodating to the needs of the Periphery (Corollary 1).[14]

Next, consider the SIE when the ex-ante status of the Periphery is lower than the Core's.

Proposition 6. *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 previous 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.

More importantly, the union is more stable in this case. From Proposition 5.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 in SIE. Proposition 6 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. The upshot is that when the Periphery has lower ex-ante status, we should observe unification at higher levels of fundamental differences than when the core and the Periphery have similar status.

Note that in effect the union in this case is sustained at the expense of the Periphery's

[14] As we shall see in section 6.2, once we allow individuals to care about their distance from the group they identify with, the (E, E) profile cannot be sustained in SIE under breakup either.

material payoff. When Periphery members identify with Europe and Core members identify with their nation, 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 Core identify with their nation while members of the (worse-off) Periphery are motivated to indeed identify with Europe. This allows the Core to systematically implement a less accommodating policy for the union.

This analysis might help understand *both* the strained relationship between Germany and Greece as well as Greece's continued membership in the Eurozone during the debt crisis. Significant fundamental differences between the countries have not led to a "Grexit" from the Eurozone, despite the grave recession in Greece. Moreover, the core Euro countries were able to demand—and the Greek government accepted—severe austerity measures in order to remain part of the Eurozone, even though many economists were skeptical regarding the economic benefits. Indeed, as our analysis suggests, the dismal economic performance of Greece may have itself helped sustain the relatively high levels of European identification in Greece (recall Figure 1).

To complete the analysis, 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 6, 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 6, 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, but not at the expense of the periphery. And while (C, E) equilibria may still exist, they are no longer unique.

Proposition 7. *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.

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

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 the case when the Periphery has higher ex-ante status, breakup can occur below this threshold. This is illustrated in Figure 9 (Panel A). The figure depicts the status gap curve consistent with the identity profile (E, P). When this curve lies below both the $U_{PP} = U_{PE}$ and the $U_{CC} = U_{CE}$ identity indifference curves, the (E, P) profile holds in SIE. This means that while the union lasts, it is quite accommodating to the demands of the Periphery. However, for fundamental differences above $R_2(E, P)$ the SIE involves breakup. But we know from Section 4 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, as 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 with some involving breakup and others involving unification. Proposition 7 says that any SIE in this region that involves unification must have the Periphery identify with Europe. This can be seen in Figure 9, Panel B. The figure depicts the status gap functions under three identity profiles.[15] 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). And for the same levels of fundamental differences, there also exist SIE's with unification, but in all these SIE's the Periphery identifies with Europe (the (E, E) profile – green dotted curve; and the (C, E) profile – solid red curve).

6.2 General characterization of SIE with $\beta \geq 0$

We now allow identification decisions to respond to perceived distances. The basic intuitions concerning breakup and unification continue to hold, but we obtain a fuller picture of identification patterns.

Let $\boldsymbol{p} = (\beta, w, \gamma, \triangle, \lambda, \sigma_E)$ be a vector of parameters. Let $\overline{M}(\boldsymbol{p}, \sigma_C, \sigma_P)$ be the maximal level of fundamental differences under which an SIE with unification exists given $\boldsymbol{p}$ and ex-ante status σ_C, σ_P. Similarly, let $\underline{M}(\boldsymbol{p}, \sigma_C, \sigma_P)$ be the minimal level of fundamental differences such that an SIE with breakup exists for any level of fundamental differences larger than $\underline{M}(\boldsymbol{p}, \sigma_C, \sigma_P)$, given $\boldsymbol{p}, \sigma_C, \sigma_P$.

[15] The figure is drawn for the case when European status is high, hence (C, P) can never be part of an equilibrium and we do not show the status gap curve under this profile. The intuition for the result is similar in the case when European status is low.

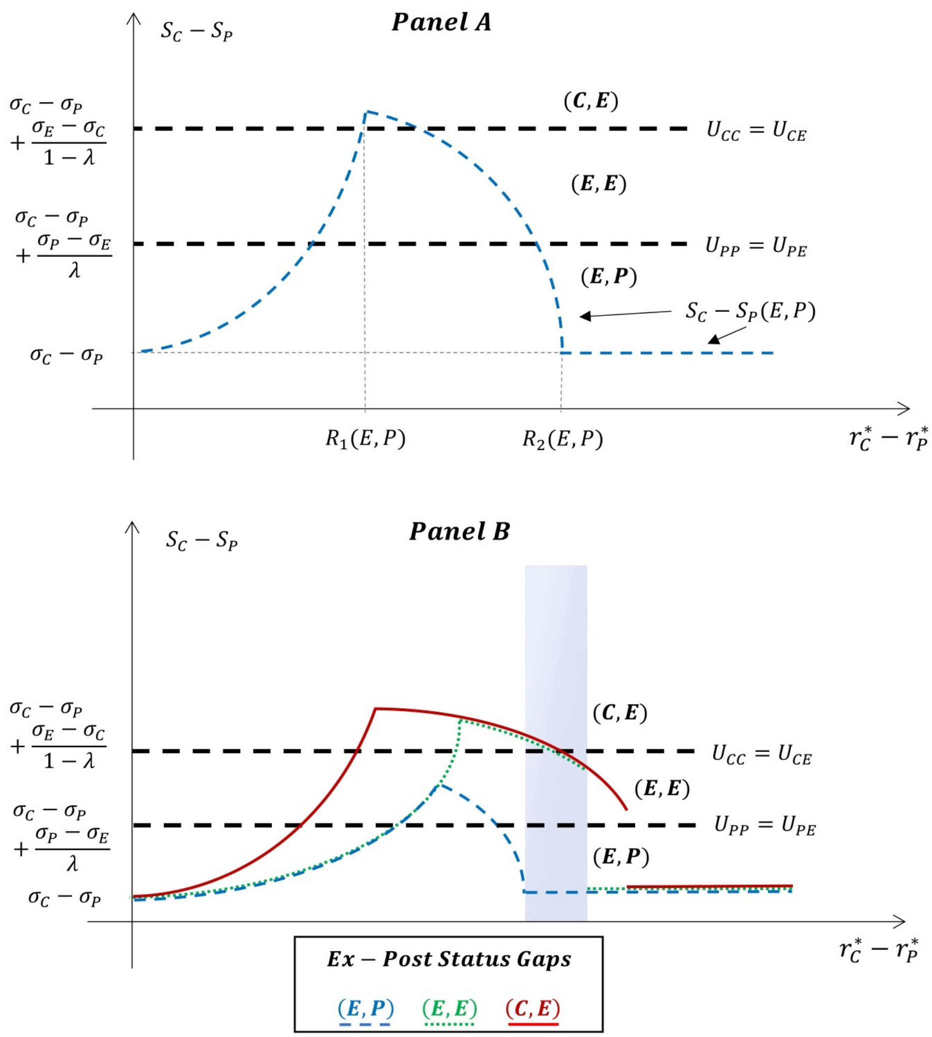


Figure 9: SIE when the Periphery has Higher Ex-Ante Status and $\beta = 0$

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

Proposition 8. ***Robustness in SIE.*** *For any given parameter vector* $\boldsymbol{p}$*,*

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

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

This result generalizes the patterns seen in Propositions 5-7. 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 next two results, however, modify the conclusions from the $\beta = 0$ case, and provide more nuance regarding the identification patterns that emerge under breakup and under unification.

Proposition 9. ***Identification in SIE with Breakup.***

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.

To see the intuition, consider for a moment what happens when $\sigma_C = \sigma_E = \sigma_P$. Under breakup, there is clearly no status gain from identifying as European. Yet if individuals care about similarity to their group ($\beta > 0$), then 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. (If $\beta = 0$ then any identity profile can hold in SIE in this case). Now, if the Periphery has low ex-ante status, the status gain from identifying with Europe may 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 6), 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 7) again needs modification, as the Core does not necessarily identify with Europe.

Next, consider the identity profile in SIE with unification. As the following proposition indicates, the fact that individuals care about similarity to their group does not change the important point we raised 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 nationalistic identity.[16]

Proposition 10. ***Identification in SIE with Unification.***

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

b. If $\sigma_C < \sigma_P$ then any profile can be sustained under SIE with unification.

Finally, in Appendix A.12 we provide some comparative statics on β. The thought experiment here could be some policy that alters the salience of inter-country differences. We show that both $\overline{M}(\cdot)$ and $\underline{M}(\cdot)$ are weakly decreasing in β. Thus, reducing the salience of

[16]If $\sigma_C = \sigma_P$ there are more possibilities, depending on β. If $\beta > 0$ then like Proposition 10.a, in any SIE with unification the Core must identify nationally. If $\beta = 0$, this is true in *almost* any SIE with unification (Proposition 5).

inter-country differences—or making people care less about them—would indeed tend to allow the union to be sustained at higher levels of fundamental differences. Moreover, 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 appears quite central in the European integration project. We show that in the case of a high status periphery ($\sigma_C < \sigma_P$), a fall in β tends to expand this set, but not when $\sigma_C > \sigma_P$.

7 Predictions

> *"We always must make statements about the regions that we haven't seen, or there's no use in the whole business"* (Richard Feynman, The Messenger Lectures, 1964).[17]

This section uses the model to modify the picture of countries likely to join, remain, or leave the EU and the Euro. We attempt to map the current position of European countries along the two major dimensions identified in Section 6: fundamental differences and status. The measures we use here are far from perfect and are at least partly endogenous to membership in the EU or in the Euro. Nonetheless, they provide a first step towards approximating the theoretical variables. Throughout we take France and Germany as the Core.[18]

7.1 Gauging fundamental differences

To obtain a measure of fundamental differences, we begin with a set of indicators suggested by the economic literature on optimal unions. These are meant to capture major differences in desired economic policy across countries. However, since the European Union also sets

[17] https://www.youtube.com/watch?v=r_IfV9fkBhk&t=2390s, 39:50-42:35.

[18] We focus on integration (rather than the identification profile) as the main outcome of interest. This seems a first-order concern given the direct economic and political importance of this outcome. Furthermore, the theoretical predictions for this outcome are more clear-cut (Proposition 8). Beyond these considerations, we also face empirical challenges in measuring identity. The survey measures used in Section 2 need to be interpreted with care since they are not revealed-preference measures of identity as defined in the model (for attempts to develop such measures, see Atkin, Shayo and Sihra 2018; Shayo and Zussman 2011). Furthermore, these data do not provide us with clean measures of identification with the Core—which in the European case includes more than one nationality—and might not provide a consistent measure of identification with the union as a whole: while for Greeks "Europe" probably includes Germany, for Germans, thinking about "Europe" in the context of the survey may not invoke Greece as a prominent component.

non-economic policies, we augment the economic differences with a central non-economic policy dimension: human rights and civil liberties. All differences are measured relative to France and Germany (the Core).

For economic differences we use three indicators, building on Alesina, Barro and Tenreyro (2002) and Alesina, Tabellini and Trebbi (2017):

1. Differences in the current level of economic development are captured by the difference in log GDP per-capita between country i and France and Germany, treated as one country. Specifically, let $\delta_y^i = |\ln \overline{y}_i - \ln \overline{y}_{Core}|$, where $\overline{y}_i$ is mean real GDP per capita in 2014-2016 (the last three years of data).

2. Moving to differences at the business cycle frequency—especially relevant for monetary unions—we use the correlation coefficient ρ_i between the yearly growth rate of GDP of country i and the combined GDP growth rate in Germany and France. The correlation is calculated over the period following the introduction of the Euro i.e., 1999-2016. We then define the business cycle difference as $\delta_{BC}^i = 1 - \rho_i$.[19]

3. Finally, we examine trade with the Core, which also captures some of the major benefits to unification. Let T_{it} be country i's trade with Germany and France in year t, as a percentage of i's GDP. Our measure of distance on the trade dimension is then $\delta_{Trade}^i = 1 - T_i$ where T_i is the average T_{it} in 1999-2016.

In Table 2, Columns 1-3, we report these indicators for the set of European countries, where we also include Russia and Turkey. As the table shows, Austria, Belgium and the Netherlands are very close to the Core on all three dimensions; while Denmark, Finland, Italy, Sweden and the UK are very close to the Core in terms of both income per-capita and GDP co-movement, but trade with Germany and France takes up a smaller share of their GDP relative to the first three countries. Conversely, the Czech Republic, Hungary and Slovakia trade heavily with the Core but are not as close on income per-capita and co-movement. Greece is very far from the core in terms of both co-movement and trade, as are Turkey, Albania and Kosovo.

Beyond differences in economic policy, countries differ on other policies which are set at the union level. Arguably a very prominent dimension is civil liberties (CL) which includes freedoms of expression, assembly, association, education, and religion, a fair legal system and equality of opportunity. To measure differences on this dimension, we use the CL scores from the Freedom in the World report, published annually by Freedom House.[20] Define

[19] δ_{BC}^i could be greater than 1, but this doesn't happen in our data.

[20] For details on the methodology, see https://freedomhouse.org/report/methodology-freedom-world-2017.

$\delta^i_{CL} = |\overline{CL}_i - \overline{CL}_{Core}|$, where $\overline{CL}_i$ is the average civil liberties score over the last three years of data, 2014-2016, and $\overline{CL}_{Core}$ is the average $\overline{CL}_i$ of France and Germany. This is shown in Column 4 in Table 2.

As a way of further summarizing the data, we construct two indices of fundamental differences. The index of *economic* differences (col 5) is the simple unweighted average of the three economic differences $(\delta^i_y, \delta^i_{BC}, \delta^i_{Trade})$, divided by their standard deviation. Economic differences are highly correlated with CL differences (col 4). Nonetheless, some countries (notably Hungary) are quite close to the Core economically but not so close in terms of CL (and it is possible these political difference have been increasing since 2014-16). Other countries (notably Cyprus) are very close to the Core on CL but rather far from it economically. The index of *overall* fundamental differences (col 6) is the unweighted average of all four (standardized) differences $(\delta^i_y, \delta^i_{BC}, \delta^i_{Trade}, \delta^i_{CL})$.[21]

7.2 Gauging national status

To gauge country status we use the 2017 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 (and corruption), Power, and Quality of Life. For countries not included in the report, we impute a BCR score based on two indices: the Human Development Index (HDI)[23] and country status ranking developed in the field of international relations based on network analysis of diplomatic exchange (Renshon, 2016). These two measures explain more than 80% of the variation in BCR across European countries.[24] The resulting status score is reported in column 7 of

A particularly useful feature of the Freedom House ranking is that it distinguishes Civil Liberties from Political Rights, which are primarily about the electoral process and political representation. The CL score ranges from 0 to 60, (10 to 60 for the countries in our data in 2014-2016). Note that Germany and France score between 53 and 57 during these years, so that some countries such as Finland, Norway and Sweden score *higher* than the Core and hence also receive a positive distance on this dimension.

[21] The results are very similar when using the first principal component instead of the unweighted mean. We use unweighted means primarily for transparency and simplicity. As implied by the above discussion, significantly different weights on political versus economic differences may modify the conclusions regarding countries such as Hungary.

[22] The 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 www.usnews.com/news/best-countries/articles/methodology. The report was published in March 2017.

[23] The Human Development Index (HDI) is a summary measure of three dimensions: health, education and standard of living. See http://hdr.undp.org/sites/default/files/hdr2016_technical_notes_0.pdf.

[24] 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 $R^2 = 83.8$. We then use the estimated coefficients to impute the BCR

Table 2: Fundamental Differences and Status: Europe 2016

	Fundamental Differences						Status
	δ_{y}^{i}	δ_{BC}^{i}	δ_{Trade}^{i}	δ_{CL}^{i}	Economic Differences	Overall Differences	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Albania	2.30	0.73	0.98	16.17	5.76	4.69	-1.79 *
Austria	0.10	0.09	0.84	1.83	3.14	2.40	-0.52
Belarus	1.88	0.66	0.96	45.17	5.38	5.08	-1.44
Belgium	0.02	0.16	0.74	0.50	2.79	2.10	-0.25 *
Bosnia	2.26	0.62	0.94	19.83	5.35	4.47	-1.75 *
Bulgaria	1.74	0.54	0.92	9.50	4.92	3.91	-1.40
Croatia	1.22	0.50	0.95	6.17	4.80	3.74	-1.30
Cyprus	0.54	0.54	0.98	0.50	4.73	3.56	-1.33 *
Czech Republic	0.82	0.31	0.77	0.83	3.33	2.52	-1.23
Denmark	0.29	0.11	0.93	1.83	3.73	2.84	-0.16
Estonia	0.84	0.26	0.93	0.17	4.21	3.16	-1.34 *
Finland	0.07	0.11	0.95	3.83	3.75	2.90	-0.18
France							-0.09
Germany							0.09
Greece	0.79	0.79	0.97	8.17	5.18	4.07	-1.08
Hungary	1.18	0.37	0.79	6.50	3.65	2.89	-1.28
Iceland	0.25	0.43	0.96	3.83	4.33	3.34	-1.15 *
Ireland	0.37	0.60	0.94	1.50	4.53	3.43	-0.69
Italy	0.28	0.12	0.94	3.17	3.83	2.95	-0.42
Kosovo	2.43	0.82	0.97	28.50	5.88	5.07	
Latvia	1.07	0.37	0.94	5.17	4.52	3.51	-1.38
Lithuania	1.02	0.36	0.92	3.17	4.37	3.35	-1.40 *
Luxembourg	0.95	0.20	0.83	3.83	3.69	2.86	-1.18 *
Macedonia	2.09	0.55	0.91	19.50	4.97	4.18	-1.86 *
Malta	0.51	0.76	0.89	1.50	4.64	3.51	-1.54 *
Moldova	3.05	0.65	0.95	21.17	5.79	4.83	-2.08 *
Montenegro	1.82	0.30	0.97	12.17	4.87	3.93	
Netherlands	0.12	0.14	0.83	2.83	3.12	2.40	-0.11
Norway	0.65	0.35	0.95	3.83	4.34	3.34	-0.11
Poland	1.17	0.51	0.89	1.17	4.46	3.37	-1.13
Portugal	0.73	0.35	0.93	1.83	4.32	3.28	-0.88
Romania	1.49	0.56	0.92	7.17	4.84	3.80	-1.38
Russia	1.35	0.29	0.98	39.50	4.66	4.41	-0.96
Serbia	2.02	0.82	0.95	7.83	5.58	4.37	-1.50
Slovakia	0.91	0.43	0.81	2.83	3.76	2.89	-1.36 *
Slovenia	0.64	0.25	0.85	3.17	3.66	2.82	-1.35
Spain	0.44	0.43	0.94	0.50	4.34	3.27	-0.54
Sweden	0.24	0.12	0.94	3.17	3.82	2.94	0.06
Switzerland	0.68	0.15	0.89	0.83	3.78	2.85	0.22
Turkey	1.32	0.58	0.97	26.17	5.06	4.40	-1.20
Ukraine	2.84	0.43	0.97	20.17	5.45	4.56	-1.45
United Kingdom	0.03	0.24	0.96	0.17	4.01	3.01	0.11
Mean	1.06	0.42	0.92	8.64	4.43	3.52	-0.96
SD	0.81	0.22	0.06	10.93	0.78	0.77	0.63

Columns 1-4 show differences from Germany and France (as one combined economy). Suppressing superscripts, δ_y is the difference in log real GDP per capita in 2014-16. δ_{BC} is one minus the correlation in yearly GDP growth rate in 1999-2016. δ_{Trade} is one minus trade with France and Germany, as percentage of GDP, in 1999-2016. δ_{CL} is the difference in civil liberties score. Column 5 (6) shows the mean of the indicators in cols 1-3 (1-4) divided by their stnadard deviation. Status (col 7) is the (exp of) the Best Country Ranking score, relative to the mean status of France and Germany. * = Status imputed based on HDI (UN Development Programme) and country status ranking (Renshon 2016).

Table 2. Perhaps not surprisingly, Switzerland, the UK and Sweden enjoy the highest status whereas Moldova and Macedonia have the lowest status within our set of countries.

Appendix Table C.1 provides estimates of fundamental differences and status as of 1999, when the Euro was just launched.[25]

7.3 Whither Europe?

Figures 10 and 11 show the positions of European countries by status and differences from France and Germany. Classic models of international integration—even when generalized to take into account political differences—imply some cutoff on the horizontal axis: countries are expected to be union members if and only if they are positioned left of that cutoff. Our framework generalizes this prediction: low-status countries are expected to be part of the union at higher levels of fundamental differences than are high-status countries (Proposition 8). We consider first the Eurozone and then the EU.

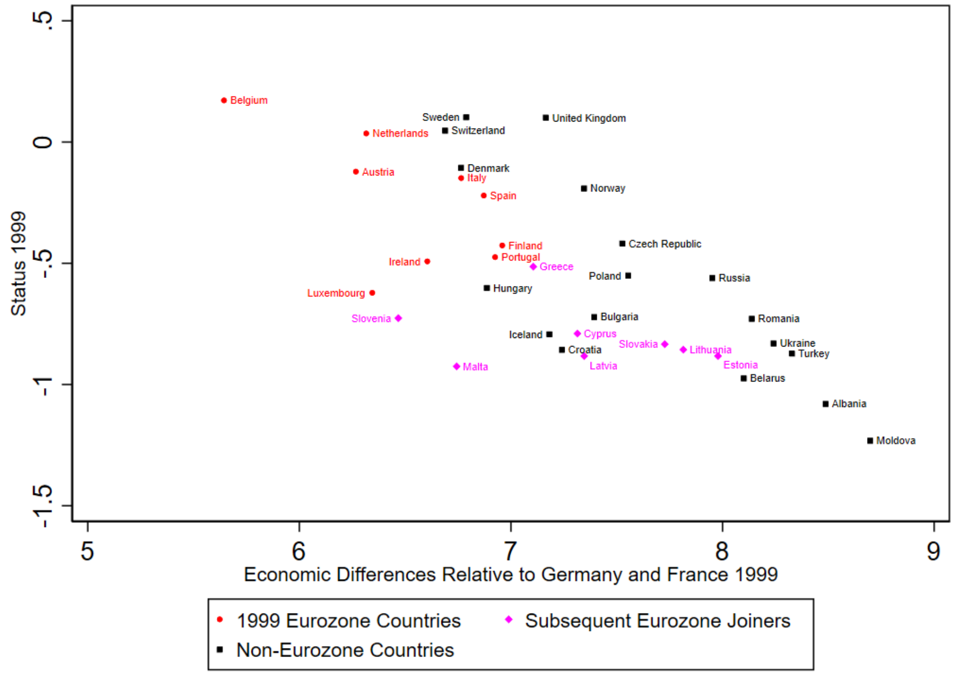
The Eurozone. For examining the monetary union, it makes sense to focus on purely economic differences, as the ECB does not directly set policies related to civil liberties.

Despite data limitations, it is instructive to start, in Figure 10a, with a plot of the economic differences and status *as of 1999*, when the Euro was just launched. The figure shows (in red circles) the initial members of the Eurozone. Consistent with standard theory, this set included the countries with the lowest difference from the Core. However, at intermediate levels of economic differences, there is more interesting variation. High status countries—Sweden, Switzerland, Denmark—did not join the Eurozone (in Denmark despite closely pegging the Danish Krone to the Euro). At the same time, lower status countries with similar and even larger differences did join (notably Spain and Portugal). Even more interesting is the set of countries that adopted the Euro in subsequent years (pink diamonds). While high status countries stayed out, most of the joiners were relatively high-distance, low-status countries by 1999 standards.

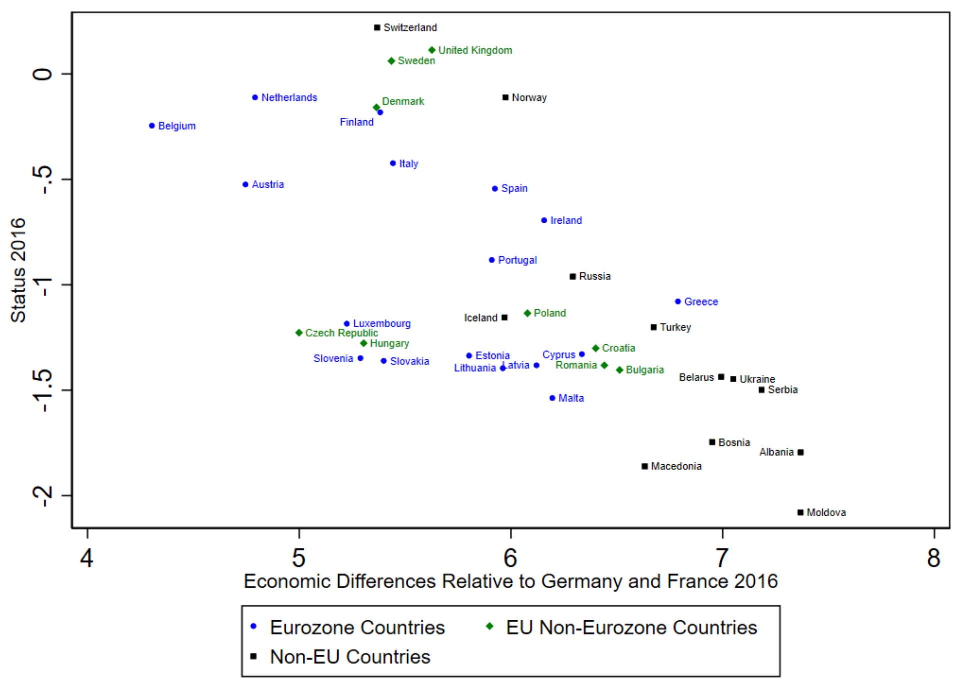
To paraphrase Feynman, however, beyond describing the data that we have already seen, the model can also help us assess the future stability and the likelihood of various changes

score for all European countries not included in the 2017 BCR report. Our measure of status reported in the table is then simply $\exp(BCR\_score) - mean\,[\exp(BCR\_score)|Core]$. For Kosovo and Montenegro we cannot impute a BCR score as data on these countries' international status ranking are not available.

[25] There are two limitations to calculating these statistics for 1999. First, we use a shorter horizon (1992-1999) for computing δ^i_{bc} and δ^i_{Trade}, as we only use data for post-reunification Germany. The data for some indicators for some East European countries start even later. See Appendix Table C.1 for details. Second, we do not have a BCR score for any country in 1999, and hence we impute status for *all* countries using the procedure just described. The status data are therefore also likely to be more noisy. For example, Belgium's high status is to a significant extent due to the very high presence of diplomatic delegations in Brussels, which place it very high in the international relations country status ranking.



(a)



(b)

Figure 10: Eurozone Membership, Economic Differences and Status in 1999 and 2016

Note: Panel (a): Fundamental economic differences computed using 1995-1999 data. Status imputed based on HDI and country status ranking (Renshon 2016). See Appendix Table C.1 for details. Panel (b): Data from Table 2, Columns 5,7.

to the current composition of the Eurozone. To that end, Figure 10b shows the position of European countries as of 2016. Greece, Ireland, Spain and Finland appear to be at relatively higher risk of breaking up with the Euro (in the Finnish case despite low economic differences). Cyprus, on the contrary, does not appear likely to leave, despite relatively large economic differences. If any countries do join the Euro, the Czech Republic, Hungary and Iceland appear like the most likely candidates. It is also interesting to note that on purely economic grounds, Turkey and Russia are not prohibitively distant from the Core Eurozone countries. However, as we discuss below, they are not likely members of the EU and hence are also unlikely to join the Euro.

The EU. Figure 11 shows the current position of European countries by status and *overall* differences from France and Germany (including civil liberties). Consistent with our framework, low-status countries appear to be part of the union at higher levels of fundamental differences than are high-status countries. For example, the UK (at the upper-left region) may well leave the EU, while Greece (lower right) seems likely to remain. More generally, the EU countries (in blue and green) tend to be closer to the origin while non-members tend to be further out on both dimensions. Note that the set of *non*-members includes high-difference countries (e.g. Turkey, Ukraine, Belarus), but also low-difference high-status countries (Switzerland and Norway).

Consider next the current members of the EU and the risk of their breaking up with the union. The UK and Sweden appear to be at the highest risk of leaving, though a large enough shock may also destabilize the membership of Denmark, Finland and the Netherlands – all high-status countries.[26] At the same time, the union with several other countries appears quite solid, though for varying reasons. The union with Austria and Belgium seems durable due to low fundamental differences; whereas the union with the Czech Republic, Slovakia, Slovenia and Hungary appears solid due to the relatively low status of these countries. Spain, Ireland and Greece appear to be at a higher risk of breakup than Italy (which is relatively close to the Core) and Portugal (relatively low status).

Which countries are likely to become stable members of the EU (e.g. following a resurgence of EU status)? Iceland is rather close to the frontier but still seems like the most obvious candidate. Norway and Switzerland are unlikely to join, despite the relatively low fundamental differences. Less surprisingly, especially when taking into account political

[26] It is worth reiterating the nature of the results in Propositions 5 and 7 concerning the fragility of a union with a high-status Periphery. Unlike the unique equilibrium when the Periphery has relatively low-status, in the case of a high or similar status Periphery, multiple equilibria can exist, at least over some range (recall e.g. the "gray area" in Figure 9). Hence, we do not know if Sweden will exit: an equilibrium in which the Swedes identify with Europe and remain in the union is also possible. Nonetheless, Sweden is at a higher risk of seceding than other countries with similar fundamental differences but lower status than France and Germany. We thank Katia Zhuravskaya for drawing our attention to this point.

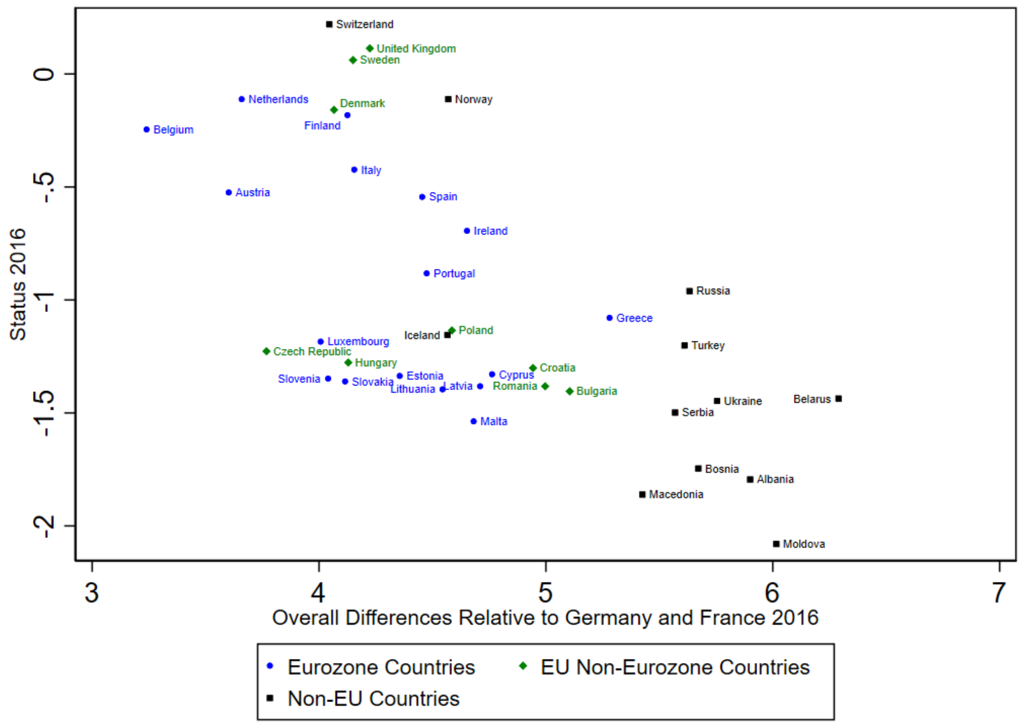


Figure 11: European Countries by Status and Overall Fundamental Differences, 2016

Note: Data from Table 2, Columns 6,7.

differences, Turkey is unlikely to become a member of the EU.

8 Summary and Concluding Remarks

Social identity has been widely discussed as an important factor underlying economic and political integration. While it is often taken for granted that national identities are detrimental to integration and that a common identity promotes it, a more careful inspection suggests a more nuanced view. A union may be most robust, not when everyone identifies with the union, but when individuals from the Core countries identify with their country, while individuals from the Periphery identify with the union as a whole. Notably, this profile of social identities also yields the least accommodating union. In terms of material payoffs, such a union is sustained at the expense of the Periphery country.

Taking into account the fact that identities can adjust to economic conditions, we propose a concept of Social Identity Equilibrium (SIE) in which both policies and identities are endogenously determined. A central finding is that a union with (ex-ante) high-status periphery countries is more fragile and may break up at lower levels of fundamental differences than a union with low-status periphery countries. Furthermore, unification does not necessarily support the emergence of a common identity. Indeed, in the case of relatively high Core status, integration would tend to push the Core countries towards a more nationalistic identity.

Applying the model to the European context provides useful insights. It helps understand both the strained relationship between Germany and Greece as well as Greece's continued membership in the Eurozone. More generally it may contribute to our understanding of why the second wave of entrants to the Euro was not limited to the low-distance countries that an Optimal Currency Area analysis would point to, but mostly included relatively high-distance, low-status European countries. The model can also shed light on the puzzling Brexit phenomenon: Britons voting to leave the European Union despite the union being relatively accommodating and despite widely anticipated economic costs. Finally, it can contribute to understanding the electoral rise of the far right in France and Germany, as well as the Basque country's and Catalonia's quest for independence. More importantly, however, the model offers a relatively simple way of generalizing the classical economic predictions on international integration to incorporate identity – both as a major determinant and as a major outcome of integration processes.

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Appendix

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. $R_1(C,P) = \sqrt{\triangle}$, $\quad R_2(C,P) = 2\sqrt{\triangle}$,

b. $\widehat{r}_C(C,P) = r_C^*$, $\quad \widehat{r}_P(C,P) = r_P^* + \sqrt{\triangle}$.

Proof. Utilities in this case are:

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

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

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:

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

Clearly, for $r_C \geq r_P^*$ the Periphery accepts r_C if and only if $r_C - r_P^* \leq \sqrt{\triangle} \equiv R_1(C,P)$. Since the Core identifies nationally, its chosen policy when there is no threat of secession is r_C^*, which we denote by $\widehat{r}_C(C,P)$. 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:

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

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 $r_C = min\{r_C^*, r_P^* + \sqrt{\triangle}\} = r_P^* + \sqrt{\triangle}$, since $r_C^* - r_P^* > \sqrt{\triangle}$ in this case. Denote this policy by $\widehat{r}_P(C,P)$. Utility is then:

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

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

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 $r_C = r_P = \widehat{r}_C(C,P)$.
2. if $R_1(C,P) < r_C^* - r_P^* \leq R_2(C,P)$ unification occurs and $r_C = r_P = \widehat{r}_P(C,P)$.
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 $R_1(C,P) < R_2(C,P)$, $\widehat{r}_P(C,P) < \widehat{r}_P(C,P)$ and that both $R_1(C,P)$ and $R_2(C,P)$ are strictly increasing functions of the breakup cost $\triangle$.

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:

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

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

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. $R_1(C,E) = \sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$, $\quad R_2(C,E) = \sqrt{\triangle} + \sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$,

b. $\widehat{r}_C(C,E) = r_C^*$, $\quad \widehat{r}_P(C,E) = r_P^* + \sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$.

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

a. $R_1(E,P) = \frac{1+\gamma}{1+\gamma\lambda}\sqrt{\triangle}$, $\quad R_2(E,P) = 2\sqrt{\triangle}$,

b. $\widehat{r}_C(E,P) = \frac{(1+\gamma\lambda)r_C^* + \gamma(1-\lambda)r_P^*}{1+\gamma}$, $\quad \widehat{r}_P(E,P) = r_P^* + \sqrt{\triangle}$.

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

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

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

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

From Lemmas 1-4 we obtain Proposition 1. □

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 $\widehat{r}_C(E,E)$ (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:

a.

1. $R_2(C,P) = R_2(E,P)$
2. $R_2(C,E) > R_2(E,E)$

b.

1. $R_2(C,E) > R_2(C,P)$
2. $R_2(E,E) > R_2(E,P)$. □

A.3 Proof of Proposition 3:

a. From Lemmas 1,3 we obtain:

1. $r_P^* \leq \widehat{r}_c(E,P) \leq \widehat{r}_c(C,P)$ 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. $r_P^* < \widehat{r}_c(E,P) \leq \widehat{r}_p(C,P)$ for $R_1(C,P) < r_C^* - r_P^* \leq R_1(E,P)$;
3. $r_P^* < \widehat{r}_p(E,P) = \widehat{r}_p(C,P)$ 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. $r_P^* \leq \widehat{r}_c(E,E) < \widehat{r}_c(C,E)$ 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) $r_P^* < \widehat{r}_c(E,E) \leq \widehat{r}_p(C,E)$ for $R_1(C,E) < r_C^* - r_P^* \leq R_1(E,E)$

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

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

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

6. $r_P^* < \widehat{r}_p(C,P) < \widehat{r}_p(C,E)$ 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.□

A.4 Proof of Proposition 4:

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

$$\underset{r_C, r_P}{max} V_E(r_C, r_P, 1) = -\triangle. \tag{12}$$

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

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

From equations (12), (13) and Definition 4, a materially optimal union will be sustained if and only if $r_C^* - r_P^* \leq \frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}$. But from Lemmas 1 and 3, $R_2(C,P) = R_2(E,P) = 2\sqrt{\triangle} < \frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}$ (since $\lambda \in (0.5, 1)$). 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 $\frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}$.[27]

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

$$\lim_{\lambda \to 0.5}\left(R_2(C,E) - \frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}\right) = \lim_{\lambda \to 0.5}\left(\sqrt{\triangle} + \sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}} - \frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}\right)$$
$$= \sqrt{\triangle}\left(\sqrt{\frac{(1+\gamma)}{1+\gamma/2}} - 1\right) > 0.$$

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

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

[27] For example, applying Lemmas 2 and 4, $R_2(C,E) > \frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}$ if $(\lambda,\gamma) = (0.55, 0.1)$; $R_2(C,E) < \frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}$ if $(\lambda,\gamma) = (0.8, 0.2)$; $R_2(E,E) > \frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}$ if $(\lambda,\gamma) = (0.65, 0.7)$; $R_2(E,E) < \frac{\sqrt{\triangle}}{\sqrt{\lambda(1-\lambda)}}$ if $(\lambda,\gamma) = (0.9, 0.8)$.

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

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

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

A.5 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 6.

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:

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

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

Equation (3) and Lemma 2 imply:

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

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

Equation (3) and Lemma 3 imply:

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

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

Finally, equation (3) and Lemma 4 imply:

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

A.6 Proof of Proposition 5:

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 5, 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.5). 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.7 Proof of Proposition 6:

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 5 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.8 Proof of Proposition 7:

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 7. 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 5 and equations (6) and (7), such an SIE exists if and only if

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

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 $SG_{(E,P)}(\overline{r}) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$. In addition $SG_{(C,E)}(\overline{r}) < \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda}$, since given Definition 5 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 $\sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} < SG_{(E,E)}(\overline{r}) < \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda}$. But by Definition 5 and equations (6) and (7), this means that an SIE in which the identity profile is (E, E) exists when $r_C^* - r_P^* = \overline{r}$. 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 $S_C - S_P(R_2(C,E)) \geq \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} \iff \sigma_E - \sigma_C \leq \frac{\gamma\lambda(1-\lambda)\triangle}{1+\gamma-\gamma\lambda}$. This is more likely when σ_C, γ, $\triangle$, and λ are high, and σ_E is low.
d. The (E,E) social identity profile is sustained in SIE if and only if:

$$\sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} \leq SG_{(E,E)}(r_C^* - r_P^*) \leq \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda}.$$

First, we note that since $SG_{(E,E)}(r_C^* - r_P^*) < \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$ when $r_C^* - r_P^* = 0$ and when $r_C^* - r_P^* > R_2(E,E)$, this identity profile cannot be sustained in SIE throughout these levels of fundamental differences. However, if $SG_{(E,E)}(R_1(E,E)) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$ then there are levels of $r_C^* - r_P^* \in (0, R_2(E,E)]$ for which there exists an SIE with an (E,E) identity profile (since $SG_{(E,E)}(r_C^* - r_P^*)$ is left-continuous at $r_C^* - r_P^* = R_1(E,E)$). $\square$

A.9 Proof of Proposition 8:

Suppose $\beta = 0$. From Propositions 5 and 6 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 7 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 fundamental differences are 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 $\overline{M}(\boldsymbol{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) \leq \overline{M}(\boldsymbol{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$, and there exist parameter values such that the inequality is strict. This is part (a) of the proposition for the case of $\beta = 0$.

Turning to part (b), Propositions 5 and 7 imply that when $\sigma_C \leq \sigma_P$ there exists an SIE with breakup for any level of fundamental differences higher than $R_2(C,P)$. Furthermore, Proposition 6 tells us that that when $\sigma_C > \sigma_P$ breakup occurs in SIE if and only if fundamental differences are larger than $R_2(C,E)$. We therefore get that $\underline{M}(\boldsymbol{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C) \leq \underline{M}(\boldsymbol{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C)$.

We next proceed to the $\beta > 0$ case. We will first state and prove two lemmas.

Lemma 5. *Suppose $\sigma_C \geq \sigma_P$[28]. Then in any SIE the social identity profile must be either (C,P) or (C,E).*

Proof. First, note that for any level of fundamental differences $r_C^* - r_P^*$ and for any social identity profile (ID_C, ID_P) we have that:

[28] As mentioned in the text, it is assumed that $\sigma_E \in [\sigma_P, \sigma_C]$ whenever $\sigma_C > \sigma_P$, $\sigma_E \in [\sigma_C, \sigma_P]$ whenever $\sigma_C < \sigma_P$ and $\sigma_E = \sigma_C = \sigma_P$ whenever there are no ex-ante differences in status

$$SG_{(ID_C,ID_P)}(r_C^* - r_P^*) > \sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma}\left[w + (r_C^* - r_P^*)^2\right]$$

Thus, in any SIE the Core must identify nationally. Next, for levels of fundamental differences $r_C^* - r_P^*$ such that:

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

there exists an SIE with the (C, E) profile. It is straightforward to verify that this inequality is indeed satisfied for elements in the $(r_C^* - r_P^*) \times (\beta, w, \gamma, \triangle, \lambda)$ space. $\square$

Lemma 6. *Suppose* $\sigma_C < \sigma_P$ *and denote* $\sigma_E^* = \lambda\sigma_C + (1-\lambda)\sigma_P + \frac{\beta w\lambda(1-\lambda)}{\gamma}$. *Then there are three cases to consider:*

a. If $\sigma_E < \sigma_C + \frac{\beta w(1-\lambda)^2}{\gamma}$ *then in any SIE the social identity profile must be either* (C, P) *or* (C, E).

b. If $\sigma_C + \frac{\beta w(1-\lambda)^2}{\gamma} \leq \sigma_E \leq \sigma_E^*$ *then in any SIE the social identity profile must be either* (C, P) *or* (C, E) *or* (E, P).

c. If $\sigma_E > \sigma_E^*$ *then any social identity profile can be sustained in SIE.*

Proof.

a. Suppose $\sigma_E < \sigma_C + \frac{\beta w(1-\lambda)^2}{\gamma}$. Then applying the same steps in the proof of Lemma 5, we get that in any SIE the social identity profile must be either (C, P) or (C, E).

b. Suppose $\sigma_C + \frac{\beta w(1-\lambda)^2}{\gamma} \leq \sigma_E \leq \sigma_E^*$. Note that in this case $\frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda w}{\gamma} > \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)w}{\gamma}$. Thus, there does not exist a level of fundamental differences $r_C^* - r_P^*$ such that the following is feasible:

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

We therefore conclude that there cannot exist an SIE with the (E, E) social identity profile. It is easy to then show that for any $(ID_C, ID_P) \neq (E, E)$ there are elements in the $(r_C^* - r_P^*) \times (\beta, w, \gamma, \triangle, \lambda)$ space such that an SIE with (ID_C, ID_P) does indeed exist. For example, an SIE with the (E, P) profile exists when:

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

c. Suppose $\sigma_E > \sigma_E^*$. Note that in this case the "identity indifference curves" intersect, as depicted in Panel C of Figure 7. Thus, there are elements in the $(r_C^* - r_P^*) \times (\beta, w, \gamma, \triangle, \lambda)$ space such that an SIE with the (E, E) does indeed hold. Similarly to the previous case, it is straightforward to verify that any other social identity profile can also hold in SIE in this case. $\square$

We now proceed to the proof of part (a) of Proposition 8. For any given $(\beta, w, \gamma, \triangle, \lambda, \sigma_E)$ denote by $\overline{M}_C = \overline{M}(\cdot|\sigma_C > \sigma_P)$ the maximal level of fundamental differences under which an SIE with unification can be sustained under $\sigma_C > \sigma_P$. Similarly, denote $\overline{M}_0 = \overline{M}(\cdot|\sigma_C = \sigma_P)$ and $\overline{M}_P = \overline{M}(\cdot|\sigma_C < \sigma_P)$. It is useful to first characterize $\overline{M}_0$, $\overline{M}_C$ and $\overline{M}_P$.

Suppose $\sigma_C = \sigma_P$. Following Lemma 5, definition 5, the ex-post status gap functions (equations 14-17) and equations (6) and (7), the characterization of $\overline{M}_0$ is straightforward:

Remark 1. **Characterization of $\overline{M}_0$ for $\beta > 0$.**

a. $\overline{M}_0 = R_2(C,P)$ if and only if $SG_{(C,E)}(R_2(C,P)/\sigma_C = \sigma_P) \leq \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,P))^2\right]$.

b. $R_2(C,P) < \overline{M}_0 < R_2(C,E)$ if and only if $SG_{(C,E)}(R_2(C,P)/\sigma_C = \sigma_P) > \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,P))^2\right]$ and $SG_{(C,E)}(R_2(C,E)) < \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,E))^2\right]$. In this case $\overline{M}_0$ is given by the solution to $SG_{(C,E)}(\overline{M}_0/\sigma_C = \sigma_P) = \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_0^2\right]$.

c. $\overline{M}_0 = R_2(C,E)$ if and only if $SG_{(C,E)}(R_2(C,E)/\sigma_C = \sigma_P) \geq \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,E))^2\right]$. In this case $SG_{(C,E)}(\overline{M}_0/\sigma_C = \sigma_P) \geq \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_0^2\right]$.

Note that $\overline{M}_0, \overline{M}_C, \overline{M}_P \in [R_2(C,P), R_2(C,E)]$ since we know (Lemmas 1-4) that unification necessarily occurs in SIE whenever $r_C^* - r_P^* \leq R_2(C,P)$ and breakup necessarily occurs in SIE when $r_C^* - r_P^* > R_2(C,E)$. Next, suppose $\sigma_C > \sigma_P$. We can then similarly use Lemma 5 and Definition 5 along with our SPNE solution given identities to characterize $\overline{M}_C$:

Remark 2. **Characterization of $\overline{M}_C$ for $\beta > 0$.**

a. $\overline{M}_C = R_2(C,P)$ if and only if $SG_{(C,E)}(R_2(C,P)/\sigma_C > \sigma_P) \leq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,P))^2\right]$.

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

c. $\overline{M}_C = R_2(C,E)$ if and only if $SG_{(C,E)}(R_2(C,E)/\sigma_C > \sigma_P) \geq \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,E))^2\right]$. In this case $SG_{(C,E)}(\overline{M}_C/\sigma_C > \sigma_P) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_C^2\right]$.

Finally, suppose $\sigma_C < \sigma_P$. As described in Lemma 6, there are three cases to consider. Using this Lemma alongside Definition 5 and Lemmas 1-4 we characterize $\overline{M}_P$ in Remark 3:

Remark 3. **Characterization of $\overline{M}_P$ for $\beta > 0$.**

a. $\overline{M}_P = R_2(C,P)$ if and only if $SG_{(C,E)}(R_2(C,P)/\sigma_C < \sigma_P) \leq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,P))^2\right]$.

b. $R_2(C,P) < \overline{M}_P < R_2(C,E)$ if and only if $SG_{(C,E)}(R_2(C,P)/\sigma_C < \sigma_P) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,P))^2\right]$ and $SG_{(C,E)}(R_2(C,E)/\sigma_C < \sigma_P) < \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,E))^2\right]$. In this case $SG_{(C,E)}(\overline{M}_P/\sigma_C > \sigma_P) = \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_P^2\right]$.

c. $\overline{M}_P = R_2(C,E)$ if and only if $SG_{(C,E)}(R_2(C,E)/\sigma_C < \sigma_P) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (R_2(C,E))^2\right]$. In this case $\overline{M}_P$ is given by the solution to $SG_{(C,E)}(\overline{M}_P/\sigma_C < \sigma_P) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_P^2\right]$.

We are now ready to compare $\overline{M}_0$, $\overline{M}_C$ and $\overline{M}_P$. As a first step, we will focus on $\overline{M}_C$ and $\overline{M}_0$. To do so, recall from Equation 15 that:

$$SG_{(C,E)}(\cdot/\sigma_C = \sigma_P) = SG_{(C,E)}(\cdot/\sigma_C > \sigma_P) - (\sigma_C - \sigma_P). \tag{19}$$

Noting that $\sigma_P < \sigma_E$whenever $\sigma_P < \sigma_C$ and that $\sigma_E = \sigma_C = \sigma_P$ whenever there are no ex-ante differences in status, we consider the following possible cases for $\overline{M}_0$:

1. $\overline{M}_0 = R_2(C,P)$: In this case $\overline{M}_C \geq \overline{M}_0$ since we have argued that $\overline{M}_C \geq R_2(C,P)$.

2. $R_2(C,P) < \overline{M}_0 < R_2(C,E)$: Then from Remark 1 we know that $SG_{(C,E)}(\overline{M}_0/\sigma_C = \sigma_P) = \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_0^2\right]$. From Equation 19 we have that $SG_{(C,E)}(\overline{M}_0/\sigma_C > \sigma_P) > \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_0^2\right]$. Given that $SG_{(C,E)}(\cdot)$ is a continuously decreasing function for $R_2(C,P) < r_C^* - r_P^* < R_2(C,E)$, Remark 2 then gives us that $\overline{M}_C > \overline{M}_0$.

3. $\overline{M}_0 = R_2(C,E)$: Then from Remark 1 we know that $SG_{(C,E)}(\overline{M}_0/\sigma_C = \sigma_P) \geq \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_0^2\right]$. Equation 19 implies that $SG_{(C,E)}(\overline{M}_C/\sigma_C > \sigma_P) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + \overline{M}_C^2\right]$. Together with Remark 2 we deduce that $\overline{M}_C = R_2(C,E) = \overline{M}_0$.

We have thus shown that $\overline{M}_C \geq \overline{M}_0$ and that this inequality is strictly satisfied for some elements in the $(\beta, w, \gamma, \triangle, \lambda, \sigma_E)$ space. To show that $\overline{M}_0 \geq \overline{M}_P$ and that this inequality is strictly satisfied for some non-empty set of parameters, we apply the same steps as described above, only now we apply Remarks 1 and 3 alongside the fact that:

$$SG_{(C,E)}(\cdot/\sigma_C < \sigma_P) = SG_{(C,E)}(\cdot/\sigma_C = \sigma_P) - (\sigma_P - \sigma_C). \tag{20}$$

We then conclude that $\overline{M}_C \geq \overline{M}_0 \geq \overline{M}_P$, and that these inequalities are strict for some non-empty set of parameters $\boldsymbol{p}$. This gives us $\overline{M}\left(\boldsymbol{p}, \sigma_C, \sigma_P | \sigma_P \geq \sigma_C\right) \leq \overline{M}\left(\boldsymbol{p}, \sigma_C, \sigma_P | \sigma_P < \sigma_C\right)$ when $\beta > 0$, which completes the proof of part (a) of the proposition.

We now proceed to the proof of part (b) of the proposition for the case $\beta > 0$. Consider first the case of $\sigma_C = \sigma_P$. In this case $SG_{(C,P)}(r_C^* - r_P^*) = 0$ for every $r_C^* - r_P^* > R_2(C,P)$. From Definition 5 and equations (6) and (7) it is then clear that for any level of fundamental differences higher than $R_2(C,P)$ there exists an SIE with breakup: $\underline{M}\left(\boldsymbol{p}, \sigma_C, \sigma_P | \sigma_P = \sigma_C\right) = R_2(C,P)$. We will next show that is true also for the $\sigma_P > \sigma_C$ case. Following the ex-post status gap equations 14 and 16 it is straightforward to verify that for any $r_C^* - r_P^* > R_2(C,P)$:

- $SG_{(ID_C,P)}(r_C^*-r_P^*) < \sigma_C-\sigma_P+\frac{\sigma_P-\sigma_E}{\lambda}+\frac{\beta\lambda}{\gamma}\left[w+(r_C^*-r_P^*)^2\right]$ for every $ID_C=\{C,E\}$.
- $SG_{(E,P)}(r_C^*-r_P^*) < \sigma_C-\sigma_P+\frac{\sigma_E-\sigma_C}{1-\lambda}-\frac{\beta(1-\lambda)}{\gamma}\left[w+(r_C^*-r_P^*)^2\right]$ or $SG_{(C,P)}(r_C^*-r_P^*) \geq \sigma_C-\sigma_P+\frac{\sigma_E-\sigma_C}{1-\lambda}-\frac{\beta(1-\lambda)}{\gamma}\left[w+(r_C^*-r_P^*)^2\right]$.

From Definition 5 and equations (6) and (7) it then follows that for any level of fundamental differences higher than $R_2(C,P)$ there exists an SIE with breakup: $\underline{M}\left(\boldsymbol{p},\sigma_C,\sigma_P|\sigma_P>\sigma_C\right)=R_2(C,P)$.

Finally, we turn to the $\sigma_C>\sigma_P$ case. Obviously, it can never be the case that $\underline{M}\left(\boldsymbol{p},\sigma_C,\sigma_P|\sigma_P<\sigma_C\right)<R_2(C,P)$ because unification necessarily occurs whenever $r_C^*-r_P^*\leq R_2(C,P)$. Since $\underline{M}\left(\boldsymbol{p},\sigma_C,\sigma_P|\sigma_P=\sigma_C\right)$ $R_2(C,P)$ it therefore suffices to show an example of $\boldsymbol{p}$ for which $\underline{M}\left(\boldsymbol{p},\sigma_C,\sigma_P|\sigma_C>\sigma_P\right)>R_2(C,P)$. One such example comes to play when $\sigma_P+\frac{\beta\lambda^2}{\gamma}(w+4\triangle)<\sigma_E<\sigma_E^*$. In this specification of parameters we have that $SG_{(ID_C,ID_P)}(r_C^*-r_P^*)>\sigma_C-\sigma_P+\frac{\sigma_P-\sigma_E}{\lambda}+\frac{\beta\lambda}{\gamma}\left[w+(r_C^*-r_P^*)^2\right]$ for every $r_C^*-r_P^*\leq R_2(C,P)$ and (ID_C,ID_P). That is, in any SIE in this range of fundamental differences the Periphery identifies with Europe, and from Lemmas 1-4 this implies that unification must occur. Thus, our example is valid and we conclude that $\underline{M}\left(\boldsymbol{p},\sigma_C,\sigma_P|\sigma_P\geq\sigma_C\right)\leq\underline{M}\left(\boldsymbol{p},\sigma_C,\sigma_P|\sigma_P<\sigma_C\right)$ when $\beta>0$, which completes the proof. □

A.10 Proof of Proposition 9:

We begin with the $\beta=0$ case. Proposition 7 tells us that whenever $\sigma_P>\sigma_C$ any SIE with breakup must involve the (E,P) social identity profile. Proposition 6 states that whenever $\sigma_P<\sigma_C$ any SIE (with breakup or unification) must involve the (C,E) profile. Proposition 9 is thus immediate for the case where people don't care about inter-country differences.

Next, we turn to the $\beta>0$ case. According to Lemma 5, when $\sigma_C>\sigma_P$ the Core must identify nationally in any SIE, and in particular those involving breakup. Conversely, the Periphery might identify with Europe even under breakup. To see why this can be the case, consider (for example) the case where $\sigma_E>\max\{\sigma_E^*,\sigma_P+\frac{\beta\lambda^2}{\gamma}[w+(\sqrt{\triangle}+\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}})^2]\}$. In this case $SG_{(C,E)}(R_2(C,E))>\max\{\sigma_C-\sigma_P+\frac{\sigma_E-\sigma_C}{1-\lambda}-\frac{\beta(1-\lambda)}{\gamma}\left[w+R(C,E)^2\right],\sigma_C-\sigma_P+\frac{\sigma_P-\sigma_E}{\lambda}+\frac{\beta\lambda}{\gamma}\left[w+R(C,E)^2\right]\}$ which based on Definition 5 and equations (6) and (7) implies the existence of an SIE with breakup and a (C,E) profile. This concludes the proof of part (a).

Consider now the case where $\sigma_C<\sigma_P$. First note that in this case $SG_{(ID_C,ID_P)}(r_C^*-r_P^*)<\sigma_C-\sigma_P+\frac{\sigma_P-\sigma_E}{\lambda}+\frac{\beta\lambda}{\gamma}\left[w+(r_C^*-r_P^*)^2\right]$ for any (ID_C,ID_P) and $r_C^*-r_P^*\leq R_2(ID_C,ID_P)$. 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 $\sigma_E<\sigma_C+\frac{\beta(1-\lambda)^2w}{\gamma}$. Under this parameter restriction, $SG_{(C,P)}(r_C^*-r_P^*)\in(\sigma_C-\sigma_P+\frac{\sigma_E-\sigma_C}{1-\lambda}-\frac{\beta(1-\lambda)}{\gamma}\left[w+(r_C^*-r_P^*)^2\right],\sigma_C-$

$\sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (r_C^* - r_P^*)^2\right])$ for any $r_C^* - r_P^* > R_2(C,P)$ which implies existence of an SIE with breakup and a (C,P) identity profile. This concludes the proof of part (b). $\square$

A.11 Proof of Proposition 10:

Suppose $\sigma_C > \sigma_P$. For the $\beta = 0$ case, Proposition 6 states that any SIE (with breakup or unification) must involve the (C,E) profile. For the $\beta > 0$ case, Lemma 5 states that in any SIE the social identity profile must be either (C,P) or (C,E). Part (a) is therefore immediate.

Next, suppose $\sigma_C < \sigma_P$ and $\beta = 0$. The proof of Proposition 7 shows that the (E,P), (C,E) and (E,E) 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, consider the case where $\sigma_C < \sigma_P$ and $\beta > 0$. According to part (c) of Lemma 6 any social identity profile can hold in SIE when $\sigma_E > \sigma_E^*$. Together with part (b) of Proposition 9 this implies that the (C,E) and (E,E) can be sustained in SIE with unification. To see that also the (C,P) and (E,P) profiles can be sustained in an SIE with unification note that:

- If $\sigma_E < \sigma_C + \frac{\beta(1-\lambda)^2 w}{\gamma}$ then $SG_{(C,P)}(r_C^* - r_P^*) \in (\sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma}\left[w + (r_C^* - r_P^*)^2\right], \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (r_C^* - r_P^*)^2\right])$ for $r_C^* - r_P^* \to 0$, which implies existence of an SIE with unification and a (C,P) identity profile.

- If $\sigma_E > \sigma_C + \frac{\beta(1-\lambda)^2 w}{\gamma}$ then $SG_{(E,P)}(r_C^* - r_P^*) < \min\{\sigma_C - \sigma_P + \frac{\sigma_E - \sigma_C}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma}\left[w + (r_C^* - r_P^*)^2\right], \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}\left[w + (r_C^* - r_P^*)^2\right]\}$ for $r_C^* - r_P^* \to 0$, which implies existence of an SIE with unification and a (E,P) identity profile.

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

A.12 Comparative Statics on β:

In this section we provide a comparative statics analysis on β, summarized by the following proposition:

Proposition 11. ***Comparative Statics on*** β***.***

a. $\overline{M}(\beta, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$ *and* $\underline{M}(\beta, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$ *are weakly decreasing in* β*.*

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

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

the Core identifies nationally.

c. 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 $\widetilde{EE}$ 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 exists $\beta_1 < \beta_2$ such that $\widetilde{EE}(\beta_2) \subset \widetilde{EE}(\beta_1)$.

Proof.

a. First, we focus on $\underline{M}(\beta, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$. Fixing $(w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$ we denote $\underline{M}_0(\beta) = \underline{M}(\beta, w, \gamma, \triangle, \lambda | \sigma_C = \sigma_P)$. Similarly, $\underline{M}_C(\beta) = \underline{M}(\beta, w, \gamma, \triangle, \lambda | \sigma_C > \sigma_P)$ and $\underline{M}_P(\beta) = \underline{M}(\beta, w, \gamma, \triangle, \lambda | \sigma_C < \sigma_P)$. Suppose first that $0 < \beta_1 < \beta_2$. As part of the proof of Proposition 8, 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 is implied directly by the ex-post status gap equations 14-17, the identity indifference curves 6 and 7 and the definition of an SIE.

Remark 4. **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 β 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 ex-post status gap 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 4 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 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 5 and 7). 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 6) we conclude that $\underline{M}_C(\beta_2) \leq \underline{M}_C(\beta_1)$. We have thus proved that $\underline{M}(\beta, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$ is weakly decreasing in β.

Next, we shift our focus to $\overline{M}(\beta, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$. Fixing $(w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$ we denote $\overline{M}_0(\beta) = \overline{M}(\beta, w, \gamma, \triangle, \lambda | \sigma_C = \sigma_P)$. Similarly, $\overline{M}_C(\beta) = \overline{M}(\beta, w, \gamma, \triangle, \lambda | \sigma_C > \sigma_P)$ and $\overline{M}_P(\beta) = \overline{M}(\beta, w, \gamma, \triangle, \lambda | \sigma_C < \sigma_P)$. 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 $\overline{M}_P(\beta)$ essentialy applies the same steps. Following the characterization of $\overline{M}_0$ (Remark 1) 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 β we immediately have that $\overline{M}_0(\beta_2) \leq \overline{M}_0(\beta_1)$. Next, consider the case where $R_2(C,P) < \overline{M}_0(\beta_2) < R_2(C,E)$. Recall that the ex-post status gap is not a function of β, implying 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 $r_C^* - r_P^* \in (R_2(C,P), R_2(C,E))$, Remark 4 then implies 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 $\overline{M}(\beta_1, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P) \geq \overline{M}(\beta_2, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$ when $\beta_1 = 0$. First, note that $\overline{M}_0(\beta_1) = \overline{M}_C(\beta_1) = R_2(C,E)$ (see propositions 5 and 6). 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 5. **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 $SG_{(C,E)}(\overline{M}_P/\sigma_C < \sigma_P) \geq \sigma_C - \sigma_P + \frac{\sigma_P - \sigma_E}{\lambda}$.

Given the characterization of $\overline{M}_P$ for the $\beta > 0$ case (Remark 3) 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 β we have $\overline{M}_P(\beta_2) \leq \overline{M}_P(\beta_1)$. Next, consider the case where $R_2(C,P) < \overline{M}_P(\beta_2) < R_2(C,E)$. Recall that the ex-post status gap is not a function of β, implying 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 4 and 5 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 $0 \leq \beta_1 < \beta_2$.

b. Suppose $\beta_1 < \beta_2$ and $\overline{M}(\beta_2, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P) < \overline{M}(\beta_2, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$. From Lemma 5 we know that when $\sigma_C \geq \sigma_P$ and $\beta > 0$ then in any SIE the Core identifies nationally. Specifically, this is also the case in any SIE with unification in which $r_C^* - r_P^* \in (\overline{M}(\beta_2, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P), \overline{M}(\beta_1, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)]$.

Next, we show that for every $r_C^* - r_P^* \in (\overline{M}(\beta_2, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P), \overline{M}(\beta_1, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)]$ 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. Given Remark 1, 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 $SG_{(C,E)}(\overline{M}_0(\beta_1)/\sigma_C = \sigma_P) = \frac{\beta_1 \lambda}{\gamma}\left[w + \overline{M}_0(\beta_1)^2\right]$. 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 $SG_{(C,E)}(r_C^* - r_P^*/\sigma_C = \sigma_P) > \frac{\beta_1 \lambda}{\gamma}\left[w + (r_C^* - r_P^*)^2\right]$ 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 $SG_{(C,E)}(\overline{M}_0(\beta_1)/\sigma_C = \sigma_P) \geq \frac{\beta_1 \lambda}{\gamma}\left[w + \overline{M}_0(\beta_1)^2\right]$ and the same arguments apply.

c. 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 $\beta > 0$ (Lemma 5) and $\widetilde{EE}(\beta) = \{0, R_2(E,E)\}$ for $\beta = 0$ (Proposition 5). 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 detailed proof for the $\beta_1 > 0$ specification. The same steps apply when $\beta = 0$.

Given parameters $(\beta, w, \gamma, \triangle, \lambda, \sigma_C, \sigma_P)$ the set $\widetilde{EE}(\beta)$ is characterized by all levels of fundamental differences $(r_C^* - r_P^*)$ that satisfy the following inequality (see Definition 5 and the social identity choice given in 6 and 7):

$$\frac{\sigma_P - \sigma_E}{\lambda} + \frac{\beta\lambda}{\gamma}[w + (r_C^* - r_P^*)^2] \leq SG_{(E,E)}(r_C^* - r_P^*) - (\sigma_C - \sigma_P) \leq \frac{\sigma_C - \sigma_E}{1-\lambda} - \frac{\beta(1-\lambda)}{\gamma}[w + (r_C^* - r_P^*)^2] \quad (21)$$

Now, since $SG_{(E,E)}(r_C^* - r_P^*)$ does not depend on β, it is easy to verify 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, $\widetilde{EE}(\beta_2) \subseteq \widetilde{EE}(\beta_1)$. $\square$

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. Our main qualitative results continue to hold when policy is flexible. The union is most robust and least accommodating under the (C, E) social identity profile and the properties of SIE follow a similar pattern.

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 4).

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. $\widetilde{R_1}(C,P)=\sqrt{\triangle}$, $\widetilde{R_2}(C,P)=2\sqrt{\triangle}$

b. $\widetilde{r_C}(C,P)=r_C^*$, $\widetilde{r_P}(C,P)=r_P^*+\sqrt{\triangle}$

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. □

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

Lemma B.2.

a. $\widetilde{R_1}(C,E)=\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$

$$\widetilde{R_2}(C,E)=\begin{cases}\sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}} & if \quad 1+\gamma-2\gamma\lambda<0\\ \frac{(1+\gamma)\sqrt{\triangle}}{1+\gamma-\gamma\lambda} & if \quad 1+\gamma-2\gamma\lambda=0\\ 2\sqrt{\triangle} & if \quad 1+\gamma-2\gamma\lambda>0\end{cases}$$

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

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:

$$U_{PE}=\begin{cases}-(1+\gamma-\gamma\lambda)(r_C-r_P^*)^2-\gamma\lambda(r_C-r_C^*)^2+\gamma\sigma_E & if \quad Accepts\\ -(1+\gamma)\triangle+\gamma\sigma_E & if \quad Rejects\end{cases} \tag{22}$$

Solving the game by backward induction, the Periphery is willing to accept r_C if and only if $U_{PE}|_{accepts} \geq U_{PE}|_{rejects}$. First note that when fundamental differences are such that $r_C^* - r_P^* > \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$, we have that $U_{PE}|_{accepts} < U_{PE}|_{rejects}$ 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 $r_C^* - r_P^* \leq \sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$ 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 $r_C^* - r_P^* \leq \sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$). We denote this cutoff by $\widetilde{R_1}(C,E)$.

When $\widetilde{R_1}(C,E) < r_C^* - r_P^* \leq \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$, 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:

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

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:

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

Utility will then be:

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

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

Recalling that breakup necessarily occurs whenever $r_C^* - r_P^* > \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$ (see above), we have that the cutoff for breakup, which we denote by $\widetilde{R_2}(C,E)$, is:

$$\widetilde{R_2}(C,E) = \begin{cases} \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}} & if \quad 1+\gamma-2\gamma\lambda < 0 \\ \frac{(1+\gamma)\sqrt{\triangle}}{1+\gamma-\gamma\lambda} & if \quad 1+\gamma-2\gamma\lambda = 0. \\ 2\sqrt{\triangle} & if \quad 1+\gamma-2\gamma\lambda > 0 \end{cases}$$

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 $r_C = r_C^*$, $r_C = r_P^*$.

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. $\widetilde{R_1}(E,P) = \frac{1+\gamma}{1+\gamma\lambda}\sqrt{\triangle}$, $\widetilde{R_2}(E,P) = 2\sqrt{\triangle}$

b. $\widetilde{r_C}(E,P) = \frac{(1+\gamma\lambda)r_C^* + \gamma(1-\lambda)r_P^*}{1+\gamma}$, $\widetilde{r_P}(E,P) = r_P^* + \sqrt{\triangle}$

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. □

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

Lemma B.4.

a. $\widetilde{R_1}(E,E) = \sqrt{\frac{(1+\gamma)^3\triangle}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)^2+\gamma^3\lambda(1-\lambda)^2}}$

$$\widetilde{R_2}(E,E) = \begin{cases} \sqrt{\frac{(1+\gamma)^3\triangle}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)^2+\gamma^3\lambda(1-\lambda)^2}} & if \quad \gamma^3\lambda^2(1-\lambda) \geq (1+\gamma)(1+\gamma^3\lambda-\gamma^2\lambda^2-\frac{1+2\gamma+\gamma^2}{4}) \\ & and \quad \gamma^3\lambda^2(1-\lambda) \leq (1+\gamma)(1-\gamma\lambda) \\ & and \quad 1+\gamma-2\gamma\lambda > 0 \\ 2\sqrt{\triangle} & if \quad \gamma^3\lambda^2(1-\lambda) < (1+\gamma)(1+\gamma^3\lambda-\gamma^2\lambda^2-\frac{1+2\gamma+\gamma^2}{4}) \\ & and \quad (1+\gamma)^2 > 4\gamma\lambda(1+\gamma-\gamma\lambda) \\ & and \quad 1+\gamma-2\gamma\lambda > 0 \\ \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}} & if \quad Otherwise \end{cases}$$

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

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

Proof. Core utility is again given by equation (11). As in the (C, E) case, Periphery utility is given by equation (22).

The Periphery is willing to accept r_C if and only if $U_{PE}|_{accepts} \geq U_{PE}|_{rejects}$. First note that, as in the (C, E) case, when fundamental differences are such that $r_C^* - r_P^* > \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$ we have that $U_{PE}|_{accepts} < U_{PE}|_{rejects}$ 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 $r_C^* - r_P^* \leq \sqrt{\frac{(1+\gamma)^3\triangle}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)^2+\gamma^3\lambda(1-\lambda)^2}}$ the Core is indeed able to set its policy to $\widetilde{r_C}(E,E)$ without suffering the cost of breakup (given $r_C = \widetilde{r_C}(E,E)$, $U_{PE}|_{accepts} \geq U_{PE}|_{rejects}$ if and only if $r_C^* - r_P^* \leq \sqrt{\frac{(1+\gamma)^3\triangle}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)^2+\gamma^3\lambda(1-\lambda)^2}}$). We denote this cutoff by $\widetilde{R_1}(E,E)$.

When $\widetilde{R_1}(E,E) < r_C^* - r_P^* \leq \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$ 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:

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

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:

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

The solution is:

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

Utility will then be:

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

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 $r_C^* - r_P^* \leq 2\sqrt{\triangle}$

Recalling that breakup necessarily occurs whenever $r_C^* - r_P^* > \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}}$ (see above), we have that the cutoff for breakup, which we denote by $\widetilde{R_2}(E,E)$, is:

$$
\widetilde{R_2}(E,E) = \begin{cases} \sqrt{\frac{(1+\gamma)^3\triangle}{(1+\gamma-\gamma\lambda)(1+\gamma\lambda)^2+\gamma^3\lambda(1-\lambda)^2}} & if \quad \gamma^3\lambda^2(1-\lambda) \geq (1+\gamma)(1+\gamma^3\lambda-\gamma^2\lambda^2-\frac{1+2\gamma+\gamma^2}{4}) \\ & \quad and \quad \gamma^3\lambda^2(1-\lambda) \leq (1+\gamma)(1-\gamma\lambda) \\ & \quad and \quad 1+\gamma-2\gamma\lambda > 0 \\ 2\sqrt{\triangle} & if \quad \gamma^3\lambda^2(1-\lambda) < (1+\gamma)(1+\gamma^3\lambda-\gamma^2\lambda^2-\frac{1+2\gamma+\gamma^2}{4}) \\ & \quad and \quad (1+\gamma)^2 > 4\gamma\lambda(1+\gamma-\gamma\lambda) \\ & \quad and \quad 1+\gamma-2\gamma\lambda > 0 \\ \sqrt{\frac{1+\gamma}{\gamma\lambda}}\sqrt{\frac{(1+\gamma)\triangle}{1+\gamma-\gamma\lambda}} & if \quad Otherwise \end{cases}
$$

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 $r_C = r_C^*$, $r_C = r_P^*$. $\square$

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 more robust when the Core identifies with the nation than when it identifies with Europe: $\widetilde{R_2}(C, ID_P) \geq \widetilde{R_2}(E, ID_P)$ *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 2. *The union is most robust and least accommodating under the* (C, E) *profile.*

B.1.2 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.2.

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:

$$\widetilde{SG}_{(C,E)}(r_C^*-r_P^*) = \begin{cases} \sigma_C - \sigma_P + (r_C^* - r_P^*)^2 & if \quad r_C^* - r_P^* \leq \widetilde{R_1}(C,E) \\ \sigma_C - \sigma_P - \frac{1}{1+\gamma}(1+\gamma-2\gamma\lambda)(r_C^* - r_P^*)^2 + & if \quad \widetilde{R_1}(C,E) < r_C^* - r_P^* \leq \widetilde{R_2}(C,E) \\ \frac{1}{1+\gamma}2(r_C^* - r_P^*)\sqrt{(1+\gamma)^2\triangle - \gamma\lambda(1+\gamma-\gamma\lambda)(r_C^* - r_P^*)^2} & \\ \sigma_C - \sigma_P & if \quad r_C^* - r_P^* > \widetilde{R_2}(C,E) \end{cases} \tag{23}$$

$$\widetilde{SG}_{(E,E)}(r_C^*-r_P^*) = \begin{cases} \sigma_C - \sigma_P + \frac{1-\gamma+2\gamma\lambda}{1+\gamma}(r_C^* - r_P^*)^2 & if \quad r_C^* - r_P^* \leq \widetilde{R_1}(E,E) \\ \sigma_C - \sigma_P - \frac{1}{1+\gamma}(1+\gamma-2\gamma\lambda)(r_C^* - r_P^*)^2 + & if \quad \widetilde{R_1}(E,E) < r_C^* - r_P^* \leq \widetilde{R_2}(E,E) \\ \frac{1}{1+\gamma}2(r_C^* - r_P^*)\sqrt{(1+\gamma)^2\triangle - \gamma\lambda(1+\gamma-\gamma\lambda)(r_C^* - r_P^*)^2} & \\ \sigma_C - \sigma_P & if \quad r_C^* - r_P^* > \widetilde{R_2}(E,E) \end{cases} \tag{24}$$

B.2 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 5) 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 5, 6 and 7 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 higher status, and the Periphery has ex-ante lower 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

Table C.1: Economic Differences and Status: Europe 1999

	Fundamental Differences, 1999				Status 1999
	δ_y^i	δ_{BC}^i	δ_{Trade}^i	Economic Differences	
	(1)	(2)	(3)	(4)	(5)
Albania	3.44	1.06	0.98	8.49	-1.08
Austria	0.02	0.12	0.88	6.27	-0.12
Belarus	3.00	0.71	0.97	8.10	-0.97
Belgium	0.05	0.10	0.79	5.64	0.17
Bosnia	2.94	1.97 ***	0.95 ****	8.76	
Bulgaria	2.87	0.17	0.92	7.39	-0.72
Croatia	1.61	0.33 *	0.94 *	7.24	-0.86
Cyprus	0.57	0.51	0.97	7.31	-0.79
Czech Republic	1.45	1.83 ****	0.85 ***	7.53	-0.42
Denmark	0.22	0.24	0.93	6.76	-0.11
Estonia	1.91	1.36 **	0.94 *	7.98	-0.88
Finland	0.03	0.39	0.95	6.96	-0.43
France					-0.06
Germany					0.06
Greece	0.67	0.19	0.97	7.11	-0.51
Hungary	1.73	0.35	0.88	6.89	-0.60
Iceland	0.13	0.66	0.96	7.18	-0.79
Ireland	0.09	0.34	0.91	6.60	-0.49
Italy	0.19	0.10	0.95	6.76	-0.15
Latvia	2.21	0.18 *	0.94	7.35	-0.88
Lithuania	2.17	1.16 ****	0.92 ***	7.81	-0.86
Luxembourg	0.56	0.66	0.82	6.34	-0.62
Macedonia	2.62	0.20 *	0.94 *	7.43	
Malta	1.02	0.95	0.83	6.74	-0.93
Moldova	4.11	1.21	0.97	8.70	-1.23
Netherlands	0.03	0.29	0.87	6.32	0.04
Norway	0.30	0.89	0.95	7.35	-0.19
Poland	1.82	0.79	0.93	7.55	-0.55
Portugal	0.79	0.27	0.93	6.92	-0.47
Romania	2.75	1.16	0.95	8.14	-0.73
Russia	2.53	0.71	0.97	7.95	-0.56
Slovakia	1.88	1.54 **	0.89 *	7.73	-0.83
Slovenia	0.88	0.31 *	0.86 *	6.47	-0.73
Spain	0.55	0.13	0.94	6.87	-0.22
Sweden	0.13	0.13	0.95	6.79	0.10
Switzerland	0.43	0.32	0.91	6.69	0.05
Turkey	1.84	1.57	0.97	8.33	-0.87
Ukraine	3.43	0.68	0.98	8.24	-0.83
United Kingdom	0.03	0.64	0.96	7.16	0.10
Mean	1.38	0.65	0.92	7.29	-0.51
SD	1.21	0.52	0.05	0.73	0.39

Columns 1-4 show differences from Germany and France (as one combined economy). Suppressing superscripts, δ_y is the difference in log real GDP per capita in 1997-99. δ_{BC} is one minus the correlation in yearly GDP growth rate in 1992-1999. δ_{Trade} is one minus 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 the indicators in cols 1-3 divided by their standard deviation. Status (col 5) 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).